Abstract

In the first part ("Determination"), I consider different notions of determination, contrast and compare modal with non-modal accounts and then defend two a-modality theses concerning essence and supervenience. I argue, first, that essence is a a-modal notion, i.e. not usefully analysed in terms of metaphysical modality, and then, contra Kit Fine, that essential properties can be exemplified contingently. I argue, second, that supervenience is also an a-modal notion, and that it should be analysed in terms of constitution relations between properties. In the second part ("A Theory of Truthmaking"), I first review the literature on ontological commitment, and argue that the notion of truthmaking is better suited to play its explanatory rôle. I then argue that we should take truthmaker theory seriously, and that we should provide actual truthmakers for all truths there are. In the last chapter of this part, I review Armstrong's truthmaker theories and argue that they are unsatisfactory. I generalise my criticism to an argument against truthmaker necessitarianism, the view that truthmakers necessarily make true the truths [...]
Formal Concepts in a Material World
Truthmaking and Exemplification as Types of Determination

Philipp Keller
Département de Philosophie, Université de Genève
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Directeur de thèse: Kevin Mulligan
Président du jury: Pascal Engel
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Introduction

Determination, truth and being

“No philosopher understands his predecessors until he has re-thought their thought in his own contemporary terms...”
(Strawson 1959: 11)

Some things are determined by others. Maria’s smile could not be, it is said, the smile of anyone else, Sam could not be a son to other than his actual parents, his pain could not exist unexperienced, his poking his nose could not be the nose-poking of Maria, their kiss could not happen at any other time or place than when and where it actually did and the ship they built together could not consist of any other planks of wood than it actually does. Determination relations abound, and they are ill understood. It is the purpose of this thesis to shed some light on them.

This determination of a thing by another or by a property may be existential (if the thing could not exist without it), essential (if the thing would not otherwise be what it is) or just qualitative (if the thing would be different without it) — a variety of phenomena of which I hope to give a unified theory, focussing primarily on the middle case of essential determination. All qualitative determination, I will argue, is essential, and all essential determination is existential. Essential determination is a relation between universals and a special kind of entity, which I call “qua-objects”. Qua-objects, like President Bush, the Virgin Mary, Picasso-qua-painter, musical Coriscos and drunken Socrates not only provide solutions to a broad range of problems but they are also, I will argue, less ontologically problematic than they might seem at first sight. Qua-objects bring together the three main threads of this thesis — essence, exemplification and truthmaking: they differ from ordinary objects (their ‘bases’) in essence, provide truthmakers for all the truths and are ontologically kosher because of the partial-identity account I give of exemplification. They are the determiners of everything, and hence everything there is.

Determination is not the same thing as supervenience. Supervenience is a modal notion,1 corresponding roughly to lack of independent variation over modal space. Determination, however, is not: it is properly intermediate in strength between material and strict implication. What is determined by something depends on it for its existence, its essence or its nature. As determination is in many

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1 At least it is standardly defined as a modal notion. A class of properties $B$ (read “biology”) supervenes on a class of properties $A$ (“atomic physics”) locally (intra-worldly) iff it is not possible that two things differ in $B$- but not in $A$-properties; they supervene regionally (inter-worldly) iff necessarily, nothing differs from any possible thing just in its $B$-, but not in its $A$- properties; they supervene globally iff global distributions of $A$-properties necessitate particular distributions of $B$-properties — no two things can differ in $B$-properties without there being (possibly different) things differing in $A$-properties. (We will discuss these different notions of supervenience in much detail in ch. 3, pp. 45 et seq.) It is, of course, possible to dispute the adequacy of these definitions and to call “supervenience” the relation they are supposed (and fail) to capture. I make a different terminological choice and call “determination” the general phenomenon, “constraining” the special case where it grounds modal covariance (the explanandum of theories of supervenience) and reserve “supervenience” for the family of precisely defined technical explications of modal covariance.
cases contingent, what is determined is actual, but in many cases not necessary. Such determination is ubiquitous in philosophy – not only in metaphysics, but in areas as different as are the philosophies of language and mind and the philosophy of physics.

In the first part of this thesis, I will first (ch. 1) give a preliminary account of what I take determination to be (sct. 1.1), and then briefly review the sorry fate of modal analyses of (species of) determination (sct. 1.2), before sketching the amodal account I will give in much more detail in later chapters (sct. 1.3). The main bulk of the thesis consists in a series of detailed case studies of different kinds of determination. Only in the last part of this thesis will we return to determination itself, rather than its special cases.

We start, in ch. 2, with a review of the metaphysical rôle of the notion of essence (sct. 2.1) and a review of the critiques of attempts to account for it in modal terms (sct. 2.2). After arguing that essence is not a modal notion, I devote sct. 2.3 to an argument for the stronger claim that essential properties may be exemplified contingently. Such a non-modal notion of essence will give us a first example of a relation of essential determination, a workable notion of substance and some way of getting a grip on these primary bearers of qualities.

In ch. 3, an analogous case is made for the a-modality of the notion of supervenience. After a review of the large number of modal analyses that have been proposed (sct. 3.1), it is argued in sct. 3.2 that the contingency of many supervenience relations is not adequately accounted for by restricting our quantifiers to just a subset of the metaphysically possible worlds. An alternative account in terms of the constitution of properties is then proposed in sct. 3.3.

Essence and supervenience are just two of the most paradigmatic cases of determination. I will argue that determination is much more widespread in philosophy than one might think. Here is a list of kinds of determination that will be discussed in the rest of this thesis.

Truth supervenes on being – nothing actually true could be false without there being a difference in being. That truth is never brute but always grounded in and determined by reality is a very appealing idea. But what kind of determination is in play here? It is not local (intra-world), for some properties are extrinsic: things may differ with respect to them without there being a difference in their being. It is not inter-world supervenience either, for some properties are relational: they may vary among things in virtue of differences in different, and alien, things. It is not global supervenience, finally, because some truths are negative and quantified: they can vary across complete situations, that differ only in that one of them contains some extra stuff or more positive truths.

While it thus resists analysis in simple modal terms, truthmaking is still intimately connected with supervenience. Whenever some properties \( B \) supervene on other properties \( A \), what makes it true that something has a \( A \)-property \textit{ipso facto} makes that something have an \( B \)-property. There is just one truthmaking tie involved in both property attributions.\(^2\) Truthmaking, however, is not itself a modal notion. Truthmaking should rather be analysed as a species of determination: the truthmaker determines the truth of the truthbearer it makes true. Each and every red object determines (but does not necessitate) the truth of “There is a red object”, the totality of Theaetetus’ properties determines (but does not necessitate) the truth of “Theaetetus is not flying”, the totality of the world’s existents determines (but does not necessitate) the truth of “There are no unicorns”.

On the way to this conclusion, I start in ch. 4.1 with a critique of familiar attempts at capturing the dependency of truth on existence in terms of ontological commitment. I then turn, in sct. 4.2, to a review of our uses of “...is true”. I argue that truth is a formal concept, intimately connected

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\(^2\)Frank Jackson often frames supervenience in terms of one account of the world making true another account of the world; the physicalists’ commitment, in his view, is “to the physical nature of the world making true the psychological account of the world” (Jackson 1998: 68).
to predication, whose primary purpose is to single out a class of entities as truthbearers. It is not, however, brute and must be grounded in something different from itself (sect. 4.3). This relational nature of truth is not adequately captured by a mere supervenience thesis—a more intimate connection between truthmakers and truthbearers is required (sect. 4.3).

I embark upon this search in ch. 5, first by characterising the truthmaking relation itself as a formal ontological relation, different from the relation of logical consequence with which it is sometimes identified or to which it is assimilated—against these attempts, I argue in sect. 5.1, that truthmaking is a sui generis ontological relation. In sect. 5.2, I discuss the domain of its applicability, arguing for ‘Truthmaker Maximalism’, the view that every truth is made true by at least one thing. Less than universal truthmaking, I argue, commits us not just to two classes of truths, but to two kinds of truth and thereby to an implausible ambiguity thesis concerning “…is true”. I extend my maximalism to modal truths in sect. 5.3: merely possible truths also need actual truthmakers.

In ch. 6, I explain and defend the thesis that truthmaking is not necessitation, i.e. that necessitating the truth of a truthbearer is neither necessary nor sufficient for making it true. I first discuss some problems for Armstrong’s factualist (or ‘sofist’) version of necessitarianism (sect. 6.1) and then discuss his 2004 switch to a position I call “aspectivalism” (sect. 6.3). I argue that both positions are equally untenable and then sketch, in sect. 6.2, a non-necessitarian alternative.

The third part of the thesis is devoted to everything qualitative. Do two similar things have something in common? Property realists (as this word will here be used) believe so: resemblance, according to them, supervenes on or is determined by properties. But is it the (literal) sharing of properties that is in question here, or another, more fundamental relation between them (e.g. exact resemblance between tropes)? And is the determination always direct, or are some resemblances more fundamental than others?

In ch. 7, I will argue that universals are everything qualitative we need. I review Armstrong’s truthmaker argument for their existence and explain why I find it convincing. I thus argue, in sect. 7.1, that properties determine resemblance in virtue of exemplifying higher-order properties. Sometimes these higher-order properties identify them uniquely, as when two things have the same lowest determinate property. Usually, however, things resemble by having (different) properties of the same type, as when two things both have reddish, but still slightly different colours. These types are determined by the lowest determinate properties, though they are not always necessitated by them. The type red of their colour properties is a kind, and not itself qualitative: it encodes, but does not make for similarity. Types of properties are kinds, and not themselves qualitative: the only resemblance-making items in the world are universals, or so I will argue in sect. 7.2.

How do properties differ from universals? Ramsey (1925), and some following him, have called the very existence of a distinction into doubt—if it really supervenes, they ask, on prior grammatical distinctions, as e.g. the one between singular terms and predicates, then how do we explain the strong similarity between “Socrates is wise” and “Wisdom is a property exemplified by Socrates”? Using distinctions made in sect. 4.2.2, I propose an answer to this challenge of how to distinguish between particulars and universals. More generally, I try to show in sect. 7.2 that all other categories of ‘predicative entities’ (tropes, states of affairs and kinds) are determined by properties.

In sect. 7.3, finally, I return to the determination pattern among properties: I distinguish higher-order properties from determinables and argue that while the latter are universals, the former are not. Distinguishing thereby properties from their roles clears the way towards a better understanding of their qualitative nature and explains why they have their exemplifications essentially. Properties come in a close-knit pattern of mutual determination: determinables determine further determinables, without there being an a priori guarantee that this structure bottoms out in a level of lowest determinates.
Another, more familiar, relation of determination obtains between the intrinsic and extrinsic properties of things: how can two things differ extrinsically without there being any intrinsic difference (between their environments, at least)? If two things come to differ extrinsically, an intrinsic change happens to their sum. In the general case, the change is in a structural property of their whole – if I am in Geneva, my perfect twin in Berne and we change places, the only intrinsic change in our sum is of a structural kind: whereas the sum had one part in one place and another in another, it now has a different part in each of them. In ch. 8, I review the familiar difficulties of accounts of intrinsicality in terms of exemplification independence (sct. 8.1), argue that cannot explain the intrinsicality of what I call ‘parthood properties’, i.e. properties had in virtue of properties of one’s proper parts (sct. 8.2) and then sketch an alternative picture, which analyses the independence in question not in modal, but in essentialist terms (sct. 8.3). Such an essentialist and structural conception of intrinsic properties, I will argue, explains how they determine the whole qualitative nature of their bearers.

Ch. 9 addresses the question whether relations are reducible in the sense of supervening on monadic properties. Against Leibniz and the tradition, Russell famously argued that they are not. While I accept, in sct. 9.1, that the addition relational predicates properly increase the expressivity of any language that does not already contain them and that relational facts therefore are irreducible in one sense of this term, I shall argue in sct. 9.2 that this alone does not yet settle the ontological question: trivially, relations are reducible to relational properties. In sct. 9.3, I give a reductionist account of such relational properties, analysing them as structural properties of wholes. While this does not do away with relations altogether, it denies them metaphysical importance: it is structure, not relationality, that is an irreducible feature of the world.

Before embarking on this ambitious project, however, we have to take time for some methodological preliminaries: this is why I will first sketch my conception of metaphysics (cf. the next section) and of metaphysical explanation (in the third section of this introduction).

**Robust metaphysics**

“La pataphysique [...] est la science de ce qui se surajoute à la métaphysique, soit en elle-même, soit hors d'elle-même, s'étendant aussi loin au-delà de celle-ci que celle-ci au-delà de la physique.”

Alfred Jarry, *Gestes et opinions du docteur Faustroll, pataphysicien.*

This work is one of metaphysics, the science of the fundamental categorical structures of reality. It deals with its most fundamental trait, the relation of *exemplification*, which unites everything there is into that close-knit unitary whole which is the world. Exemplification cannot, and hence will not, here be treated in isolation. Precisely because it is so general and ubiquitous a relation, many different, albeit related, questions will have to be addressed.

Because it ties everything there is together, exemplification, if it carries any ontological weight, greatly increases the total amount of what there is – perhaps even beyond every bound. Its weight, if it has one, will be that of a formal concept (a family of concepts of which it is arguably the most general) – this is why this work will develop a theory of formal concepts in general.

Exemplification, in my understanding of the word, is the tie that binds a property to its bearer, a relation to its relata, that makes a feature or aspect a way some thing is or may be. Whether or not exemplification is itself a relation and whether or not properties exist in any robust sense of this term, exemplification, in my use of the word, is as real as the fact that some things are such-and-such. To say that an object *a* exemplifies the property being *F* is just a way of saying that *a* is *F*. 
Exemplification should not be confused with instantiation. Instantiation is a relation between kinds and the things they qualify between a certain specific shade of colour and kind red, for example, or between some marks on a paper and the English word "exemplification". If the latter types do not exist, then neither are they instantiated by shades of colour or word tokens.

Metaphysics, traditionally conceived, is the science of 'being qua being'. It studies the things there are not with respect to specific properties they may or may not exhibit, but with respect to what they are, the categories and kinds they fall into and the way they combine with properties or features into what some have called facts or states of affairs.

This Aristotelian conception sharply contrasts with a more recent, Kantian, one, according to which metaphysics is the study of the most fundamental features of the conceptual scheme we deploy in our understanding of the world. It is only with this conception of metaphysics as concerned with the "structure of our thought about the world" (as opposed to the world itself) that one faces the (in my view false) dilemma between its "revisionary" and "descriptive" version, the first aiming "to lay bare the most general feature of our conceptual structure" and to "describe the actual structure of our thought about the world", while the latter attempts to produce a better one (Strawson 1959: 9). The dichotomy is a false one because metaphysics is about the world, not about what we think about the world.

The 'being qua being' conception of metaphysics does not see it as a mere categorisation of an ontology, but as the general framework within which ontology is the theory of which entities are assumed to exist. Metaphysics, then, is a theory of the world or the universe, of everything there is, but it is not just about what there is, but also about its fundamental traits and interconnections.

If metaphysics, however, is concerned with the world and not just our thoughts about it (the latter being the business of epistemology), it is freed from the danger of either collapsing into rationalistic apriorism, claiming to uncover the 'true nature' of our concepts, or else being absorbed by descriptive

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\(^3\) Many authors, e.g. Armstrong and Lewis, use "instantiation" to speak of what I will call "exemplification" in the following.

\(^4\) The differences between exemplification and instantiation will be further elaborated in sect. 7.2.1 (cf. p. 153 in particular), as will the distinction between properties and kinds.

\(^5\) Cf. Aristotle, Metaphysics Γ 1 1003\(a\) 21, which reads "There is a discipline which studies that which is qua thing-that-is and those things that hold good of this in its own right", in Christopher Kirwan's translation, who has argued for an adversarial reading of the 'qua'-location: "Probably we should conclude that to say that metaphysics studies that which is qua thing-that-is is not to say anything about the nature of the things studied by metaphysics, but about the nature of the study" (Aristoteles 1993: 77). This is not the only account of metaphysics Aristotle gives in the treatise subsequently so-called. He also characterises first philosophy as the search for first causes (A I) and as the study of immaterial substance (E I 1026\(a\) 18-29).

\(^6\) It does not help to put another item on the same menu, as Goldman does with his notion of "prescriptive metaphysics", which "tell[s] us what ontological commitments we ought to adopt, given the best available science and philosophy" (Goldman 1992: 39). Prescriptive metaphysics is still a meta-theoretical enterprise, and indeed runs into circularity, if "the best available science and philosophy" is taken to include prescriptive metaphysics itself.

\(^7\) For Peter Simons, e.g., "la métaphysique d'un philosophe est la théorie de son ontologie, c'est-à-dire la théorie des caractéristiques les plus générales du monde" (Simons 2000b: 31).

\(^8\) This can again be understood in different ways. Nef (1998: 42-48) distinguishes four levels within a stratification of ontologies: there is the "ontologie naïve du monde sensible commun", the "ontologie catégorielle des langages abstraits", the "ontologie des sciences" and finally the "ontologie formelle proprement telle" which is "en céa analogue aux mathématiques, à un stade de développement ultérieur à l’histoire de l’histoire des Égyptiens, mais antérieur à l’axiomatisation euclidienne" (Nef 1998: 51). None of these uses fits mine: I use "ontology" to speak of that part of metaphysics which is concerned with questions involving existence, in particular the question what there is.

\(^9\) In this broad use, it roughly stands for the only part of philosophy other than ethics Australian realists are prepared to accept: "As I propose to use the word 'philosophy' it will stand primarily for an attempt to think clearly and comprehensively about: (a) the nature of the universe, and (b) the principles of conduct" (Smart 1963: 1-2); "Metaphysics, as I see it, is a search for the most plausible theory of the whole universe, as it is considered in the light of total science" (Smart 1984: 138). For my part, I would also allow for philosophy of language, mind, knowledge etc., even philosophy of religion, provided they stand on firm metaphysical bases.
psychology. The merits of metaphysical theories rather have to be judged, as all our other theories about the world, with respect to whether or not they are empirically adequate and achieve an acceptable trade-off between simplicity and explanatory power.

Even though metaphysics is concerned with the world, it does not collapse into the sciences. Its questions are more general, its concerns more purely about truth and its methods much less empirical. Metaphysics accompanies, completes and precedes the empirical sciences: it accompanies them in that it often asks related questions under a different angle, e.g. inquires about space and time not with respect to their modelling within mathematical physics but with respect to their (metaphysical) nature (to which, of course, physics is our most reliable guide). It completes the sciences in that it provides them with a general picture of the place of their specific subject matter within the categorical system of the world. It precedes them, finally, because empirical inquiry is guided and driven by general preconceptions of what we are looking for, preconceptions that are critically examined and further developed by metaphysics.10

If metaphysics is the science of the fundamental structure of the world, ontology is the science of what there is. It is the study of what categories of entities there are and how they are related to one another – though, according to one conception (Quine 1948), the how, as opposed to the what, does not concern ontology but something different, sometimes called “ideology”. This work concerns both ontology and ideology and tries to brings them closer together than is ordinarily done. The questions addressed in the following will be both ontological and conceptual, and often both at the same time. This feature, that it asks conceptual questions about ontology, is precisely what makes metaphysics the general science of the world. Conceptual questions, i.e. questions to the effect how some concept is properly analysed, what its defining features are and how it is related to other concepts, are not just questions about the way we think but often also about the (most general features of) the things we are thinking about with these concepts.

This is why many questions of the philosophies of logic and language will be addressed in this primarily metaphysical study. The importance of logic and language to metaphysics, in my view, is twofold: logical and grammatical structures provide us with models for metaphysical relations; and they serve to express them. In both these functions, logical and linguistic questions pertain not just to the concepts employed, but also to what is described with their help. The fundamental structure of reality, with which metaphysics is primarily concerned, is after all (here taken to be) a categorical one, and the categories in questions are of a logical, or more general of a formal kind.

Metaphysics, as I see it, is a science, albeit the most general and abstract one. Like any other science, metaphysics has a right to its own technical vocabulary, its own canon of argument forms and its own shared presuppositions. Unlike other sciences, however, it is answerable to justify – i.e. to justify metaphorically – its methodology. Metaphysical arguments may be better and worse, metaphysical claims rationally be held true or false – and which arguments are better than which others is just another metaphysical question.11

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10 Jackson (1998: 43–44) distinguishes ‘modest’ from ‘immodest’ conceptual analysis: Some exercise of conceptual analysis is ‘immodest’, if it is “given a major role in an argument concerning what the world is like”. It is modest, on the other hand, if it is (solely) used in determining what to say in less fundamental terms given an account of the world stated in more fundamental terms. The problem, however, is that we do not know what terms are fundamental, and it is part of the philosophical enterprise to settle that question, or at least to provide reasons to believe one way or another. Many of these reasons may be independent of the specifics of the fundamental nature of the world about which we may very well be mistaken. In such cases, modesty becomes a matter of tone; those wishing to be more circumspect may read blunt assertions like “There are (fundamentally) no tropes” conditionally, as “if what we think is fundamental really is so, then the right thing to say is …”.

11 As Lowe (2002: 4) points out, this feature of the science of metaphysics is perfectly compatible with its universality: “We are all metaphysicians whether we like it or not, and whether we know it or not. But this isn’t to say that anyone’s opinion on a question of metaphysics is just as good, or as bad, as anyone else’s.”
A good illustration of the scope and limits of philosophical analysis is afforded by Kripke’s famous ‘Humphrey’-objection to Ludovican modal realism: Whenever it is true of Humphrey, Lewis (1968: 28) says, that he might have won the election, there is some other entity, isolated from Humphrey in space and time, who did win the election. It is in virtue of standing in some relation, the counterpart relation, to this other entity, that this-worldly Humphrey may truly be said to possibly have won the election. This explanation, elegant and simple as it otherwise is, has met with an incredulous stare by many: how can it be possibly true, Kripke (1980: 45, n. 13) asks, that Humphrey, worrying about whether he (he himself) might or might not have won the election, worries about some other person, some entity which is appropriately similar to him, but with whom he never has and never could enter into any kind of causal contact?

“...if we say ‘Humphrey might have won the election (if only he had done such-and-such)’, we are not talking about something that might have happened to Humphrey, but to someone else, a “counterpart”. Probably, however, Humphrey could not care less whether someone else, no matter how much resembling him, would have been victorious in another possible world.” (Kripke 1980: 45, n. 13)

In defense of Lewis, Alan Hazen reminds Kripke that Lewis offered a translation of modal talk into counterpart theory:

“Kripke’s argument confuses sentences of the technical language of Lewis’s semantic theory, which are outside our natural language or at least constitute an extension of it, with sentences of our ordinary language, and so misapplies intuitive judgements about sentences of ordinary language to the technical ones.” (Hazen 1979: 321)

This reply, however, is not entirely satisfactory: while it is true that both “possible world” and “counterpart” are theoretical notions, counterpart theory is not intended to be just another modal logic; instead, as Lewis (1986d) makes very clear, both its central theoretical notions are intended to play a part in ontology. Hazen is right, however, that Lewis is not committed to endorse any possible way of phrasing his proposed analysis in ordinary language. In his first reply, Lewis stresses that he offers a theory about the truthmakers of ordinary modal propositions, and that there is no presumption that they have to be read off from surface grammar:

“I think intuition is well enough satisfied if we take “myself” [in Humphrey’s thinking ‘I myself might have won] to modify “might have won.” Humphrey thinks that he himself, and not someone else who resembles him, has the modal property expressed by “might have won.” And that is true on anybody’s theory. In counterpart theory, it is true because Humphrey himself, in virtue of his own qualitative character, is such as to have some winners for counterparts.” (Lewis 1983d: 42)

Even though Lewis would not put it that way, it is the emphasis on the truthmakers of the modal proposition that allows Lewis to say that Humphrey indeed worries about himself, namely about whether or not he is similar enough to someone who in fact won the election (in another possible world): his worry does not concern an obscure property as being such that one might have won., but the real, this-worldly properties that, if he had them, would make him the winner. Lewis later elaborated this defense, pointing out that the adequacy constraint is preservation of common sense, not complete conformity with it – alternative descriptions of the truthmakers do not have to be intuitively acceptable:
“I think counterpart theorists and ersatzers are in perfect agreement that there are other worlds (genuine or ersatz) according to which Humphrey – he himself! (stamp the foot, bang the table) – wins the election. […] Counterpart theory does say (and ersatzism does not) that someone else – the victorious counterpart – enters into the story of how it is that another world represents Humphrey as winning, and thereby enters into the story of how it is that Humphrey might have won. […] Thanks to the victorious counterpart, Humphrey himself has the requisite modal property: we can truly say that he might have won. There is no need to deny that the victorious counterpart also makes true a second statement describing the very same possibility: we can truly say that a Humphrey-like counterpart might have won. The two statements are not in competition. Therefore we need not suppress the second (say, by forbidding any mixture of ordinary modal language with talk of counterparts) in order to safeguard the first.” (Lewis 1986d: 196)

The ‘Humphrey objection’, I think, is a good example for what metaphysical theories consist in: though they have to ‘save the phenomena’ (allowing us to say what we think is the right and uncontroversial description of the situation), they are theoretical and hence have the right to their own technical vocabulary. They are concerned not with an elucidation of concepts, but with the provision of truthmakers; and truthmakers are not always what we think they are.

The ‘Humphrey objection’ is also important because it is a recurring form of argument: In the case of diachronic identity, the same objection has been brought up against the stage view defended by Ted Sider. When I say that Ted was a charming baby, according to stage theory, I am referring to some present, instantaneous thing, Ted, and saying of it/him that it/he has a past stage which is a charming baby. But why should Ted care about these past stages? Against this objection, Sider (2001a: 193–195) points out that he neither denies that “Ted was a charming baby” is strictly true, nor that “Ted” in this context refers to anything other than present, instantaneous Ted. It is just that Ted’s worries, if he has any, do not concern some obscure property such as having been a charming baby, but rather some real, present properties that make him the successor of some charming boy located in the past. The theoretical question about which different theories may legitimately disagree, is what makes true the uncontroversial description of the situation; or, alternatively, what the modal and temporal properties supervene on. Supervenience, however, is again best cashed out in terms of truthmaking (cf. ch. 3).

These examples show two things at least: first, that while the original questions were certainly ontological (can individuals be ‘present’ in more than one possible world? do temporal stages exist?), the methods brought to bear on them were purely conceptual. There is not only no suggestion that someone might find out, by purely empirical investigation, which of the two views is the right one; it is also not clear what direct metaphysical handle could be brought to bear to the question directly. And still in both cases differ the two views much more radically than just in how we should best speak about some matter of undisputed fact. The disagreement is ontological; two metaphysical views are at stake – not just an arbitrary or pragmatic choice between equally good translation schemes.

It may well be, secondly, that there is nothing in our concept of a person that definitely settles whom Ted and Humphrey are worrying about. Even if, as Parfit (1984) has argued, thought-experiments allow us to settle that we worry about whoever stands in some relation of psychological continuity to us, this would apply to the question at issue only at a relatively shallow level. In both our cases, the self-worry issue was clearly intended to be an illustration of a more general problem, applying not only to persons but to stones and organisations as well. The disagreement was about metaphysics, about whether counterpart theory adequately captures ordinary de re modal talk, not about personal identity. No amount of analysis of our concept of a person alone can settle it: the metaphysical theories in question have to be judged on their whole, with respect to the general picture they deliver of the world we live in.
The questions how to analyse true predications like “Humphrey cares about whether he might have won the election” and “Ted worries about whether he was a charming baby” are reducible neither to empirical questions of matter of fact nor to questions about how best to analyse a concept we happen to possess. They have, however, affinities to both: they concern the world in that they are questions about what things make true, our true modal and temporal predications; they concern some of our concepts – formal ones, like modality and tense – in that they are questions about how best to articulate and combine them into some coherent whole. This articulation characteristically take the form of (some type of) logical analysis – we are in a position similar to the ones of Russell when he proposed his theory of descriptions or Frege when he analysed atomic sentences as function/argument; we are trying to understand – understand philosophically and qua philosophers, of course – what we suppose there to be when we predicate modal or temporal properties.

The philosophical questions to be addressed in the following are neither clearly conceptual nor clearly ontological. They concern the trade-off between ontology and ideology, not one of these fields in isolation. This means that conceptual reasons might lead us to accept some entities in our ontology, and we will have to address the question what this means for the nature of the entities so introduced.

In a preliminary way, and to use a potentially misleading but perhaps helpful metaphor, we may call them “thin”. They are thin because of their nature, in virtue of belonging to (putatively) less than fundamental kinds, but they are thin also by way of how we come to acknowledge their existence in the first place, in virtue of their being introduced by what some would call metaphysical extravagance.

By saying that philosophical entities are comparatively ‘thin’ – to the degree that the question may sensibly be asked whether they have any ontological weight at all –, and by saying that philosophical concepts are comparatively ‘formal’ – so that they allow for different equally legitimate but non-equivalent construals –, I do not wish to commit myself to any form of Kantianism nor to the claim that there cannot be an established body of metaphysical results – claims the substantiation of which itself would constitute a quite remarkable metaphysical result. Neither do I want to question the possibility of attaining knowledge in metaphysics: the fact that metaphysical knowledge is difficult to achieve is not by itself a reason to doubt that there is any.12

Focussing on the formality of philosophers’ concepts may help us understand why many people think, with van Inwagen (2002: 9), “that there is no information and no established facts to be learned” in metaphysics. The perennial debate about the nature of truth may serve as an illustration. Competing theories of truth do differ in what they claim about the nature of truth (and even those who deny that truth has a nature are talking about something), even though every competent speaker knows that the concept of truth is governed by the following introduction rule:13

\[ a \text{ is } F. \]

or

\[ \text{The proposition that } a \text{ is } F \text{ is true.} \]

Does this mean that common sense acknowledges the existence of propositions as the referents of nominal clauses like “that a is F”? It all depends on what you mean by a “proposition”. If acknow-

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12 It has been taken to do so: “The fact that philosophers disagree in such a thoroughgoing way, disagreeing even after a lifetime’s difficult, painstaking and certainly intelligent reflection, can be explained plausibly only on the assumption that every one of them lacks knowledge, in the sphere of philosophy.” (Armstrong 1997: 9) Armstrong’s observation, if it has force at all, is not so much an argument that no one has knowledge, but rather that no one is right about the matter; it would rather motivate non-cognitivism about metaphysics, a position he most certainly would strongly disagree with. Instead of indicating some deficiency in our epistemic project of gaining knowledge in metaphysics, irreducible disagreements rather seem to indicate that there are no true justified metaphysical beliefs that fall short of knowledge: being able to give reasons for some true metaphysical belief just is what it takes to know it.

13 Saying that the introduction rule (i) “governs” the concept of truth is not to say that it may always non-contraditorily be applied, nor is it to say that (i) is anything more than truth-preserving. That it is nevertheless so governed is shown by the fact that the Liar paradox strikes us as a paradox. We will come back to these issues in ch. 4.2.
ledging their existence just means to accept (i), then propositions are acknowledged by common sense. If (i) is understood to introduce a new entity, an ordered pair or an abstract inhabitant of the third realm, however, common sense would wonder how something as innocuous as a’s being F can have such wide-ranging consequences. But in what sense can the existence of such entities be said to be a consequence of (i)? It is not as if “a is F”, or the fact that it is true, somehow bring eternal entities into existence. Whether truth has a nature, and whether, if it has a nature, it depends on the nature of propositions, and what it means to say that truth has a nature, and what it means to say that if it has any, then so have propositions, are questions we cannot easily get information about; they cannot be looked up in dictionaries or encyclopedias, and they cannot non-controversially be ‘deduced’ from (some account of) some concepts we all possess. That there are no established facts to be learned does not mean, however, that there is nothing to be learned. That the question whether truth has a nature is in need of further clarification does not mean that it is empty, nonsense, external or to be decided on purely ‘pragmatic’ grounds. It just means that good philosophy does not just consist in giving the right answers, but also in asking the right questions, i.e. in clarifying the rough questions we start with to a point where they admit of interesting competing answers.

Our example shows another crucial feature of metaphysics as it is conceived here: philosophical questions are inextricably tied to philosophical entities, in the sense that what entities you accept and what account you give of how they are or can be will determine and be determined by what answers you give to other, non-ontological questions. The formality of the questions is matched by the thinness of the entities that (help to) answer them. As we have seen, it takes but one simple predication to introduce both the concept of truth and the ontological kind of propositions. There are a lot of other, comparably trivial, introduction rules for highly questionable philosophical entities:

\begin{align*}
(2) & \quad a \text{ is } F. \\
& \quad \text{a falls under the concept of an } F.
\end{align*}

\begin{align*}
(3) & \quad a \text{ is } F. \\
& \quad \text{a is a member of the set of all } F.
\end{align*}

\begin{align*}
(4) & \quad a \text{ is } F. \\
& \quad \text{It is a fact that } a \text{ is } F.
\end{align*}

We have them not only for concepts, sets and facts, but also for universals, tropes and their types:

\begin{align*}
(5) & \quad a \text{ is } F. \\
& \quad \text{a participates in the universal } F\text{-ness.}
\end{align*}

\begin{align*}
(6) & \quad a \text{ is } F. \\
& \quad \text{A trope inheres in } a \text{ that instantiates the type } F\text{-NESS.}
\end{align*}

A lot of ontological work is done by a simple transformation. I do not here want to claim that such inferences are ungrounded or that only some of them are valid. I think that what underlies them is a real phenomenon, and indeed the one I want to investigate in this work. It is the exemplification relation which ties a bearer of properties to the properties it has.

\begin{align*}
(7) & \quad a \text{ is } F. \\
& \quad \text{a exemplifies being } F.
\end{align*}

The nominalisation being F is here taken to stand for a property,14 where “property” is intended to be

\footnote{We will later, in sct. 4.2.2, come back to the question whether such nominalisations are able to perform the function for which they were introduced.}
neutral with regard to the ontological status of the entities denoted by the nominalisation. Saying of an object that it exemplifies a property really is just saying that it is such-and-such—“exemplification” is just a term for the relation between the thing and its property (if the latter exists) or else a term for what explains that the thing is such and such. So (7) is intended to be as uncontroversial as possible. The specifically metaphysical and controversial claim is not that (7) is truth-preserving, but that an account of it in terms of truthmakers has to be given. Metaphysical concepts are defined by their rôles (exemplification, if it is a relation, is what solves the ‘problem of predication’ and grounds the so-called ‘unity of the proposition’) — it is with the claim that there is something that fulfills this rôle that we make a characteristically metaphysical claim.

Our quest, then, is for truthmakers and the main task of metaphysics is to provide truthmakers for our philosophical claims. In the next section, I will give another argument for this: only truthmakers can provide metaphysical explanations.

The nature of metaphysical explanation

“All things have a natural explanation. The moon is not a god, but a great rock, and the sun a hot rock.”

(Anaxagoras)

What follows will not be entirely free of technicalities. Although I sympathise with those who criticise contemporary metaphysics for its scholasticism and admire those metaphysicians who manage to keep things simple and their readers’ attention focussed on the fundamentals of the problem under discussion, I take simplicity to be just one desideratum among others that may at times be difficult to achieve and sometimes outweighed by other factors, first and foremost by explanatory power, but also by precision of expression and depth and precision of the understanding achieved. It is true that philosophy sacrifices common sense at its own peril, but it is also true that “it is the profession of philosophers to question platiitudes that others accept without thinking twice” (Lewis 1969: 1). This may lead to giving up the platitude. The right attitude, I think, is to follow the metaphysicians’ Hippocratic oath: to do no more harm to common sense than is absolutely necessary, but also no less than that it takes to preserve the survival of the organic whole.

The relationship between metaphysics and common sense is complicated: while metaphysics, being a specialists’ business, obviously has to go beyond what people ordinarily believe, the adequacy of the answers it gives to the basic metaphysical questions will be judged by the lights of common sense. Common sense serves both as an explanandum and as a regulative principle: one of the aims of metaphysics is to make sense of what we ordinarily believe, to systematise and structure it into a coherent whole. What we ordinarily believe, on the other hand, serves as a measure of the extravagance and hence the ‘price’ of our metaphysical positions: the further we move away from common sense, the harder we have to argue.

We will discuss whether or not some properties have a more robust ontological status than others in sect. 7.1.2.

It is not, of course, “wholly, uncontroversial. We will meet, and discuss, two main sources of opposition even to (7): the flat denial, by Ostrich nominalists, of any need to ontologically ground the ways things are (in sect. 7.1.1) and the more specific worry that (7) lands us in a vicious, Bradleyian, regress.

I reject, therefore, the distinction Seibt (2000) draws between ontology and metaphysics, where ontology is the search for truthmakers, but remains neutral as to their metaphysical nature.

In Lewis’ own case, it most famously did so in the case of modal realism. I do not think that inability to show that an apparent conflict of intuitions is merely apparent ipso facto constitutes a failure on the part of the philosopher, as Chisholm (1973: 580) would have it.
If we accept preservation of common sense as a constraint on our metaphysical theories, we have to identify those of our ordinary beliefs we want our metaphysics to confirm with. Doing so, we face a familiar problem: while there are some uncontroversial instances, no general characterisation is available. The difficulty is compounded by the fact that common sense also includes metaphysical views, many of which are grossly confounded. But we can, it seems, discover some clear differences between common-sensical common sense and metaphysics, and it might be hope that we can extrapolate on them:

All philosophers recognize the difference between the quite ordinary claim that one who asserts that there is a white piece of paper on a desk is mistaken since what he took to be paper is plastic or because what appeared to be white is actually pink and the quite extraordinary claim that such a person is mistaken because there are neither physical objects, nor colors, nor relations or because physical objects are not really colored. (Hochberg 1979: 327)

A first difference between those two kinds of reasons to deny that there is a white paper on the desk is that the second, if valid at all, apply much more generally than to the particular paper. It is not mere generality that characterises metaphysical truths, however (many ordinary claims, like e.g. that there are no unicorns, are also quite general); it is that they apply already relative to a very abstract and schematic description of the situation: if they are true, then not in virtue of the particularities of the situation, but just because of its most general characteristics (white being a colour, papers being physical objects etc.). It is this feature that is commonly held to bestow them with a particular modal force: because they do not apply in virtue of accidental features to the situation they correctly describe, they are held to be metaphysically necessary.

This notion of metaphysical necessity, as applied to philosophical claims, is a puzzling one. Kripke (1980), who introduced it into contemporary discussions, gives examples of metaphysical necessities that fall into three very different categories:

(i) Goldbach's conjecture is either necessarily true or necessarily false, because on the classical view of mathematics, “the results of arithmetical computations are necessary” (Kripke 1980: 36);

(ii) It is necessary that gold is an element because we would not say of a counterfactual situation in which some fools’ gold had many of its properties but is not an element, that it is a situation in which gold is not an element (Kripke 1980: 124). In the same way, this table could not have been made from a completely different block of wood (Kripke 1980: 113) and the Queen could not have been the daughter of Mr. and Mrs. Truman (Kripke 1980: 112).

(iii) Thirdly, we are invited to accept the following principle: “If a material object has its origin from a certain hunk of matter, it could not have had its origin in any other matter”, which “is perhaps susceptible of something like a proof, using the principle of the necessity of identity for particulars” (Kripke 1980: 114, n. 56).

In the “Addenda”, Kripke justifies the assimilation of type (ii) cases to type (i) cases:

All the cases of the necessary a posteriori advocated in the text have the special character attributed to mathematical statements: Philosophical analysis tells us that they cannot be contingently true, so any empirical knowledge of their truth is automatically empirical knowledge that they are necessary. (Kripke 1980: 159)

If we add to this that the necessity in type (ii) cases is “necessity in the highest degree” (Kripke 1980: 99) and “necessary truths in the strictest possible sense” (Kripke 1980: 125), then we get that the both mathematical statements and statements ascribing a particular composition, origin or constitutive
property to material objects could not have been false if in fact they are true. However, whether they are true at all, as Kripke makes very clear, is not up to the philosopher to determine: the philosophers’ modal pronouncement is conditional on a categoric truth they presuppose in their enquiry.19

(iii), if it is not just supposed to be a more compact way of making a number of type (ii) statements, is of an altogether different kind, however: nothing in what Kripke says suggests that its necessity is also of the “highest degree”. The ‘proof’ of the general principle he alludes to is a proof from purely philosophical assumptions, both about material objects and about the words we use to talk about them.20 These assumptions, however, are themselves modal, and it is from their necessity that the necessity of the argument’s conclusion is derived. While they receive some plausibility from an examination of type (ii) cases, they are neither entailed by them nor shown to be their only possible explanation.

It is with such principles that we face the question what modal force attaches to philosophical truths and talk of ‘metaphysical necessity’ is of little cash-value here. So we have to look further.

Another candidate is conceptual necessity: it is through conceptual analysis of (some of) the concepts involved in stating philosophical truths that we come to recognise them as correct. Conceptual necessity in this sense, attaching to truths in virtue of how they are known and established, looks very much like the old notion of necessity as independence of empirical vicissitudes that was chided by Kripke for being neither clearly epistemological nor clearly metaphysical. While conceptually necessary truths are not typically about concepts, they are said to be necessary because we get to know them by analysis of them.

But what are concepts? Some proponents of conceptual analysis take them to be words, or perhaps words-as-we-understand-them:

> Our subject is really the elucidation of the possible situations covered by the “words” we use to ask our questions concerning free action, knowledge, and the relation between the physical and the psychological, or whatever. I use the word ‘concept’ partly in deference to the traditional terminology which talks of conceptual analysis, and partly to emphasize that though our subject is the elucidations of the various situations covered by bits of language according to one or another language user, or by the folk in general, it is divorced from considerations local to any particular language. (Jackson 1998: 33)

Jackson takes the elucidations of the various possible situations (what he calls ‘cases’) to consist in

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19In my view, this already provides for an interesting epistemological asymmetry between type (i) an type (ii) cases. If we call ‘intuition’ whatever it is that justifies our belief in necessities of type (i) or (ii), we notice an important difference: In the first case, intuition may e.g. be conceived of as a source of knowledge about causally inaccessible entities, like numbers, sets, propositions and so on. It is invoked to explain the otherwise mysterious capacity of ours to epistemically access such entities and to establish their properties. The content of such intuitions is not, or at least not primarily, modal; modality comes in only at a later stage, in the qualification of the deliverances of our mathematical/logical faculty as categorical. These deliverances are truths which are necessary just because there is nothing in the actual world contingent properties of which could render them false. Modality thus applies to such truths “from the outside” as it were. With respect to these truths, Pust (2004: 74) is right that it makes no sense even to ask whether or not such ‘intuitions’ are reliable. But Pust is wrong to think that intuitions of necessary truths are confined to ‘necessary domains’ (Pust 2004: 75): the intuitions supposed to deliver knowledge of type (ii) are not. Truths like that water is necessarily H₂O and that Socrates is essentially human are truths about this-worldly objects, and they hold necessarily or essentially presumably because they are ‘deep’ truths of some kind about these objects. Here, modality is part of the content; if our knowledge of such truths is due to intuition, intuition is some way of gaining modal knowledge about this-worldly object, over and above the non-modal knowledge we gain about them by other means. This is why necessity-intuitions of this second kind are conditional; the appropriate form to express them is of the form “if water is H₂O, then it is necessary that water is H₂O”. The difference between the two is as great as the one between the rule of necessitation and “p → Up” in modal logic.

20One premise of the argument for the essentiality of origins is e.g. that it is not possible that an entity originates from two entirely distinct junk sets of originating matter (cf. Hawthorne & Gendler 2000: 287 for details). Another, linguistic, presupposition is that we have rigid designators for material objects. I will discuss essentiality of origins and constitution in sect. 2.1.
our implicit theories about kinds of things. If the consideration of possible scenario is a matter of “extracting a person's theory of what counts as a K from intuitions about how to describe possible cases, and taking it to reveal their concept of K’hood” (Jackson 1998: 32), then we may ask whose theory is taking center-stage. Jackson (1998: 32)'s refreshingly simple answer: his own. This raises a problem, however: even if consideration of possible cases reveals how we use words, it does not answer the more important question how they are correctly described. Jackson (1998: 35–36) tries to accommodate this by allowing some person's theory of K's to be discounted if he, for example, “backs off under questioning” or if it does not provide for an interesting and theoretically useful distinctions. This means, however, that to characterise the philosophers' business as conceptual analysis is not saying very much: if the method of possible cases is just “an exercise in hypothetico-deduction” (Jackson 1998: 36), then we can as well alternatively describe it as the construction of explanatory models or the search for hidden ambiguities.

In a revealing footnote, Jackson (1998: 38, fn. 12) expresses sympathy for the very deflationary stance of David Lewis (1994) to perhaps the most famous conceptual analysis of contemporary philosophy, i.e. the alleged discovery of Kripke (1980) that water is necessarily H₂O:

When we hear that XYZ off on Twin Earth fits many of the conditions in the cluster but not all, we are in a state of semantic indecision about whether it deserves the name “water”. When in a state of semantic indecision, we are often glad to go either way, and accommodate our own usage temporarily to the whims of our conversational partners. So if some philosopher, call him Schmutman, invites us to join him in saying that the water on Twin Earth differs in chemical composition from the water here, we will happily follow his lead. And if another philosopher, Putnam (op. cit), invites us to say that the stuff on Twin Earth is not water [...] we will just as happily follow his lead. We should have followed Putnam's lead only for the duration of that conversation, then lapsed back into our accommodating state of indecision. But, sad to say, we thought that instead of playing along with a whim, we were settling a question once and for all. And so we came away lastingly misled. (Lewis 1994: 313–314)

If conceptual analysis is just disambiguation, however, the competition between different analyses must be settled on other grounds. Where could they be found?

What ultimately decides the quality of metaphysical theories is metaphysics itself. Metaphysics, as I see it, is a science, albeit the most general and abstract one. Like any other science, metaphysics has a right to its own technical vocabulary, its own canon of argument forms and its own shared presuppositions. Unlike other sciences, however, it is answerable to justify – i.e. to justify metaphysically – its methodology. Metaphysical arguments may be better and worse, metaphysical claims rationally be held true or false – and which arguments are better than which others is just another metaphysical question. It is within metaphysics, therefore, that meta-metaphysical questions will find their answers.

But, still, we may have hoped for more. There is a persisting doubt about the viability of our metaphysical endeavors, which is not adequately addressed by just more metaphysics. I share this intuition, and one of my aims in this work is to reconcile two general tenets I find attractive: we (hopefully) have, on the one hand, a robust sense of reality; casting doubt on the existence of everything which is not an Aristotelian substance, not a middle-sized concrete dry object to be found to be bumped into in space and time. On the other hand, there are real explanatory demands in metaphysics, demands that seem to necessitate (the postulation of) entities of lesser kinds, such as possible worlds, instants, points, properties, tropes, states of affairs or even qua objects.

Such categorical differences as the one between particulars and properties, if they inform reality at all,
“mark the deepest of fissures” (MacBride 2002a): they describe structural traits of the world which could not be more fundamental. It is indeed hard to imagine what more fundamental questions there might be asked than whether all objects have the same dimensions, whether (our) space-time exhausts all of reality, whether everything is particular and whether the world is a world of things or of facts. At the same time, however, such questions come with an air of irreality and often meet with an incredulous stare on the part of even the staunchest robust metaphysicians. Perceptions of the status and importance of metaphysics differ widely among philosophers within and outside the field: many practitioners in other subdisciplines not unreasonably take it to be idle formalism-fiddling, poorly disguised first philosophy or scholasticist word-play.

While I wish to hold on to the reality and urgency of irreducibly metaphysical questions, I still think that such a reaction is sensible. Just (try to) imagine some possible state of our discipline in some distant future, when tropism and universalism are equally developed into two mutually incompatible but equally explanatorily adequate theories and when some almost universal reflective equilibrium has been attained that no decisive arguments on either side will ever be found – a situation in which the best philosophers could not think of any reason to prefer one theory over the other. The two theories, or world-views, would not just be ‘empirically equivalent’: they would score equal on any imaginable reasonable criteria of (philosophical) theory choice. In this situation, I venture, many would regard the question whether everything is particular as somewhat immaterial; the choice between universalism and tropism in philosophical theory-building would become an arbitrary one. And still there could not be a deeper incompatibility than the one between the two options.

An often advocated and even more often implicitly presupposed meta-philosophical position would deny that such a situation is possible, the idea being that philosophical theories accommodate intuitions in the same way than empirical theories accommodate empirical data. Such intuitions are often taken to be uncoverable by thought-experiments or else are said to derive from (sophisticated) common-sense. Other philosophers disagree: they question the methodology of thought experimentation or adopt a wholeheartedly eliminativist attitude towards misled common-sense. A theory of formal concepts and philosophical categories should accommodate such moves and explain which ones of them are permissible.

Consider a related phenomenon in mathematics: Benacerraf (1965) famously asked what would help us deciding between a von Neumann or a Zermelo account of the natural numbers. This is a problem that arises within one unifying framework, namely set theory: we are asked with which one of two sets we would like to identify the number 1. Imagine, however, that it is possible to reconstruct the whole of mathematics (or at least its indisputable parts) within category theory: what could then, in principle, decide the question whether numbers are a kind of set or some special category? Even the very question does not seem to make much sense. I think that our situation in philosophy is similar – and for the same reason: because ontological categories, much like the categories of mathematics, are carved out by formal concepts. They give structure and form not just to our conceptual scheme, but also to the world at which our concepts aim. Their being formal, however, means that looking for a difference between the world ‘as it is given to the universalist’ and the world ‘as it is given to the tropist’ (or, for that matter, the natural numbers of the set theorist or the category theorist) is asking the wrong question: it’s looking for a material fissure where only a formal difference is to be found.

Many have drawn quite different conclusions from the same phenomenon (considering it, perhaps prematurely, to be the actual state of our discipline). Hilary Putnam, in a series of influential publications, has used it prominently in his arguments for conceptual relativity. Putnam (1987b) invites us

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21As we have seen, this stance is taken by Lewis (1994).
22An instructive example of this latter position is given by the Churchlands (cf. e.g. Churchland 1981).
to imagine a world with three individuals, a, b and c and the dispute between an imaginary Carnap, holding that there are exactly three individuals in that world, and some Polish logician, maintaining there are seven (a, b, c, a + b, a + c, b + c, a + b + c). We are then encouraged to conclude that the dispute is genuine and unresolvable:

How we go about answer the question, ‘How many objects are there?’ – the method of ‘counting’, or the notion of what constitutes an ‘object’ – depends on our choice (call this a ‘convention’); but the answer does not thereby become a matter of convention. If I choose Carnap’s language, I must say there are three objects because that is how many there are. If I choose the Polish logician’s language [...] I must say there are seven objects, because that is how many objects (in the Polish logician’s sense of ‘object’) there are. There are ‘external facts’, and we can say what they are. What we cannot say – because it makes no sense – is what the facts are independent of all conceptual choices. (Putnam 1987a: 33)

The question “Do mereological sums really exist?”, according to Putnam, is meaningless because the described situation “does not force us to talk one way or to talk the other way” (Putnam 1994: 245) – “the question is one of a choice of language” (Putnam 1987b: 76). But is it really a choice of language? Carnap and the Polish logician differ in that the latter does, and Carnap does not, accept unrestricted composition for their use of the colloquial expression “is a part of”. Whether or not we think of the axioms of standard mereology as implicitly defining (some precisification of) this expression, however, it is certainly not just a linguistic matter whether or not arbitrary collections of objects have a sum, in the same way that it is not a linguistic matter whether or not there is an infinite set. This is the point made by Raatikainen (2001: Mereological nihilists can very well use the language of mereology; indeed, they have to do so if they are to deny its ontological postulates.

Even if Putnam’s identification of ‘conceptual schemes’ with languages (Putnam 1987a: 32, 36) is mistaken, however, his basic point stands. It is not that there does not seem a straightforward way available to Carnap and the Polish logician to settle their dispute – this is surprising only as long as we are in the grip of a superstitious belief that we are somehow a priori reassured that philosophical questions are, or should be, easily resolvable. The difficulty is rather that the ontological dispute about the existence of sums is quickly turned into a dispute about the interpretation of our first-order quantifiers. Suppose we take Carnap and the Polish logician to disagree about:

\[(\text{UC}) \exists x, y \exists z (\forall w ((w \text{ overlaps } x \vee w \text{ overlaps } y) \rightarrow w \text{ overlaps } z) \wedge \forall w (w \text{ overlaps } z \rightarrow (w \text{ overlaps } x \vee w \text{ overlaps } y)))\]

The problem is that Carnap may reject this characterisation as tendentious. If his denial of the Polish logician’s assertion that there is a sum of a and b is understood as using the concepts in (UC), then the Polish logician may portray him as simply restricting his quantifiers: he may understand Carnap’s assertion

\[(\text{UC}_c) \exists x, y \neg \exists z (\forall w ((w \text{ overlaps } x \vee w \text{ overlaps } y) \rightarrow w \text{ overlaps } z) \wedge \forall w (w \text{ overlaps } z \rightarrow (w \text{ overlaps } x \vee w \text{ overlaps } y)))\]

as the restricted claim

\[(\text{UC}’_c) \exists x, y \neg \exists z (z \text{ is mereologically complex} \wedge \forall w ((w \text{ overlaps } x \vee w \text{ overlaps } y) \rightarrow w \text{ overlaps } z) \wedge \forall w (w \text{ overlaps } z \rightarrow (w \text{ overlaps } x \vee w \text{ overlaps } y)))\]

23It is not that we may deny with Quine (1953a) that there is a clear-cut distinction between theories and languages, and may use “conceptual scheme” as a blanket term for the unfactorisable amalgate of both (Davidson 1974), for, as Raatikainen (2001: 174) notes, Quine (1968b: 28) himself grants that the distinction is viable if “we work within preassigned logical framework”.
and agree with him.) This agreement, however, is too cheap: once “mereological complex” is spelt out, \((UC_\land \land \lor)\) is a logical truth. We seemed to arrive at a stalemate—bad news, if the ‘metaphysical realist’ is committed to the intelligibility of this dispute (Putnam 1987a: 35).

Defeatism is premature, however. The most plausible response to Putnam’s closely related so-called ‘model-theoretic argument’ (cf. p. 69) is to maintain that there are natural joints in nature: it is the world that makes “green” and “blue” better predicates than “grue”. In the same way, and for the same reasons, Carnap and the Polish logician should agree that there are ‘logical joints’ in nature, that “\(\exists x\)” in their mouth is supposed to pick out some privileged domain of all and only the existents. It is about this natural and objective feature of the world that they disagree.

Logical or ontological joints in nature can also be independently motivated. Whatever conceptual analysis is, it seems to be symmetric—this I take to be one lesson learned from the famous ‘paradox of analysis’. If we think of conceptual analysis, however, as the analysis of a concept into its components, and accept a broadly mereological notion of these ‘components’ (accepting, at least, that nothing can have itself and something else as components), then we face an immediate problem, for “the view that there is nothing pathological about the idea of choosing either to analyse one concept in terms of another, or to analyse the second in terms of the first, is almost universally accepted among those who have thought about such matters” (Humberstone 1996: 223).

If this is right, then it seems that the relation of conceptual priority uncovered by conceptual analysis—perhaps defined as: “...concept \(A\) is definitionally prior to concept \(B\) iff \(B\) can be defined illuminatingly in a certain respect in terms of \(A\)” (Peacocke 1983: 30)—must be supplemented by an ontological relation that provides the desired asymmetry. The “consists in” of analysis must be supplemented by an ontological “is nothing but”.

This is the third lesson we may learn from the (history of the) ‘Humphrey-objection’: more often than not, everything turns on the strength of a biconditional given as a philosophical analysis. It is not entirely wrong, though clearly uncharitable, to interpret Kripke as taking the biconditional of philosophical analysis to licence substitution in attitudinal contexts like “Intuitively...”: this is a demand that may legitimately be refused. In a philosophical analysis, the analysans typically contains something ‘more’ than is contained in the analysandum:

...when we say that the proposition that the rose is red is true, or that the set whose sole member is the rose has a member that is red, we say more than what is required for the rose to be red. [...] The foregoing shows that in a certain sense more is required to endorse what comes before the ‘because’ in either of the schemas [“\(p\) is true because \(p\)”] and [“The set whose sole member is \(a\) has a member that is \(F\) because \(a\) is \(F\)’] than to endorse what comes after the ‘because’. (Hornsby 2005: 44)

The crucial question (which Hornsby leaves open) is whether the “more” should be read as “more in terms of concepts” or “more in terms of what is required for truth”. I think that only the latter may account for the required asymmetry. Only metaphysics itself can teach us what the right answer to

\[\begin{align*}
(8) & \quad x \text{ is a sibling of } y :\iff x \text{ has the same parents as } y \\
(9) & \quad x \text{ is a sister of } y :\iff x \text{ is a sibling of } y \land x \text{ is female} \\
(10) & \quad x \text{ is a brother of } y :\iff x \text{ is a sibling of } y \land x \text{ is male} \\
(11) & \quad x \text{ is a sibling of } y :\iff x \text{ is a sister of } y \lor x \text{ is a brother of } y
\end{align*}\]

According to the view in question, “sibling\(_1\)” and “sibling\(_2\)” would be different concepts, consisting in different things, even though their coextensiveness is not only necessary but known a priori to be so.

\footnote{Humberstone (1996: 224–225) gives the following example:}
the Euthypro question is.\(^{25}\)

\(^{25}\)This is even true of Euthyphro’s actual question itself: the Thomistic answer distinguishes two different senses of “because” — “the pious action is pious because the Gods love it” specifies the *ratio essendi*, while “the Gods love the pious action because it is pious” talks to the *ratio agendi* — and so just supplants one incompatibility with another: “But a motivational ‘because’ running in one direction is incompatible with a constitutional ‘because’ running in the other direction, so Plato is right to see the alternatives as competing.” (van Cleve 1994: §81, fn. 9)
Part I

Determination
Chapter 1

Varieties of determination

In this first chapter, I give a preliminary sketch of what I call “determination”, the relation grounding true assertions of ontological priority. I argue in the first section (1.1) that the determination relation is at the heart of many metaphysical and ontological puzzles and that it comes in at least three varieties: as the determination of the qualitative character of something (what I call “qualitative determination”), the determination of the essence or nature (“essential determination”) and, finally, the determination of some thing's existence (“existential determination”).

The bulk of my argument concerns two weaker assertions:

(i) that the “in virtue of” of metaphysics is not usefully analysed in terms of necessity; that determination is not necessitation;
(ii) that metaphysical “in virtue of” relations may hold contingently.

Of these two, (i) is the weaker thesis. I will argue for it in a piecemeal fashion:

• in sct. 2.2, I review arguments by Fine and others that “it is true in virtue of the nature of ... that ...” does not follow from “the existence or identity of ... necessitates ...”;  
• in sct. 3.1, I argue that there may be supervenience and determination without necessitation; 
• in sct. 4.1, I argue that the existence of some thing being necessitated by the truth of a theory we accept does not engender an ontological commitment to it;  
• in sct. 6.2.1, I review familiar arguments that necessitation is not sufficient for truthmaking; 
• in sct. 7.1, I argue that universals ground resemblances without necessitating them;  
• in sct. 7.3.1, I argue that determinates do not necessitate their determinables; 
• in sct. 9.1.1, I review familiar arguments that relations are not necessitated by relational properties;

In most of these cases, the a-modality argument is followed by a defense of the contingency thesis (ii):

• in sct. 2.3, I argue against Fine that essential properties may be exemplified contingently;  
• in sct. 3.2, I argue against Jackson and Lewis that contingent supervenience theses are not adequately captured by restricting the quantification over metaphysically possible worlds;  
• in sct. 4.1.3, I argue against Quine that we are ontologically committed to entities the existence of which is not necessitated by our beliefs about it;  
• in sct. 6.2.2, I argue against Armstrong that truthmaking is a contingent relation;  
• in sct. 7.2.1, I argue against almost everyone that while universals have their exemplifications contingently, they have them as a matter of their essence;  
• in sct. 7.3.2, I argue against almost everyone that determinables determine their determinates
contingently;

• in sct. 9.3, I argue against Russell that relations are contingently determined by their relational properties;

In the second (1.2) and third sections (1.3) of this first chapter, I would like discuss some more general features of the arguments for (i) and for (ii) respectively. But first we need a better grip on our central explanandum.

1.1 What determination is

We know we are in the realm of murky metaphysics by the presence of the weasel words "in virtue of". (Oliver 1996: 48)

We all think, I hope, that our lives might have been different. Presumably, some of us even believe that they might have had lived the life of another person, living or dead. While of great moral and social importance, it seems difficult to make philosophical sense of such pre-theoretical opinions. They revolve around the notion of "determination" – a crucial, but often neglected concept of metaphysics: I determine how my life is, and my life determines who I am, and nevertheless we enjoy a certain degree of independence from each other. To make these two claims compatible is part of the philosophical puzzle of determination.

A relation close and in many ways analogous to the one between me and my life is the one between me and my body. My body will be burnt or buried after my death – not me, I hope. I may wish to have another body and body switch seems a coherent and fascinating metaphysical speculation. Some rational people believe in resurrection and some actors have body doubles. We have, again, an intimate dependency, constitution without identity – another case of mutual determination I would say.

There is an important pattern here, which allows for generalisation. We have, first, the case of a substance and the process traced by it in space and time, or alternatively, the process and the substance undergoing it. Second, we have the case of the statue and the lump of matter constituting it, differing in their modal and temporal persistence conditions. We have, third, ordinary wholes composed of ordinary parts according to the laws of classical extensional mereology. Fourth, we have species or kinds and the groups of individuals which share their essential properties. Fifth, there are types and tokens instantiating them. Sixth, there are universals, e.g. the colour red, and their particular instances. Seventh, we have abstracta and the concreta, or relative concreta of which they are abstracted.

The formal similarities between our seven variants of constituency in the broadest sense and our taste for desert landscapes strongly suggest some sort of reductive project. In this thesis, I will try to gather them under some substantive notion of abstraction which has the following characteristics:

ontological priority : processes, matter, parts, exemplars, tokens, instances and concreta are ontologically more basic than substances, forms, species, types, properties and abstracta.

dependency relations : substances, forms, wholes, species, types, properties and abstracta depend on their processes, matter, parts, exemplars, tokens, instances and concreta.

essential determination : properties, abstracta, types, species, wholes, forms and substances could not be what they are and have different, instances, concreta, tokens, exemplars, parts, matter and processes.
**individuation**: processes, matter, parts, exemplars, tokens, instances and concreta are individuated by and identified with recourse to their substances, forms, wholes, species, types, abstracta and properties.

According to a standard view of mutual determination, substances, forms, wholes, species, types, properties and abstracta are, or may be represented by, equivalence classes of their processes, matter, parts, exemplars, tokens, instances and concreta. The basic problem with all these thesis is that the relation defining the equivalence classes is not transitive; hence you can construct Sorites cases:

1. substance/process: coming to exist and ceasing to be are often fading in and withering out (ontological vagueness).
2. form/matter: forms can gradually change their matter (Theseus' ship).
3. whole/parts: wholes change their parts (Tibbles shedding its hairs).
4. species/exemplars: species evolve and new species come into being (Darwinian evolution vs. Aristotelian species-essentialism).
5. types/tokens: typehood depends on extrinsic and contingent, often intentional, features (another person with a very different voice repeating what I say).
6. abstracta/concreta: many abstracta change (the UN, the average Englishman, the ideal of a just society).
7. universals/instances: partial resemblance is not transitive (Goodman's problems for resemblance nominalism).

In all these cases, it is possible to remedy the situation by choosing as the equivalence relation one that itself makes essential reference to the type, thereby making the account (not necessarily viciously) circular. This strategy has important drawbacks, however: not only do we forsake any hope to account for the one-sided relation of ontological priority, but we also fail to explain the ontological dependency ties. Neither do we account for the following fact:

**property transferal**: processes, matter, parts, exemplars, tokens, concreta and instances *inherit* some of their properties from their substances, forms, wholes, species, types, abstracta and properties.

I take this last feature to be the most important of the mentioned cases of mutual determination: processes have (e.g.) their spatio-temporal properties *in virtue of* being traced out by substances, the lump of bronze its shape *in virtue of* constituting a certain statue, my arm is alive *in virtue of* constituting a certain statue, my arm is alive *in virtue of* being a part of me, the species Dodo became extinct around 1681 *in virtue of* its last exemplar being killed, the word type "man" means what it does *in virtue of* its tokens being used in certain ways, the average Swiss becomes richer *in virtue of* concrete people making real money and the property being red resembles being orange *more than* it does being blue *in virtue of* red things being more similar to orange things than they are to blue things.

The importance of the "in virtue of" locution to metaphysics becomes even more apparent once we leave the realm of the rather special case of mutual determination. Most, and most important cases of determination are essentially one-sided. Maria's smile, for example, can not only be nothing else than a smile (a type-token determination relation), but it cannot be anyone other's smile. It is determined by Maria, but Maria is not determined by her smile. It is Maria who makes her smile, and makes her smile the smile it is. Many other making-relations play important rôles in metaphysics:

- *a* makes it true / necessary that *p*
- *a* makes it clear / evident / certain that *p*
- *a* makes it probable that *p* ("probabilize")
“Making”-locutions exhibit a great deal of flexibility: not only do we find “a makes it F that p”, but also the singular “a makes b F”:

- a makes b exist
- a makes b beautiful / courageous / dainty (“valify”) 
- a makes b clear / evident / certain
- a makes b good / obligatory /
- a makes b valuable / admirable / regrettable

There are such examples of non-causal but objectual making closer to home: The flower in her hair, for example, makes Maria’s smile more charming than it otherwise would be, and the presence of Roberto makes Maria’s smile to Sam rather inappropriate.

Both “Fa in virtue of b” and “b makes a F” are closely connected to one species of “Fa because ofGb”. In cases of property transferal, some sentence of the form “Fa because q” is true, where q ascribes an essential property to a or mentions the essence of F. Mulligan (2006a: 38) calls this the ““because” of essence”, which he claims is required by the essential “because”. The latter, I would say, is nothing other than essential determination:

1. my life has the spatio-temporal properties it has because it is traced out by me;
2. the lump of bronze has the shape it has because it constitutes a certain statue;
3. my arm is alive because it is a part of me;
4. the Dodo became extinct because its last exemplar died;
5. the type “man” is true of men because its tokens are used a certain way;
6. the average Swiss becomes richer because the Swiss are making more money;
7. being red resembles being orange more than it does being blue because red things being more similar to orange things than they are to blue things.

But even the essential “because” has a confusing variety of uses. We have to distinguish, both with respect to the explanans and to the explanandum, cases where what is explained / what explains is a fact, a property or a particular. This gives us nine cases to consider (the explananda arranged horizontally, the explanantia arranged vertically):

<table>
<thead>
<tr>
<th>fact</th>
<th>property</th>
<th>particular</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expl(q,p)</td>
<td>G (is what it is) because q</td>
<td>a (exists) because q</td>
</tr>
<tr>
<td>⊤ F p</td>
<td>F ⇒ G</td>
<td>a (exists) because of F</td>
</tr>
<tr>
<td>⊥ b p</td>
<td>G (is what it is) because of b</td>
<td>b ⇒ a</td>
</tr>
</tbody>
</table>

Not for all of these relation types exist expressions in English for determination relations. For the left column, we have “p because q”, “it is true in virtue of what it is to be an F that p” and “it is true in virtue of the essence of a that p”, while for those in the middle and the right columns we have to find some more cumbersome locution. Two relation types stand out, however: the constitution of a property by another (“F ⇒ G”), to which we will come back in sct. 7.3, and the relation of ontological dependence (“b ⇒ a”), on which more below. Let us focus for the moment on determination relations explaining a fact, in particular those expressed by a sentential operator.

As with “because”, we can – and hence should – distinguish different types of determination. This is the aim of the first subsection.

1I do not wish to commit myself to the further claim that if a sentence “Fa because q” with an essential “because” is true, then “q” is more ontologically fundamental than “Fa” and that a is not ontologically basic (Mulligan 2006b 2007).
1.1 What determination is

1.1.1 Determiners, constraints and dependees

The determination of a thing \( a \) by another or a property may be existential (if \( a \) could not exist without it), essential (if \( a \) would not otherwise be what it is) or just qualitative (if \( a \) were different in its absence). All qualitative determination, I will argue, is essential, and all essential determination is existential. Essential determination is a relation between universals and a special kind of entity, which I call a "qua-object". Qua-objects, I will try to show, not only answer a broad range of questions, but also are less ontologically problematic than they might seem at first sight.

Of our three types of determination, qualitative determination is the most widely acknowledged: both realists about universals and friends of tropes, but also resemblance nominalists such as Rodríguez-Pereyra (2002) share the view that some thing \( a \)'s being such-and-such is not a basic fact, but determined by something else. Absent such a determination, \( a \) would not be such-and-such. Qualitative determination is customarily characterised in terms of truthmaking: \(^2\) \( a \)'s being \( F \), it is said, must be made true by something.

What is essential determination? What does it mean to say that \( a \) would not be what it is if "\( q \)" were false, if it were not for "\( q \)" being true? We predicate essential properties when we say that it is true that \( q \) because of or in virtue of \( a \)'s essence, nature or because \( a \) is what it is. These properties are most often, but not always, properties of \( a \). Socrates is a man in virtue of his essence, we may say; but we may equally say that Socrates is rational in virtue of the essence of \( \text{MAN} \): it is because of the essence of the kind (i.e. that it is true in virtue of the essence of \( \text{MAN} \) that all men are rational) that Socrates is rational (cf. Charles 2000: 18).

Existential determination is ontological dependence, an itself quite mysterious notion. Ties of ontological dependence hold between what is ontologically basic and that which still exists but does not exist in a fundamental way. Events are said to depend for their existence upon their participants, wholes upon their parts, sets upon their members, boundaries upon the things they bound and holes upon their hosts. Several candidate analyses have been proposed:

1. \( a \) is ontologically dependent upon \( b \) iff it is not possible that \( a \) exists but \( b \) does not.
2. \( a \) is ontologically dependent upon \( b \) iff there is a relation between \( a \) and \( b \) which is essential to \( a \).
3. \( a \) is ontologically dependent upon \( b \) iff it is essential to \( a \) that it exists only if \( b \) exists.
4. \( a \) is ontologically dependent upon \( b \) iff \( b \) is involved in the existence or identity conditions of \( a \).
5. \( a \) is ontologically dependent upon \( b \) iff \( b \) is involved in every acceptable real definition of \( a \).
6. \( a \) is ontologically dependent upon \( b \) iff \( a \) exists because \( b \) exists.
7. \( a \) is ontologically dependent upon \( b \) iff \( a \) exists in virtue of the fact that \( b \) exists.

We will review on p. the criticism Correia (2002) has made of the first three approaches, which he dubs "modal-existingalist", "purely essentialist" and "essentialist-existingalist" respectively.

I do not think that the three kinds of determination – qualitative, essential and existential – are unconnected. Instead, I will argue for a two-step reduction and argue that

1. every qualitative determination is essential; and that
2. every essential determination is existential.

This, I think, will give us a plausible account of the cases of mutual determination discussed above:

1. Properties are parts of (the sum of) their instances and convey to them some of their properties (higher-order properties, adverbials). Instances have a qualitative profile and are located with respect to it.

\(^2\)We will devote the whole of part II of the present thesis to problems of truthmaking.
2. Abstracta are parts of (the sum of) their concreta and convey to them some of their properties (numerosity). Concreta have a formal profile.
3. Types are parts of (the sum of) their tokens and convey to them some of their properties (super-types). Tokens have a typehood-profile.
4. Species are parts of (the sum of) their exemplars and convey to them some of their properties (essential determinations). Exemplars have a biological profile.
5. Wholes are parts of (the sum of) their parts and convey to them some of their properties (parthood properties). Parts have a mereological profile.
6. Forms are parts of (the sum of) their matter and convey to them some of their properties (persistence conditions).
7. Substances are parts of (the sum of) their process and convey to them some of their properties (identity conditions).

Determination is not a modal notion: it is properly intermediate in strength between material and strict implication. It is stronger than mere truth and weaker than necessity because it is truth grounded in essences of contingently existing things. It is not conditional necessity neither, at least if this is taken to be a species of necessity, because no suitable antecedent for the modalised clause can be found. In my view, it is determination, not modality, that is the philosophers’ guide to what is real and what is fundamental.

1.2 The modal account of determination

...if dependence is not necessitation, what is it?
(Armstrong 2006d: 245)

A central claim of this thesis is that determination is not necessitation and, more generally, not to be analysed in modal terms. It is a sui generis relation that grounds modal dependency ties, but cannot be reduced to them. This is perhaps best illustrated with the least problematic of our three kinds of determination, existential dependence.


1. \( a \text{ m-dependent upon } b \text{ iff } \neg \Diamond (a \text{ exists } \land \neg (b \text{ exists })) \)
2. \( a \text{ i-dependent upon } b \text{ iff } \exists R \square_a Rab \)
3. \( a \text{ e-dependent upon } b \text{ iff } \square_a (a \text{ exists } \rightarrow b \text{ exists }) \)

As Correia (2002: 41–52) points out in great detail, all three accounts face problems:

1. The modal-existential account makes everything depend upon every necessary existent; and it makes Socrates depend upon its every set of which he is a member (cf. p. 2.2.1).
2. The purely essentialist approach entails that everything the essence of which ‘involves’ some thing \( a \) depends upon \( a \); the property of being identical to Socrates, any mereological sum including him and my present thought about him will depend upon Socrates.

\(^{3}\text{Correia (2002: 47) frames this criticism a bit differently: according to him, the problem with } i \text{-dependence is that it does not imply } m \text{-dependence. I have to rephrase the worry because I do not agree with Correia and Fine that } m \text{-dependence is necessary for existential dependence (cf. sect. 2.3).}\)
3. The essentialist-existential approach makes every cause depend on any effect it essentially produces: if God cannot but create, then He'll depend for His existence on His creation.\textsuperscript{4}

Several authors have advocated that existential dependence should be spelt out in terms of some non-truth-functional connective:

1. \( a \) is ontologically dependent upon \( b \) iff \( a \) exists in virtue of the fact that \( b \) exists (Correia 2002: 54).
2. \( a \) is ontologically dependent upon \( b \) iff \( a \) exists because \( b \) exists (Lowe 1998: 145), Schnieder (2006).
3. \( a \) is ontologically dependent upon \( b \) iff necessarily, \( a \) needs \( b \) to exist (Gorman 1995: 222).

I think all these different accounts may be plausibly seen as attempts to explicite a notion of ontological explication or explanation:

The kind of explanatory link which is intended to be involved here is “objective”, independent of theories or more generally of ways of looking at matters: the existence of \( a \) explains, or helps explain, the existence of \( \{ a \} \), no matter how we think about \( a \) and about its singleton, an don matter what we take to be their relationships. (Correia 2002: 53)

Because natural-language “because” locutions exhibit a high degree of indeterminacy, it is plausible to claim that some semi-technical notion of “\( p \) in virtue of the fact that \( q \)” or “\( p \) because \( q \)” captures the explanandum. But do they more than explicite it? Let us ask the following questions:

1. Does \( \{ \text{Socrates} \} \) exist because. (or: in virtue of the fact that) Socrates exists?
2. Does this particular football match exist because. the participating teams exist?
3. Does this hole in my cheese exist because. the cheese exists?
4. Does the type \text{man} exist because. men exist?

It seems clear that we should give negative answers to at least some of these questions. Proponents of the explanation strategy, as I will call it, will respond that often other things than facts of existence do the explaining: it is e.g. not the existence, but the playing football of the teams that explains the existence of the match, the arrangement of the cheese that explains the hole, etc. This move, however, weakens the case for a specific metaphysical kind of explanation: if only existence facts would do the explaining, the ‘metaphysical “because” could be identified with this special case; if, on the other hand, any variety of facts about ontological dependees may occur in metaphysical explanations, it is much harder to isolate what is specifically metaphysical about these explanations. This worry becomes particularly pressing if we want, as Schnieder (2006) does, isolate a notion of existential dependence that allows us to characterise substances as existentially independent entities.\textsuperscript{5} How will we account for causally produced substances? I exist because my parents met / because it rained some day in January 1975 / because they begot me – and still I am a substance. Schnieder (2006: 412) tries to get around this difficulty by requiring that the explanatory relation be permanent, but it is not clear to me that he succeeds.

However this may be, in at least some cases (e.g. (i) and (iv)), existence facts are supposed to be

\textsuperscript{4}Cf. Gorman (1995: 219) and Correia (2002: 51). Simons (1982: 134–139) denies that God is necessarily a creator, but Gorman (1995: 222) is right in pointing out that this should not be decided by a theory of existential dependence. Perhaps a less controversial example is the “production of necessary accidents by a substance” (Gorman 1995: 222): we may hold, for example, that a material body essentially has some shape trope, but that it does not depend (not even generically) on trope or family of tropes.

\textsuperscript{5}I think that any such attempt is misguided and will give an alternative characterisation of substancehood in sect. 8.3.
explanatory in cases of existential dependence. But are they? Consider

(RS) The set of all and only the sets that do not contain themselves exists because the sets that do not contain themselves exist.

Clearly, (RS) is not true: at least for some sets whether or not exist is explained by other things than the existence of their members. An analogous point, I think, holds for the existence of universals and types: it is illegitimate for a Platonist to ‘explain’ the existence of universals or type just by pointing out that their exemplifications and instances exist.

It is also doubtful whether the move to partiality helps with the other cases: is it an at least partial explanation to say that the football match exists because the participating teams do? I doubt so (and so does Schnieder 2006: 408).

Another possible move is to say that we deal here with a species of (objective) conceptual explanation. This is the choice of Benjamin Schnieder (2004 2006) who follows Correia in adopting the explanation strategy:

[“For every set $s$: $s$ exists, because its members exist.”] derives its explanatory force from certain relations of conceptual constitution. It is constitutive for the possession of the concept of a set to have a grasp of the existence conditions of sets. By this grasp we know that a set exists if and only if its members do. It is this conceptual fact about the concept of a set which renders [“For every set $s$: $s$ exists, because its members exist.”] explanatory; the explanandum contains a logically elaborate concept a port of whose constitutive nature is revealed in the explanans. (Schnieder 2006: 407)

But Schnieder saddles the concept of “what is constitutive for the possession of a concept” with too much work here. Recall the “sibling” example (from p. 23): is Maria my female sibling because she is my sister or is she my sister because she is my female sibling? If ontological explanation is irreflexive (Schnieder 2006: 409), at most one of these is true – but it seems quite gratuitous to suppose that there must be a conceptual fact about female sibling and sister that is hereby revealed.

1.3 Towards a non-modal account of determination

“This notion, truth in actuality solely in virtue of what the subject is, involves, at least at first blush, neither mention of how we know the truth nor reference to its stability in counterfactual worlds.”

(Almog 1991: 226)

Let us return to existential dependence, in some ways the simplest of the three types of determination relations. We reviewed on p. 32 some difficulties to analyse it in modal, or modal-cum-essentialist, terms. Given the coherence of essential links from the prior to the posterior and of modal covariation between mutually independent existents, they failed to capture the target concept of ontological priority.

But what is ontological priority? Here is an interesting passage from Duns Scotus in his De primo principio:

The prior according to nature and essense is what is able to exist without the posterior, but not conversely. I understand this thus: although the prior necessarily cause the posterior, and for that reason be unable to exist without it, nonetheless this is not because
it needs the posterior for its existence, but rather conversely; because if it is supposed that the posterior does not exist, nonetheless the first will exist without involving a contradiction. Not so conversely, because the posterior needs the prior, which need we call ‘dependence’. (quoted after Gorman 1995: 221–222)\

We may gloss “a is ontologically prior to b” as “if b is included in our ontology, then a must be, but not conversely.” But what is it to ‘include’ some item into an ontology (cf. Williams 1961: 114–115)? Ch. 4 will try to answer this question.

For the moment being, however, we shall examine and criticise modal accounts of the two most important species of determination, essential determination on the one, and qualitative supervenience on the other hand.

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6Gorman makes a quite different use of this passage and uses it to motivate his “need” formulation discussed on p. 33.

7This is one of the senses Bernard Williams (1961: 113) attributes to Strawson’s talk of “basic particulars”.
Chapter 2

Essence

Whatever the prospects of reducing all instances of determination to instances of essential determination, it is indubitable that among the most important cases of determination are those arising from the natures of things. In this chapter, I review an influential critique of the modal account of essence and argue that essence is a non-modal concept. My more general view, for which I will not argue here, is that while essentiality is a genuine second-order property, modal characteristics do not apply to properties or objects, but are characteristics of how objects exemplify properties. I thus want to advocate a ‘substantial’ and realist theory of essence, which characterises essentiality as a genuine feature of properties, and an ‘adverbial’ theory of modality, which characterises both de re and de dicto modal idioms as adverbial modifications of the copula. In this chapter, however, my argumentative aims are more modest: to review and analyse the failure of the modal account of essence and to argue that essence is a a-modal concept and that there is conceptual room for a view that essential properties may be exemplified contingently.

2.1 De ente et essentia

Some properties are intimately tied to their bearers. Socrates’ being human, it has seemed to many, is not just any old fact about Socrates – Socrates could not be what he is if he were not human. Among my properties, the thought goes, there is a distinction between those I have only accidentally (by metaphysical accident, as it were) and those I have in virtue of being the thing I am. These are the features that would have to be mentioned if one were to give a real definition of me, if such a thing were possible. They are invariant among the things I could be and robust under change: if I were to lose them, I would cease to exist. Of all the things that would stay in existence after such a change, none would be me.

Philosophers commonly hold that the essential properties of a thing are those which determine or constitute its nature, what the thing is, the properties without which it would not be the thing it is. The accidental properties of a thing are simply those not essential to it. The concept of an essential property is of central importance in philosophy and pervades philosophical debates since antiquity: it is tightly linked to many other crucial concepts in metaphysics, such as existence, identity, nature and definition. At some time or another, it has been analysed in terms of or identified with all of these.

1Like all other second-order properties, it is to be analysed, as I will argue in sct. 7.3.1, as a type rather than a qualitative characteristic of its bearers.
2.2 Essence and modality

2.2.1 The insufficiency of the modal account of essence

The most important and widespread analysis of “essence” has been in terms of modality: it has seemed evident to many that the robustness that characterises essential properties was best spelled out in counterfactual terms.

The simplest modal account of essence would go like this:

(i) \( a \) has \( \phi \) essentially \( \iff \Box (a \ has \ \phi) \)

This account, simple as it is, has several severe problems.

(i) At least on a straightforward interpretation of the right-hand side, (i) implies that \( a \) exists necessarily.

(ii) As remarked by Parsons (1967b) and Marcus (1967), (i) has as a consequence that every necessary truth determines an essential property for any object.

(iii) Another problem, raised by Dunn (1990b: 14), is that some essential relations seem to be one-sided, i.e. giving rise both to essential and to accidental relational properties. This asymmetry is lost on the right-hand side of our definition.

In his 1994 paper “Essence and Modality”, Kit Fine (1994) criticises, on quite general grounds, the project of elucidating the notion of essence in modal terms. He discusses two conditional variants of the categorical account (i) of essence in terms of modality (2) and (3):

(2) \( a \) has \( \phi \) essentially \( \iff (a \ exists \rightarrow \Box (a \ has \ \phi)) \)

(3) \( a \) has \( \phi \) essentially \( \iff \forall x (x = a \rightarrow \Box (x \ has \ \phi)) \)

Against the sufficiency of the proposed conditional criteria (2) and (3), Fine (1994: 3) raises three points of criticism:

- First, consider the two objects Socrates and \( \{ \text{Socrates} \} \). If one of them exists, then, necessarily, so does the other. If both exist, it is necessary that Socrates \( \in \{ \text{Socrates} \} \). So we have the result that Socrates essentially is a member of \( \{ \text{Socrates} \} \) and that \( \{ \text{Socrates} \} \) essentially contains Socrates. While the latter may be right, the first is contra-intuitive.\(^4\)

- Second, all necessary truths and in particular all statements of essence hold if Socrates exists. It seems odd, however, that we can, by discovering the essential properties of Socrates, discover all necessary truths.

- Third, if Socrates exists, then necessarily, he, his parents, his left arm etc. exist. But having the parents or the left arm he has is not obviously an essential property of Socrates and so should not be regimented by a definition of essence alone.

The first two points of criticism can also be raised against (i). Being a member of \( \{ \text{Socrates} \} \) is not essential to Socrates, but neither is the conditional property of being a member of \( \{ \text{Socrates} \} \) if existing. Secondly, necessary truths ‘hold’ of any object whatsoever, but are not essential properties of all objects.

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\(^4\)Fine (1994) is often credited with this famous Socrates/\( \{ \text{Socrates} \} \)-example, but it is also to be found in Dunn (1990b: 14).
2.2 Essence and modality

These arguments suffice, in Fine’s view, to show that any modal criterion of essence is too strong: it is possible to agree on all of the modal facts and yet to disagree on the essentialist facts. The reason for this is, according to Fine, that statements of essence not only concern the existence of necessary connections but also their sources. Instead of viewing essence as a special case of metaphysical necessity, he invites us to conceive of the latter as a special case of the former: metaphysical necessities are true in virtue of the essences of all objects, essence “performs a similar function [than necessity] but with a finer mesh” (Fine 1994: 3). He analyses essence in terms of a relation of ontological dependence he takes as primitive: the essence of \( x \) is the set of exactly those propositions that are true in virtue of the nature (or: the identity) of \( x \), where the latter notion is taken as “an unanalyzed relation between an object and a proposition” (Fine 1995: 273).

Fine does not rest his case against the sufficiency of the modal criterion on counterexamples. Rather, he points out structural differences between the notions of necessity and of essence. Let us summarise these:

(i) the notion of essence distinguishes between necessarily coexemplified properties;
(ii) the notion of essence distinguishes between a relation and its converse;
(iii) essential properties do, while necessary properties do not, have to be relevant (or at least: about) their bearers.
(iv) necessary properties are, while essential properties are not, closed under strict implication.

These arguments suffice, in Fine’s and my view, to show that any modal criterion of essence will be too strong: it is possible to agree on all of the modal facts and yet to disagree on the essentialist facts. The reason for this is, according to Fine, that statements of essence not only concern the existence of necessary connections but also their sources. Instead of viewing essence as a special case of metaphysical necessity, he invites us to conceive of the latter as a special case of the former: metaphysical necessities are true in virtue of the essences of all objects, essence “performs a similar function [to necessity] but with a finer mesh” (Fine 1994: 3).

2.2.2 Grounding modality in essence

Fine (1994: 4) accepts the necessity, but not the sufficiency of the modal criterion for essence: if \( a \) is essentially \( F \), then \( a \) could not have been other than \( F \). This is certainly plausible; nevertheless, I am going to argue that it is wrong.

What justification might be given for the sufficiency of the modal criterion? An important motivation is the idea that modality is not primitive, but should be grounded in something else. The modal properties of our world, many would like to say, supervene on its non-modal properties; objects possess their possibilities in potentia – what gets actualised was potentially already there.

It is one thing, however, to say that modality must be grounded in actual existence, and a much stronger claim to “take a metaphysical necessity to be a proposition true in virtue of the identity of all objects” (Fine 1994: 15). Modality can be grounded in essence without being identical to it.

The “identity of all objects” account of necessity, furthermore, rests on a principle of cumulativity: if it is true in virtue of the identity of \( a \) that \( p \), then it will also be true in virtue of the identity of \( a \) and \( b \). It seems, however, that some such “group essences” are different from the sums of their parts.3 Particular humans may all – individually – be essentially descended from – different – zygotes without humans being essentially descended from any particular zygote. In many cases, group essences seem thinner rather than thicker than the essences of their individual members.

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Even if it worked, in some cases, it seems unclear how general the grounding might be. What, e.g., grounds the (alleged) necessity of “there is something”?

Let us return to Fine’s motivations of grounding of modality in essence:

“...any essentialist attribution will give rise to a necessary truth; if certain objects are essentially related then it is necessarily true that the objects are so related (or necessarily true given that the objects exist). However, the resulting necessary truth is not necessary simpliciter. For it is true in virtue of the identity of the objects in question; the necessity has its source in those objects which are the subject of the underlying essentialist claim.”

(Fine 1994: 8–9)

The main advantage of Fine’s theory is also its major weakness: by distinguishing between the subject of an essentialist predication and the source of its truth, Fine allows himself to make an essentialist distinction between Socrates and its singleton.

### 2.2.3 The definitional account

After having abandoned the project of an elucidation of the concept of essence in modal terms, Fine (1994) considers the second of the traditional routes toward such an elucidation: the understanding of essence as ‘real definition’. As an analogue to his notion of essence, he constructs a relativised notion of analyticity, a notion of a sentence being true in virtue of the meaning of certain terms as opposed to others:

\[(4) \quad F(A) \text{ is analytic with respect to } A : \iff \text{there is a legitimate definition } D \text{ of } A \text{ such that } D \rightarrow F(A)\]

Sentences which are analytic tout court, are analytic with respect to any terms whatsoever. As essence cannot be explained in terms of necessity, so meaning or relativised analyticity cannot be explained in terms of analyticity tout court. If we explain the fact that a sentence is true in virtue of the meaning of one of the terms it contains in terms of analyticity, we cannot discriminate finely enough between analytic truths to prevent the absurd result that any analytic truth is true in virtue of the meaning of this single term.

The assimilation of definitional truths to statements of essence makes it possible to establish correctness conditions for definitions: a definition is correct iff the meaning of the definiendum is an essential property either of the definiens itself or of its meaning.

Inspired by the notion of “determination” used in Mally (1912), Edward Zalta introduced a notion of “encoding” into his metaphysics of abstract objects (Zalta 1983 1988) he characterises as follows:

...abstract objects have their properties in one of two ways: an abstract object \(x\) may have a property \(F\) either by exemplifying \(F\) or by being determined by \(F\). [...] The intuition here is that the properties determining an abstract object are part of its nature and govern the conception of that object. (Zalta 2006: 662–663)

Abstract properties will then have all and only their encoded properties essentially.4 Only concrete

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4 Cf. Zalta (2006: 678, 683). While this may be appropriate for some classes of abstract objects, e.g. numbers, it seems too liberal with respect to other. If, e.g., Superman encodes all and only the properties that satisfy the open sentence “According to the story, Superman exemplifies \(F\)” (Zalta 1995: 260), then Superman will be the only super-hero who is essentially a mild-mannered reporter, which is neither true within nor outside of the story.
objects may also have essential properties they exemplify but do not encode. Their essential properties are those they exemplify in every possible world in which they are concrete (Zalta 2006: 679).  

2.3 Contingent essences

“For example, someone might think that, whereas Socrates is essentially human, he is only necessarily Greek-or-not.” (Yablo 1987: 297, fn. 6)

2.3.1 Extrinsic essences

By accepting the necessity of the modal criterion, Fine makes Socrates ontologically depend on the existence of all those things he is essentially related to. If Socrates is essentially related to some \( x \), then it will be necessary that if Socrates exists, then so does \( x \) – Socrates will be unable to exist in the absence of \( x \). Many of these relations are extrinsic to Socrates:

(i) essentiality of origin
(ii) essentiality of (some cases of) causation
(iii) essentiality of constitution
(iv) essentiality of shape
(v) essentiality of location
(vi) essentiality of reference
(vii) essentiality of involvement

In all these cases, we will have ontological dependence stemming from essential relations – a counter-intuitive result. To avoid it, I think we should consider the idea that essential properties might be exemplified contingently.

The acceptance of contingent essences also illuminates the Lewis/Kripke dispute on trans-world identity: while Kripke took this to be a primitive relation, Lewis grounded it on similarity. Contingent essences allow us to side with Kripke on existential and essential possibilities, while resting with Lewis on (representational) modality.

Suppose for a moment that it is essential to me to be descended from a particular zygote \( Z \). Nothing, then, could be me without being descended from this particular zygote. As I am writing these words, however, the zygote has long gone out of existence: it’s existence, intuitively, does not concern the way I am by myself. I could have a perfect doppelgänger sharing all my intrinsic properties who did not descend of this particular zygote, but came into being by cloning or in some other way.

A plausible reply to this worry is simply to accept the extrinsicality of existence: my essentially being related to something else, it may be said, is just what it takes to make my existence extrinsic, more than just a matter of how I am by myself. The problem with this reply is that extrinsic essences may be more widespread than we would like to think they are: if I am essentially human, for example, and being human is essentially a matter of tracing a certain evolutionary lineage back in time, then I am essentially related to all my (human) ancestors. Take only one of them out, and I pop out of existence.

\(^{5}\) According to Zalta, this revised modal account of essence (for concrete objects) is not subject to Fine’s counterexamples. However, Zalta (2006: 683) himself points out that being human and not identical (in the way of concrete objects) to the Eiffel Tower will be both necessary and essential to Socrates (contra Fine 1994: 9) and the reason that it is not essential to Socrates to be a member of singleton Socrates is that “Socrates \( \in \) \{ Socrates \}” is not even true in Zalta’s theory (Zalta 2006: 690).
Another reply appeals to the theoretical rôle the notions of essence and of ontological dependence are supposed to play: traditionally, an ontologically dependent entity is taken to be an accident, a modification of something else, rather than a substance in its own right. It seems undeniable, however, that I am a substance, whatever else I may be besides.

\( a \) identity depends on \( b \) \( \iff \exists R ( \text{it is essential to } a \text{ that } a R b) \)  
\( a \) existence depends on \( b \) \( \iff \Box (a \text{ exists } \rightarrow b \text{ exists}) \)

We intuitively recognise a difference between modal covariation with respect to existence (6) and “identity-dependence” (Lowe 1998) (5). But what about the zygote I descended from? The property \textit{having descended from zygote} \( z \) both seems essential and extrinsic, as do many others: (i) essentiality of origin, (ii) essentiality of (some cases of) causation, (iii) essentiality of constitution, (iv) essentiality of shape (of figures, for example), (v) essentiality of location (of events, at least), (vi) essentiality of reference (of rigid designators), (vii) essentiality of involvement (between events and their participants). In all these cases, we should be able to distinguish identity dependence from existence dependence, which is the more plausible candidate for an explication of substance-hood (modulo, perhaps, some caveats concerning necessary beings).

Let us focus, as an example, on the essentiality of constitution:

“Now could this table have been made from a completely different block of wood, or even of water cleverly hardened into ice ...? We could conceivably discover that ...But let us suppose that it is not. Then, though we can imagine making a table out of another block of wood, or even from ice, identical in appearance with this one, and though we could have put it in this very position in the room, it seems to me that this is not to imagine this table as made of wood or ice, but rather it is to imagine another table, resembling this one in all external details, made of another block of wood, or even of ice.” (Kripke 1980: 113-114)

What “We could conceivably discover that ...But let us suppose that it is not.” amounts too is usually interpreted as a conceptual distinction between epistemic and alethic modality:

1. For all we know, the table could have been made from ice. The table could have turned out to have been made from ice.
2. But still it is not (metaphysically) possible that the table has been made from ice. The table (this table, the one we suppose to be made from wood) could not turn out to have been made from ice.

I think this is not what is going on in the passage, despite what Kripke and his exegetes say. The distinction is rather between ontological dependence and essence:

1. The table could have turned out to have been made from ice because it is a substance, an independently existing material thing that is not ontologically dependent on anything else.
2. The table, given it is what it is, could still not turn out to have been made from ice, because then it would be a different, albeit perhaps a qualitatively identical table.

Being made out of this block of wood is an essential property of this table, but not a necessary one. Something else can represent a way the table might be that is not related to this block of wood. This other thing, however, would not be this table, but only represent an alternative way for this table to be.
2.3 Contingent essences

It is not clear whether it is at all legitimate to read into this passage an argument for the essentiality of constitution (as opposed to origin).\(^6\) It is true, however, that the necessity of distinctness to which Kripke appeals in the appended footnote 56 suffices to prove both. The argument, in both cases, is simply that we cannot imagine some thing \(x\) to be identical in some other world to some different object \(y\) (which has a different origin or constitution):

“Let ‘\(B\)’ be a name (rigid designator) of a table, let ‘\(A\)’ name the piece of wood from which it actually came. Let ‘\(C\)’ name another piece of wood. Then suppose \(B\) were made from \(A\), as in the actual world, but also another table \(D\) were simultaneously made from \(C\). (We assume that there is no relation between \(A\) and \(C\) which makes the possibility of making a table from one dependent on the possibility of making a table from the other.) Now in this situation \(B \neq D\); hence, even if \(D\) were made by itself, and no table were made from \(A\), \(D\) would not be \(B\).” (Kripke 1980: 114, fn. 56)

Using \(T(x, y)\) for “\(x\) is a table that was originally constructed entirely from all of hunk \(y\)” (Salmon 2004: 204), we can formalise the argument as follows:

\((\mathcal{K}1)\) In the actual world, \(T(B, A)\).

\((\mathcal{K}2)\) Suppose, for reductio, that \(\Diamond(T(B, C) \land C \neq A)\).

\((\mathcal{K}3)\) Compossibility principle: \(\forall x(T(x, A) \land T(x, C) \land x \neq B)\).

\((\mathcal{K}4)\) Sufficiency of origin: \(\forall x, y(\Diamond T(x, y) \rightarrow \Box \forall z(T(z, y) \rightarrow x = z))\).

\((\mathcal{K}5)\) Hence, \(\forall x(T(x, C) \rightarrow x = B)\), which contradicts \((\mathcal{K}3)\).

There are several problems with the argument:

(i) The sufficiency of origin principle is very strong and is intuitively less plausible than necessity of origin. Necessity of origin does not entail sufficiency, for even if every table necessarily comes from the wood it actually comes from, different things could come from the same wood.

(ii) The necessity of distinctness does not play a role in the argument.

(iii) \(D\) does not play a role in the argument.

(ii) and (iii) are more relevant than one might at first time think. Here is an alternative reconstruction:

\((\mathcal{R}1)\) Suppose it is possible that \(B\) is not made out of this hunk of wood.

\((\mathcal{R}2)\) Then it is possible that \(B\) and the table made out this hunk of wood are different.

\((\mathcal{R}3)\) By the necessity of distinctness, then they are actually different.

\((\mathcal{R}4)\) But \(B\) is actually the table made out of this hunk of wood.

The step from \((\mathcal{R}1)\) and \((\mathcal{R}2)\) may be granted provided that necessarily, only one table is made out of this hunk of wood, so that “the table made out of this wood” has a unique reference in the possibility envisaged in \((\mathcal{R}2)\). It is the step from \((\mathcal{R}2)\) and \((\mathcal{R}3)\) which is problematic, for it requires that “the table made out of this wood” not only has a referent in the possibility envisaged, but that it has the same reference than it actually has, i.e. is a rigid designator.

I think that by allowing for contingent essences, we can salvage Kripke’s essentialist intuitions: In the world in which something else than \(B\) is made out of this hunk of wood \(A\) (from which \(B\) is actually made), this something else would not be this table (by assumption). If the table \(B\) could be what it is and be made from another hunk of wood \(C\), then it’s being what it is is compatible with \(A\)’s being available for the construction of some other table \(D\).

\(^6\)The observation is Dunn’s: “Kripke slides back and forth between the locutions “made from” and “made of”. To my ear, the first smacks of origins and the second of composition, and these locutions might as well have been artfully chosen so as to disguise the underlying complexity of distinctions.” (Dunn 1990b: 10)
Chapter 3

Supervenience

3.1 The modal account of supervenience

“Supervenience”, though a philosophers’ notion, has a venerable history (cf. Horgan 1993). It was used by Leibniz to say that relations are nothing over and above the intrinsic properties of their relata, by the British emergentists to characterise the special sciences (cf. McLaughlin 1992), by Sidgwick to say that moral characteristics covary with non-moral ones, by Moore (1922a: 261) to say that the former are grounded in the latter, by Hare (1952: 80–81) to say that they stand in some relation of strict implication and by Davidson (1970: 214) to say that “mental characteristics are in some sense dependent, or supervenient, on physical characteristics” (cf. Kim 1990: 136–138). Here is what Robert Stalnaker (1996) says about the “intuitive ideas that motivate the attempts to articulate concepts of supervenience”:

“To say that the A-properties or facts are supervenient on the B-properties or facts is to say that the A-facts are, in a sense, redundant, since they are already implicitly specified when one has specified all the B-facts. A-facts are not fact ‘over and above’ the B-facts, not something ‘separate’. To state an A-fact, or ascribe an A-property, is to describe the same reality in a different way, at a different level of abstraction, by carving the same world at different joints.” (Stalnaker 1996: 87)

Kim (1990: 140) identifies three key features of our concept of supervenience: covariance, dependency and non-reducibility (where “non-reducibility” means that the supervenience of A-features on B-features is consistent with the former not being reducible to the latter). Explanation, sometimes required for reducibility, is absent from Kim’s list: supervenience claims state that some patterns of property covariation hold, without explaining why they hold. I will go along with this view in the following.

A first notion of supervenience, also called the weak one, is what Jackson (1998: 9) calls *intra-world* supervenience:

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1. He now retracts the condition of non-reducibility (Kim 1993a: 165, n. 9) and holds that supervenience is a kind of reducibility after all. I find this terminological choice unfortunate: reducibility is better called “reducibility” than “supervenience”. I hold with Campbell (1981: 15) that “one feature is supervenient upon others if, while not following deductively from those others, it nevertheless cannot vary unless they do”, adding just the dependence component.

3. Supervenience

**Definition 1** (Intra-world supervenience). *A set of properties $A$ intra-worldly supervenes upon a set of properties $B$ iff, for any possible world $w$, if $x$ and $y$ are $B$-indiscernible in $w$, then they are $A$-indiscernible in $w$.*

Intra-world supervenience (1), as (Jackson 1998: 16) notes, is clearly too weak to count as a species of determination: it does not capture relational dependencies (not even generic ones) and does therefore not secure that the $B$-nature of something alone secures its $A$-nature. The property of being among the tallest things intra-worldly supervenes on the individual height some object has, but something’s being among the tallest things does not just depend on its height, but also on the heights of its world-mates. It falls short of the condition that “fixing the base properties of an object fixes its supervenient properties” (Kim 1984: 60) for whether or not all $A$-alike things have $B$ or lack $B$ depends on the world in question. It therefore does not support counterfactuals: we cannot say that if something had the subvening properties, it would also have the supervening ones.

Weak supervenience is clearly too weak: it does not rule out that the covariance in question is purely accidental. We therefore strengthen weak to strong supervenience and say that a set of properties $A$ inter-worldly supervenes upon a set of properties $B$ iff, for any possible individuals $x$ and $y$, if they are $B$-indiscernible, then they are $A$-indiscernible.

Instead of quantifying just over possible worlds we now quantify possible individuals, instead of indiscernibility with respect to some possible world, we now have indiscernibility tout court. If we say that two possible individuals are indiscernible iff they have the same properties in their respective worlds, we get:

**Definition 2** (Inter-world supervenience). *A set of properties $A$ inter-worldly supervenes upon a set of properties $B$ iff, for any worlds $w$ and $v$ and any individuals $x$ and $y$, if $x$ has the same $B$ properties in $w$ than $y$ has in $v$, then $x$ has in $w$ the same $A$ properties than $y$ has in $v$.*

Strong, inter-world, supervenience entails, but is not entailed by, weak, intra-world, supervenience.

The main difference between weak (1) and strong supervenience (2) is that we strengthen the notion of sameness of properties from co-extensiveness to necessary co-extensiveness. This means that a thesis of inter-world supervenience commits us to the existence of necessary entailments from $A$ to $B$-properties.

Kim (1984: 71) shows that if the property sets are assumed to be closed under negation and infinite disjunction, the strict implication between (maximal) supervenying and (maximal) subvening properties can be strengthened to a necessary equivalence, taking the infinite disjunction of the different supervenience bases in the different worlds. He argues that necessary equivalence falls short of definability, even in principle:

“The necessary naturalistic coextension of goodness [...] has no such such epistemological

\[ (1) \quad \forall x \forall F \in A(F \land \exists G \in B(G \land \forall y(Gy \rightarrow Fy))) \]

\[ (2) \quad \forall x \forall F \in A(F \land \exists G \in B(G \land \forall y(Gy \rightarrow Fy))) \]

\[ 5 \] This is the version of (Stalnaker 1996: 91) and also of Kim (1984: 64) who shows that it is equivalent to the following (assuming the base set to be closed under property negation and (possibly infinite) property conjunction):

\[ (1) \quad \forall x \forall F \in A(F \rightarrow \exists G \in B(G \land \forall x(Gy \rightarrow Fy))) \]

\[ (2) \quad \forall x \forall F \in A(F \rightarrow \exists G \in B(G \land \forall x(Gy \rightarrow Fy))) \]

\[ 4 \] Definitions of strong supervenience equivalent to (2) have been given by Kim (1984: 69), Kim (1987: 81) (who also cites an unpublished paper by Brian McLaughlin), Paull & Sider (1992: 834) and Stalnaker (1996: 89).

\[ 5 \] Kim (1984: 62) and Kim (1987: 80) show that strong supervenience comes to the following, if the subvening set of properties is closed under infinite conjunctions and disjunctions:
3.1 The modal account of supervenience

status [i.e. we do not “see” or “infer” that a thing is good by seeing that it has these natural properties (the scare quotes are Kim's)]: we know it must exist, if strong supervenience obtains, but may never know “what it is.” Nor can such a coextension be expected to provide a definitional basis for the term “good”; in fact, its existence does not suffice even to show the “in principle” definability of “good” in naturalistic terms. For the notion of definition carries certain semantic and epistemological associations, and even if we could identify the underlying naturalistic coextension of goodness we cannot expect these associations to hold for it.” (Kim 1984: 79)

This might be thought too strong: supervenience, after all, was meant to capture determination without definability, even in principle.

So we might opt for the following notion of “global supervenience”:

**Definition 3 (Global supervenience).** A set of properties A globally supervenes upon a set of properties B iff all possible worlds that are B-indiscernible are A-indiscernible.6

We have an interesting special case if A and B together add up to all properties there are — i.e. when we say that moral or modal properties supervene on the non-moral or non-modal ones. Non-morally or non-modally indiscernible worlds are then said to be indiscernible *tout court*.

I think there are reasons not to identify indiscernibles also in the case of other supervenience theses. Think of Davidson's example of the supervenience of semantics on syntax: there is no semantical difference without a syntactic difference; expressions that are syntactically identical should receive the same semantic analysis. Does this mean that there is only one expression? It does not seem to follow: we could still hold, e.g., that homonyms are best taken to be different words.

Global supervenience logically follows from, but does not logically entail, strong supervenience.7 They are, however, metaphysically equivalent (hold at the same worlds) if either both the supervening properties A and the supervening properties B are all intrinsic (Paull & Sider 1992: 850) or if both A and B may both contain extrinsic properties and are closed under infinitary Boolean truth-functions, identity and quantification (Stalnaker 1996: 104–105).

Kim (1987: 85–86) argues that global supervenience, in the absence of strong supervenience, is of little use in metaphysics.8 The main reason Kim (1987: 86) and 1988: 121 give for this is that global supervenience is too general, too coarse-grained a notion to provide an interesting analysis of dependence. Independent of assumptions about the realm of possibilities, it does not even imply weak supervenience: it does not rule out worlds containing B-indiscernibles that are A-discernible; neither does it not specify property-to-property correlations and does not say of any one individual that its A-properties

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7Kim (1984: 69) asserted their equivalence, but Kim (1987: 82) retracted the right-to-left claim in response to criticism by Hellman (1987b). Bacon (1986), Petrie (1985), Teller and Tennant. Paull and Sider (1992) criticise the counterexample of Petrie (1987: 122) (GF a ∧ Ga and GF a ∧ Gb in w1, ¬Fa ∧ Ga and ¬Fb ∧ ¬Gb in w2: global, but not strong supervenience), on the grounds that he failed to prove global supervenience and that any such attempt would violate intuitively obvious recombination principles governing the space of possible worlds, i.e. that anything has a lonely intrinsic duplicate, at least if the properties in question are intrinsic (see below, fn. 10). Paull & Sider (1992: 840–841), however, give another counterexample, where the supervening property is extrinsic (in fairness to Petrie it has to be noted that all examples he gives are of extrinsic properties). They argue that strong and global supervenience are equivalent if restricted to intrinsic properties (Paull & Sider 1992: 850). This does not make them equivalent in the case of the physicalists’ thesis, though, if, as Sider (2002) has argued, consciousness is a maximal property and maximal properties are extrinsic (cf. Sider 2001b) (cf. also p. 171 for a discussion of maximal properties).

8Petrie (1987: 122) argues that it is useful to capture holistic dependencies, thereby saving the supervenience of the property of thinking about water on narrow mental states and of being the tallest man on individual heights. Against this, Kim (1987: 87–88) suggests that we just include relational and historic properties in our subvenient set. We will later see, however, that this move has considerable problems.
depend on or are exemplified in virtue of its \(B\)-properties. While this does not mean that global supervenience thesis have to accepted as brute facts,\(^9\) it certainly shows that global supervenience does not satisfy the dependence desideratum.

This is why Kim (1989) switches to a complete different definition, stipulating that \(A\)-supervene on \(B\)-properties if the similarity with respect to \(A\)-properties is matched by similarity with respect to \(B\)-properties. This, however, introduces considerations wholly foreign to the question of supervenience: it is not part of a supervenience claim that lack or presence of a single atom cannot do away with the whole of Caesar’s mental life – whether or not small physical changes can bring about huge psychological changes is not an issue a physicalist is committed to take a stance on; it should rather be left open for empirical research.

Paul & Sider (1992: 841–842) also disagree with Kim’s so-called “wayward atom” argument (Kim 1989: 41), but for different reasons.\(^10\) In their view, a similar consideration would show that strong supervenience is not really a species of dependence relation and conclude from this:

“Clearly, something is wrong. If strong supervenience isn’t strong enough to be an adequate dependency relation, no supervenience relation is.” (Paul & Sider 1992: 842)

I accept their argument that strong and global supervenience stand and fall together, but I do not agree that this means that they both stand. We will come back to this issue below.

Let us first note an oddity with our definition of global supervenience. What does it mean that two worlds are indiscernible with respect to some properties? Certainly not, as Paul & Sider (1992: 834) and McLaughlin (1995: 31) have noted, that they have the same \(A\)-properties (cf. also Horgan (1982: 38)). It rather means something like that they have the same distribution patterns of \(A\)-properties.

The same problem arises if we want to extend our definitions of weak and strong supervenience to properties exemplified in different domains or if we do not accept trans-world identity in the case of global supervenience.

Kim (1988: 119) gives a definition of supervenience for multiple domains in terms of entailment between exemplification patterns (for \(A\) and \(B\) non-empty sets of properties, \(D_1\) and \(D_2\) non-empty sets of particulars):

**Definition 4** (Multiple domain supervenience). \(\langle A, D_1 \rangle \) supervenes on \(\langle B, D_2 \rangle \) iff every complete distribution of \(B\) over \(D_2\) entails a unique complete distribution of \(A\) over \(D_1\).

Kim (1988) proposes def. (4) to those who defend the supervenience of wholes on their parts, to Davidsonians who do not want to presuppose token-identity of mental and physical events and to Cartesians who resist ascribing psychological predicates to bodies.

One distribution is said to ‘entail’ the other iff there is no world where the first but not the second holds. An immediate problem arises with the individuation of distributions: if we take their identity to be preserved under permutations of particulars (i.e. if we take them to be “structure-specific”, as Kim says), then it will be very difficult or even impossible to achieve uniqueness. If we treat them

\(^9\)In the opinion of Kim (1990: 159), only strong supervenience rules this out and holds that the fact that specific property correlations are our best evidential grounds for supervenience theses “shows why a global supervenience claim unaccompanied by the corresponding strong supervenience (or covariance) claim can be so unsatisfying. we are being asked, it seems to me, to accept a sweeping claim about all possible worlds […] as a brute fact.”

\(^10\)The symmetry argument for strong supervenience is not their only reason. They also argue that global supervenience fails in the wayward atom case, on the sole assumption that all mental properties are intrinsic to something and that everything has a lonely intrinsic duplicate. This last assumption is not particularly strong: Lewis & Langton (1998: 132) made it in order to show that Vallentine’s-intrinsicness is implied by Lewis’s intrinsicness (cf. 167).
3.1 The modal account of supervenience

as “individual-specific”, however, we run into problem with multiply realisable supervenience bases: if \((Fa, Gb)\) is different from \((Ga, Fb)\), they cannot both be said to supervene on \((Ha', Hv)\), where the latter distribution does not entail either, but the disjunction of the two (e.g. because \(Ha'\) entails \(Fa \lor Ga\) and \(Hv\) entails \(Fb \lor Gb\)) (Kim 1988: 115).

It seems preferable, then, to skip talk of distribution patterns and to directly coordinate the particulars in question. Paull & Sider (1992: 852) propose to call two worlds \(w\) and \(v\) ‘\(B\)-indiscernible’ iff there is a bijection \(\Phi\) between their domains such that for any member of \(w\), \(\Phi(x)\) has the same \(B\)-properties at the same time and the same location as does \(x\). Apart from the asymmetry between temporal and spatial location, this definition is unfortunate in other respects as well: McLaughlin (1995: 33) has pointed out that it makes spatio-temporal properties supervene on anything whatsoever. If, on the contrary, times and places are world-bound, then no two worlds will be \(B\)-indiscernible (McLaughlin 1997: 213).

It seems advisable to allow for more flexibility in the function picking out the relevant counterparts and to capture the coordination of the domains by means of an isomorphism between the entities existing in the relevant worlds (McLaughlin 1997: 214):

**Definition 5** (\(\Phi\)-preserving isomorphisms between worlds). For some set of properties \(\Phi\) and worlds \(w\) and \(w'\), some function \(f : [w] \rightarrow [w']\) is a \(\Phi\)-preserving isomorphism iff it is one-one and for every \(F \in \Phi\): \(F(x)\) in \(w\) iff \(F(f(x))\) in \(w'\).

The price to pay for this handy notion is that it severely limits the applicability of both multiple domain and global supervenience: it forces the domains over which the supervenience is said to hold to be of the same cardinality. This is, as many have noted, a severe drawback (cf. also McLaughlin 1995: 33):

> “Even for worlds with domains of different sizes it should be meaningful, and sometimes true, to say that they are “alike” in physical, or psychological, respects, in a sense of “alike” that is relevant to claims of supervenience [...] we would want to say that a large and a small cube of sugar are both water-soluble in virtue of the fact that their respective parts (molecules) are in the same micro-state.” (Kim 1988: 119, 125)

We can get rid of the cardinality restrictions by switching from functions to relations and talking of indiscernibility between sets, i.e. the images of some particulars under some relation:

**Definition 6** (Weak coordinated domains supervenience). \(\{A, D_1\}\) supervenes on \(\{B, D_2\}\) relative to relation \(\mathcal{R}\) iff, for every \(x\) and \(y\) in \(D_1\), \(x R y\) in \(D_2\) is \(B\)-indiscernible from \(\mathcal{R}|y\), then \(x\) is \(A\)-indiscernible from \(y\).

**Definition 7** (Strong coordinated domains supervenience). \(\{A, D_1\}\) supervenes on \(\{B, D_2\}\) relative to relation \(\mathcal{R}\) iff, for every \(x\) and \(y\) in \(D_1\) and any worlds \(w\) and \(v\), \(x R|w\) in \(w\) is \(B\)-indiscernible from \(\mathcal{R}|y\) in \(v\), then \(x\) in \(w\) is \(A\)-indiscernible from \(y\) in \(v\).

We now seem to be stuck in a dead-end, however. For how can we talk of indiscernibility between sets of different cardinality? Kim (1988: 125) switches to similarity but, for the reasons given earlier, I prefer to return to isomorphisms.

With the notion of \(\Phi\)-preserving isomorphism in place, we can distinguish weak and strong global supervenience (cf. Stalnaker 1996: 227), McLaughlin (1997: 214), Sider (1999: 917)), depending on whether we require every \(B\)-preserving isomorphism between \(x\) and \(y\) to be itself an \(A\)-isomorphism or just to entail the existence of a \(A\)-isomorphism:

**Definition 8** (Weak global supervenience). A set of properties \(A\) weakly globally supervenes upon a set of properties \(B\) iff, for all possible worlds \(w\) and \(w'\), if there is a \(B\)-preserving isomorphism between \(w\) and \(w'\), then there is a \(A\)-preserving isomorphism between \(w\) and \(w'\).
Def. (8), however, is not sufficient to mend a loophole Stalnaker (1996: 92–93) has detected in the definition of global supervenience by Paull and Sider. Global supervenience, as defined by them, does not entail even weak supervenience, for it makes $B$-properties supervene on $A$-properties in case they can be ‘inverted’ across $A$-invariant particulars: if each positively charged elementary particle comes with a negatively charged companion having the same $A$-properties, then those come out supervening on positive and negative charge. Stalnaker suggests the following strengthened version:

**Definition 9** (Strong global supervenience). A set of properties $A$ strongly globally supervenes upon a set of properties $B$ iff, for all possible worlds $w$ and $w'$, every $B$-preserving isomorphism between $w$ and $w'$ is $A$-preserving.

It can be proved that (9) entails that every $A$-property is necessarily coextensive with some generalised $B$-property, i.e. some possibly infinite disjunction of maximal $A$-properties which are constructed from the properties and relations in $A$, quantification and identity (Sider 1999: 920–921). It can also be proved that (8) entails that every $A$-proposition is necessarily equivalent to some generalised $B$-proposition, where this notion is defined in an analogous way. Strong supervenience (9) is advertised as “the” supervenience relation in Sider (1996: 20).

As Karen Bennett (2004: 3) noted, (8) and (9) are just the two extremes of a whole array of different coherent notions of supervenience. We could, e.g., define a notion of *middling global supervenience* by requiring that, if there is a $B$-preserving isomorphism between $w$ and $w'$, then at least one of those (or 2/3 of them) must be $A$-preserving as well. Unfortunately, as Bennett (2004: 26–31) proves, all these different formulations come out equivalent if the supervening set contains only intrinsic properties and the subvening set does not contain any haecceistic properties (properties that distinguish between any counterparts). (9) is equivalent to strong supervenience if the subvening set is closed under Boolean operators, quantification and identity. The upshot is a negative one:

“Global supervenience is of little independent value. [(9)] has certain rhetorical and epistemic virtues, but no metaphysically distinctive function, and neither [(8)] is strong enough to capture any interesting dependencies. [...] In order to capture the real dependence of $A$ on $B$, even when those properties are instantiated by entirely different sets of things, there has to be some kind of tie between the distribution of $B$-properties and the distribution of $A$-properties.” (Bennett 2004: 22)

The most obvious such tie, as Paull and Sider have realised, is sameness of spatiotemporal properties. Apart from making them supervene on everything whatsoever, this has the further drawback of severely limiting the range of possible worlds. Possible worlds, according to Lewis (1986d: 72), can have very different space-times, and sometimes they are unified only by relations that are analogous to spatiotemporal relations, where their identity or difference from ours may be an indeterminate matter (Lewis 1986d: 75). Sameness of spatiotemporal locations therefore does not offer any prospect to tie one distribution to the other.

While the non-asymmetry of supervenience has been taken very seriously by many others have nonchalantly brushed aside. Their reason is that an asymmetric notion is easily defined by it. Petrie introduces such a notion and calls it “determination”:

“...a set of properties $A$ is determined by a set of properties $B$ just in case: $A$ globally supervenes upon $B$, $A$ does not globally supervene upon every set of properties whatever

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10“[T]he asymmetry of supervenience may well be the core of the idea of asymmetric dependence we associate with the supervenience relation.” (Kim 1984: 67)
3.2 Contingent supervenience

(to rule out cases involving logically or physically necessary properties) and $B$ does not globally supervene upon $A$.” (Petrie 1987: 128)

Consider first a problem that worried many friends of supervenience. Dependence and determination, it seems, are asymmetric relations — supervenience, according to all definitions above, is not. Its failure to guarantee asymmetry was why Kim (1984: 67) said that strong supervenience “alone does not warrant us to say that the supervening property is dependent on, or determined by, the base, or that an object has the supervening property in virtue of having the base property.”

We already saw one example of mutual supervenience, namely from propositions to possible worlds and back. Here is another one by Kim: The surface area of a perfect sphere, for example, strongly covaries with its volume, and conversely, but we do not want to say that either one supervenes on the other (Kim 1990: 144). Neither, however, will not do to explicitly postulate asymmetry, saying that $A$ supervenes on $B$ iff it strongly covaries with it but not conversely. We want to leave room for cases where we have asymmetric supervenience and symmetric covariance; more importantly, we want to allow for the case where $A$ and $B$-properties both supervene on $C$-properties, where $A$ covaries with $B$ but not conversely and where $A$ does not supervene on $B$.

As (Kim 1990: 147) notes, experience has taught us how hard it is to define an asymmetric relation of causal dependence in terms only of nomological covariations between properties or event kinds: (Mackie 1973: ch7), (Sanford 1976), (Sanford 1984) (Beauchamp & Rosenberg 1981: ch6) The conclusion Kim draws is overtly pessimistic:

All this points to the conclusion that the idea of dependence, whether causal or supervenient, is metaphysically deeper and richer than what can be captured by property covariance, even when the latter is supplemented with the usual modal notions. (Kim 1990: 147)

And he looks in the right direction, namely to an elucidation of our locutions expressing ontological priority like “in virtue of” or “because”, though he is pessimistic that this can be achieved in generality.

I do not share Kim's pessimism. Let me explain why.

3.2 Contingent supervenience

The more general consideration not to settle against the modal criterion of supervenience is that many supervenience theses are taken to hold contingently:

“Materialism is meant to be a contingent thesis, a merit of our world that not all other worlds share. Two worlds could indeed differ without differing physically, if at least one

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14Grimes (1988) also rejects this proposal; Kim (1990: 147) rejects it giving the example of chemical kinds and their microphysical composition, where covariance is symmetric but only the former supervene on the latter.

15Both Grimes (1988: 157) and Kim (1990: 146) give, admittedly rather contrived, examples of such cases.

16Kim has since regained some of his optimism and now thinks that supervenience at least “indicates the presence of a dependence relation without telling us what it is” (Kim 2003: 567) The examples given of supervenience without dependence throw some doubt on this claim.

15Cf.: “…property covariation by itself does not warrant the use of “because”, “in virtue of”, etc., in describing the relationship any more than it warrants the attribution of dependence.” (Kim 1990: 147)

16Cf.: “These cases [causal directionality, mereological and moral supervenience] seem fundamentally different from one another metaphysically, and any “analysis” of dependence that applies to all varieties of dependence, I think, is unlikely to throw much light on the nature of dependence.” (Kim 1990: 148–149)
of them is a world where Materialism is false.” (Lewis 1983b: 35)
“...physicism is not a claim about every possible world, but only a claim about our world
to the effect that its physical nature exhausts all its nature.” (Jackson 1998: 11)

Global supervenience, as we defined, quantifies over all possible worlds: if metaphysical modality is
S5, as is standardly assumed in discussions of supervenience, it therefore holds necessarily if at all.
The easy way out of the problem is to restrict the range of worlds quantified over: To account for this
feature, many analyses of e.g. materialism/physicism – the thesis that everything supervenes on the
physical – have characterised it as modal covariance across a restricted range of possible worlds, i.e. in
terms of conditional necessity:

“Among worlds where no natural properties alien to our world are instantiated, no two
counter without differing physically; any two such worlds that are exactly alike physically
are duplicates.” (Lewis 1983b: 37)

“Any world which is a minimal physical duplicate of our world is a duplicate simpliciter of
our world, where a minimal physical duplicate is what you get if you ‘stop right there’.”
(Jackson 1998: 12)

As Hawthorne (2002: 112, n. 8) has remarked, the two accounts are not equivalent, at least assuming
an indexical reading of ‘actual world’ in Lewis’ criterion. Lewis’ but not Jackson’s account rules out a
scenario where we have two worlds in which no alien properties are exemplified, which are not minimal
duplicates of the actual worlds, but which are physical duplicates, though not duplicates simpliciter, of
each other. I think this is a point in favour of Jackson’s definition: if materialism is to be a contingent
thesis about our world, we should not conclude, from the mere fact that materialism fails in some
possible world, that it fails in the actual world.

I think that both accounts are mistaken and neither necessary nor sufficient for physicalism.

If physicalism is contingent, there are some worlds in which it is false. Prima facie, there is no reason
to assume that no such world can be a minimal physical duplicate or that all such worlds must contain
alien properties. Both definitions, however, rule out this scenario; hence, they are not necessary
for physicalism. Here is why (the following argument is from Leuenberger (2006)): suppose there
is a world w which is a minimal physical duplicate of our world, in which no alien properties are
exemplified and in which physicalism fails.

According to Lewis’ definition, this means that there are two worlds s and t in which no w-alien
properties are exemplified and that are physical duplicates but not duplicates simpliciter. If some
properties were exemplified in these worlds that are alien with respect to the actual world, then these
properties were also w-alien, for w cannot contain ‘more’ properties than the actual world. Hence, no
alien properties are exemplified in s and t and physicalism fails in the actual world.

According to Jackson’s definition, failure of physicalism at w means that w has two minimal physical
duplicates, s and t, which are not duplicates simpliciter. Because they are minimal duplicates of w
which is a minimal duplicate of our world, they are also minimal duplicates of the actual world and
physicalism fails at the actual world.

But is it really possible that physicalism fails in a world which is a minimal physical duplicate of our
world and does not contain alien properties?

17 ”Alien” means “neither exemplified by some inhabitant of the actual world nor constructable out of such properties”. If
“actual” is indexical (as it is on Lewis’ theory), then “alien” is so two: a w-alien property then is a property not exemplified by
anything in w nor constructable out of properties exemplified in w.
3.2 Contingent supervenience

Because they rule out this intuitively possible scenario, both conditions are not necessary for physicalism. Neither are the two conditions sufficient for physicalism: Hawthorne (2002) has argued that physicalists deny the existence of blockers and that such blockers are not ruled out by the two accounts. Blockers are immaterial entities which prevent the emergence of psychological properties from their alleged physical supervenience base. Because possible, but non-actual, blockers are ruled out by the stop-clause in Jackson's account and because they require the exemplification of alien properties to exist, their possible existence does not falsify physicalism on both accounts.

Even if their definitions are inadequate, Jackson and Lewis might have succeeded in giving us some explication of what it means to be a physicalist. Stalnaker, however, denies even this:

...what is interesting, and disquieting, about this way of solving the problem [of making supervenience hold contingently] is that the concept of supervenience is no longer what is doing the work of formulating the reductionist thesis in a way that isolates its metaphysical component. On this account, the materialist's global supervenience thesis is this: relative to all possible worlds that have the same total set of properties and relations as our world, the mental globally supervenes on the physical. But this thesis is a trivial consequence of the materialist thesis that was stated without the notion of supervenience: that the set of all basic properties and relations of our world is the set of physical properties and relations. (Stalnaker 1996: 98)

So let us try another route.

Let us go back to the intuitive idea, aptly characterised as “describ[ing] the same reality in a different way, at a different level of abstraction, by carving the same world at different joints” Stalnaker (1996: 87) (cf. p. 45).

Local, intra-world supervenience is too weak: it does not capture extrinsic dependencies and does therefore not secure that the \( B \)-nature of something alone secures its \( A \)-nature. The property of being among the tallest things intra-worldly supervenes on the individual height some object has, but something's being among the tallest things does not just depend on its height, but also on the heights of his world-mates. It falls short of the condition that “fixing the base properties of an object fixes its supervenient properties” (Kim 1984: 60). It does not support counterfactuals: we cannot say that if something had the subvening properties, it would also have the supervening ones.

Regional, inter-world is equally too weak, for it does not capture relational dependencies: we would like to say that the property of being smaller than the Eiffel Tower supervenes on height, but two things may differ with respect to it, while being of the same height, if only the Eiffel Tower in their respective worlds is of different height. So it equally falls short of the property-fixing requirement.

Should we therefore settle for global supervenience? I think, with Kim (1987: 86) and Kim (1988: 121), that global supervenience is too strong, too coarse-grained a notion to provide an interesting analysis of dependence and determination. Independent of assumptions about the realm of possibilities, it does not imply weak supervenience and does not rule out worlds containing \( B \)-indiscernibles that are \( A \)-discernible; neither does it specify property-to-property correlations and does not say of any one individual that its \( A \)-properties depend on or are exemplified in virtue of its \( B \)-properties.

What moral can we draw from this lengthy discussion?

First, which equivalences and non-equivalences we have between logically different notions of supervenience depends on what kinds of properties we include in the subvening and supervening sets and on which recombination principles we accept for the realm of possibilities. If we restrict both weak and strong supervenience to intrinsic properties, for example, and accept the recombination principle that...
any two individuals in different worlds have intrinsic duplicates which are world-mates, we can even show that weak entails strong supervenience (cf. Moyer (2000: 4) who also cites Blackburn (1985)). For intrinsic properties, as Paull and Sider have shown, strong and global supervenience stand and fall together.

Second, we do not want strong supervenience with its necessary property-to-property correlations, and therefore we cannot include spatiotemporal relational properties into the subvening base of global supervenience. Third, global supervenience needs to be supplanted with some coordination of the inhabitants of the worlds in question and it is not clear how this can be achieved: there does not seem a natural and unproblematic way to say that something ties the respective distribution patterns together.

Fourth, it is not clear how we can achieve asymmetry. Fifth, finally, many supervenience theses are meant to be contingent — and it is far from clear how such contingency can be achieved without making them vacuous.

3.3 Supervenience and the constitution of properties

The clue to a solution, I think, is provided by two considerations:

Some authors, most notably Armstrong, have talked of supervenience between objects, suggesting that the supervenient comes as an free ontological lunch (Armstrong 1997: 12). Though they have taken supervenience to be entailment (Armstrong 1997: 11), they meant something rather different, namely existential dependence. The difference between these two concepts parallels the one between necessary covariance and supervenience. As Fine (1994) famously argued, the singleton {Socrates} supervenes or existentially depends upon Socrates, but not the other way round, while the existence of Socrates both is strictly implied and necessarily covaries with that of his singleton. Correia (2002) has spelt out this notion of existential dependence in much detail, and given an account of object supervenience in terms of his primitive notion of grounding.

The second consideration I want to bring to bear on the question is that supervenience, intuitively, is intimately connected with truthmaking. Whenever some properties \( A \) supervene on other properties \( B \), what makes that something have a \( B \)-property ipso facto makes it true that it has a \( A \)-property. There is just one truthmaking involved, nothing further is required: Jackson often frames supervenience in terms of one account of the world making true another account of the world; the physicalists’ commitment, in his view, is “to the physical nature of the world making true the psychological account of the world” (Jackson 1998: 68). This is the route we will now take.
Part II

A Theory of Truthmaking
Chapter 4

Grounding truth in being

How is it that we can refer to and speak about things? What allows us to represent things as being so-and-so, irrespective of whether they are so-and-so? It is with this fundamental question of the philosophies of mind and language that we are concerned in this first chapter.

We use words to represent and talk about things other than themselves. This notion of aboutness has many facets, not all of which will here be treated. What our words are about is what we commit ourselves to believe in when we utter them assertorically, what we believe to exist. This commitment, first and foremost of an ontological sort, will be discussed in the first section. The second section asks in more detail how words figure in the apparatus of reference, and what reference in turn teaches us about their ontology, while the third argues that truth is relational.

This first section is on ontological commitment and on Quine’s famous criterion for it, seeking to establish that the truthmaker principle is better equipped to play its role in philosophical theorizing. A preliminary discussion of directions of fit shows that the difference in direction, commonly assumed to mark an important difference between commitment and truthmaking, is less important than it might be assumed. What really commits us to the existence of entities our statements are about are the inferences we are prepared to draw about their behaviour, and in particular a special kind of ‘identity-inferences’ the validity of which presupposes constancy of reference.

But even if we buy into such an inferentialist account of commitment, there still seems to be a special connection between existence claims on the one and quantification and reference on the other hand: the ‘existence requirement’ attaches first and foremost to the singular terms of our language. We will therefore, in the second section, discuss this syntactic category in some detail and will have to face an important challenge of Frank Ramsey to the very existence of such a fundamental distinction as the one between particulars and universals, at least insofar as it is tied up with logical grammar. In this section, only a preliminary, ‘grammatical’ answer to his challenge will be given, which will be supplemented by a genuinely metaphysical distinction between particulars and universals in sect. 7.2.1.

We use the words we have to make statements. In some cases at least, we want these statements to make assertions about the world. In part I of this thesis, we have seen that we are able to do so because our words are what they are. But we do not just want to speak about the world – we also want our statements to be true and to be true because the world is as it is. In the third section, then, we have to tackle the question in what, if anything, the truth of our statements consists and in what it grounded.
4.1 Ontological commitment

“To say that the name $x$ denotes a given object $a$ is the same as to stipulate that the object $a$ [...] satisfies a sentential function of a particular type. In colloquial language it would be a function which consists of three parts in the following order: a variable, the word ‘is’ and the given name $x$.”

(Tarski 1956: 194)

My plan for this first section is as follows: In the first subsection, I clarify the important intuitive notion of *aboutness*: it is because our sentences are about things that they may commit us to their existence; it is because true truthbearers are about the world that they are (allegedly) in need of truthmakers. Aboutness is a very multi-faceted concept and its intuitive core is very hard to pin down. It will be a recurrent theme in this thesis and serve as a thread connecting seemingly different questions. After some preliminary remarks, I discuss Quine’s criterion of ontological commitment, with a view to determining in what sense it may elucidate our concept of aboutness. I will argue that questions of ontological commitment are separable from and prior to questions of logical form: truthbearers have, so to speak, an ‘ontological form’, which may or may not coincide with their correct formalisation in an available logic. Severing the tie between logical form and ontological commitment will make it possible to conceive of truthmaking, which will be discussed in the next chapter, as a refined and generalised form of the latter: the ban on ontological frivolity for which the commitment constraint was devised is more effectively realised by the truthmaker requirement. After a discussion of the status of Quine’s criterion, I will assess the importance of regimentation of natural language for it and argue that ontological commitment is best seen in inferential terms: not the truth of sentences, but the acceptance of inferences is our best guide to some person’s ontological commitments.

Inferences can be seen as constraints on a domain of quantification. What inferences someone accepts tells us what she is quantifying over. Ontological commitment is first and foremost commitment to some domain of quantification. In the second subsection, I explore some of these questions in more detail. In particular, I discuss the question whether the obvious connection between existence and objectual quantification can be turned into an operative criterion, necessary and jointly sufficient conditions for the claim that someone is committed to an entity of a certain type. The discussion of domains of quantification shows that ontological commitment is unspecific not only in the sense noted above (that it does not require that certain specific objects belong to the domain), but also in that it does not constrain the domain in any other respects than in cardinality. This led Quine (1968a 1976) to effectively abandon ontology altogether, and was exploited by Putnam (1981) to devise a “bomb that threaten[ed] to devastate the realist philosophy we know and love” (Lewis 1984: 56). In the second section, I will try to defuse this bomb.

In the third subsection, we will return to identity inferences and give an account of them in terms of what I will call ‘coordination’, which is in my view an even more fundamental semantic operation than either reference or quantification. It is by coordinating words that are about them that we commit ourselves to entities: they have to exist, not as values for our variables, but as anchors for our successful attempts at coordination. It is with coordination that the spectrum of possible trade-offs between ontology and ideology reaches its limits and we make genuine, unmediated and direct contact with the world.

4.1.1 Directions of fit

Sometimes at least, we manage to speak of what there is. We make claims to the effect that such and such things exist and that such and such others do not. Sometimes we are right about this: we
4.1 Ontological commitment

say of things that exist that they exist and of things that do not that they do not – and hence, as Aristotle noted (Met. 1011b25), what we are saying is true. It is natural to think, then, that what we say constrains what we take the world to be like, and that the way the world is constrains which parts of what we are saying are true. These two constraints are very different, of course, and differ in more than just their direction: Special cases aside, we cannot influence the way the world is just by saying true things about it; the world, however, grounds the truth of what we are saying: what we say is true because we get it right about the world.

The world and what we say about it are connected by two different relations, which differ in their “directions of fit” – aboutness goes from what we say to the world and truthmaking from the world to what we say. One way to spell out the constraint imposed on what we say by what we are speaking about is as the relation between what we say and what has to exist in order for what we are saying to be true. Calling that which is true when we speak a “truthbearer”,\(^1\) we can formulate our criterion of ontological commitment provisionally as follows:

\[(\text{OC}) \quad \text{A truthbearer } p \text{ is ontologically committed to an entity } e \text{ iff } e \text{ has to exist for } p \text{ to be true.}\]

Unfortunately, things are not that simple: whatever the truthbearer in question is (the sentence “p”, or the thought or proposition it expresses), it certainly has to exist in order to bear truth. We do not, however, want to say that we are committed to what bears the truth of what we are saying. Intuitively, we want to be committed to what these truths are about, not just to what these truths themselves are. Can we therefore say that we are committed to those entities the existence of which is entailed by the truth of what we say, where entailment of existence is taken to be entailment of a statement to that effect?

\[(\text{OC’}) \quad \text{A truthbearer } p \text{ is ontologically committed to an entity } e \text{ iff } p \text{ entails “} e \text{ exists”}.\]

We will later see that this notion is not without its problems either. Suppose, however, that we had a workable notion of ontological commitment at hand. Could we then say that the entities we are committed to are those that make true what we are saying? That which makes some truthbearer true is often called its “truth-maker” (Mulligan et al. 1984: 287, following Russell’s of the verb), its “ontological ground” (Armstrong 1991: 190, following Bergmann), or its “existential grounding” (Lewis 2001b: 279). Truthmaking is then often characterised as the converse of ontological commitment:\(^2\)

\[(\text{TME}) \quad \text{An entity } e \text{ is a truthmaker for a truthbearer } p \text{ iff “} e \text{ exists” entails } p.\]

According to this analysis, truthmaking and ontological commitment are converse relations, and both are spelt out in terms of entailment. As intuitive as this first analysis may seem, I think it is deeply mistaken and so for a number of reasons.

A first worry concerns the crucial use of entailment: Oliver (1996: 69) thinks that “entails” in (TME) is best taken to denote material implication which holds with “broadly logical” or “metaphysical” necessity, and this seems to be the dominant view. This has two immediate, and unwelcome, consequences: first, our choice of truthbearers is narrowed down to entities which may be sensibly said to imply a truthbearer such as (the one expressed by) \(^1e \text{ exists”}; second, and more importantly, the recourse to metaphysical necessity means that truths that are necessary in this sense are made true by

\(^{1}\)In the following, sentences, schematic sentence letters and nominalisations of sentences are used as proxies for whatever primary truthbearers our best theory says there are.

Grounding truth in being

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anything whatever and that necessary existents only make true equally necessary truths.\(^3\)

Another natural complaint to make is that (OC) and (TME), while both a priori, differ in that the first is analytic and the second synthetic: the first spells out an intimate connection between logical form and ontological commitment, which is built into the very notions of the two, while the latter is a substantive metaphysical thesis not about the logical form of sentences but about the grounds of their truth. The first, but not the second, may plausibly taken to be stipulative: (OC), as will be argued below, is a criterion of ontological commitment in the sense that it offers us a way of making ontological commitments explicit. (TME), on the other hand, is an analysis of an independently existing phenomenon and correct or incorrect depending on whether it correctly characterises it.

While I think that both (OC) and (TME) are false and that truthmaking and ontological commitment are not converses, I take both ontological commitment and truthmaking to be relations that obtain between truthbearers and the world and are therefore explanatorily prior to questions of logical form. Our ontological and metaphysical views guide and constrain us in our formalising of sentences of the natural languages we speak; the formalisation can clarify questions and help to formulate answers, but does not by itself provide them.

In this perspective, I will criticise the dominant Quinean view on ontological commitment and argue for a more voluntarist conception of what it means to ontologically commit oneself to (the existence of) an entity. Ontological commitment and truthmaking are obviously interrelated, but their relationship is complex. Their main difference, aside from direction, lies in the fact that truthmaking, but not ontological commitment, is specific and potentially opaque: what makes our sentences true may be some definite particular of which we have no knowledge or grasp,\(^4\) whereas we can only commit ourselves to things by sentences which are about those things. While this, as I will argue, presupposes no full-fledged representation, lest any identifying knowledge, it does at least require words for them. I may be committed to either \(a\) or \(b\) without being committed to any one of them individually; if \(a\) or \(b\) make it true that \(p\), however, one of them has to make it true. Whenever I say that there are crazy philosophers, I do not commit myself to the existence of any philosopher in particular. If what I say is true, however, some such (crazy) philosopher in particular makes it true.

Truthmaking, aboutness (representation) and ontological commitment all bridge the gap between language and world, and do so in different ways. On the level of the construction of philosophical theories, they link what are sometimes called their ontology and their ideology, i.e. the things assumed to exist by the theory and the expressive resources brought to bear on the task of describing and categorising properties of these things. A builder of theories, as Quine has famously noted, is confronted with a trade-off between ontology and ideology. The more things we commit ourselves too, the more brute (existential) facts are there to be stated. The more arcane our ontological budget, the stronger, more specific and more expressive our language has to be to live up to our explanatory demands.

Aboutness, the feature of words that, as it were, pins them to the world is a rarely explicitly theorised notion, though it can be seen to be lurking in the background of much of the contemporary philosophy of language and logic. Intuitive judgments of aboutness play a decisive role eg. in motivating both Russell’s and Strawson’s theories of definite descriptions\(^5\) as well as more recent trends such as situation

\(^3\)I will give other reasons why truthmaking is not entailment in sect. 5.1. We will come back to the vexed question of how to characterise the modal force of the truthmaking relation in ch. 6.

\(^4\)I will use the (potential) opacity of truthmaking to argue against deflationist accounts.

\(^5\)Cf. eg.: “Russell’s analysis of statements containing definite descriptions and, by extension, ordinary proper names, shows, he believed, that such statements are not really about, do not really mention, the denotation of the description or the referent of the name.” (Donnellan 1974: 223)
4.1 Ontological commitment

semantics.\(^6\)

Very general constraints, such as the principle of substitutivity, are motivated by appeal to intuitive aboutness judgments:

...the basis of the principle of substitutivity appears quite solid; whatever can be said about the person Cicero [...] should be equally true when said about the person Tully [...] this being the same person. (Quine 1953d: 17)

Very much in a Fregian vein, Quine also draws the converse implication: if coreferential terms are not substitutable \(\textit{solves} \textit{veritate},\) then their occurrence within the sentence it not − or “not squarely” − about their usual referent:

If we assert [“Tom believes that Tully wrote the \(\textit{Ars Magna}\)" on the strength of Tom's confusion of Tully with Lully, and in full appreciation of Tom's appreciation that Cicero did not write the \(\textit{Ars Magna},\) then we are not giving the term “Tully" purely referential occurrence in our sentence “Tom believes that Tully wrote the \(\textit{Ars Magna}\); our sentence is not squarely about Tully. If it were, it would have to be true of Cicero, who \textit{is} Tully. (Quine 1957: 18)

Even though aboutness underlies our ordinary conception of reference, it cannot be identified with it, at least if we hold on to what Davidson (1968) calls "semantic innocence", ie. eschew systematic reference shifts occurring as a function of purely linguistic context. Reference is a feature of singular terms, while aboutness pertains to their occurrences.\(^8\) Neither can aboutness be identified with truthmaking: sentences can be made true by things they are not about.\(^9\) Things no speaker of any language has ever heard of can nevertheless make true some things we say:

A sentence is about the things it can give us information about. This is not an analysis (“sentence \textit{s} gives information about \textit{x}” is just a roundabout way of saying that \textit{s} is about \textit{x}), but it may help to elucidate the logic of aboutness talk. Informational contexts as they occur in sentences like “\textit{a}'s being \(F\) carries the information that \(b\) is \(G\)” are neither truth-functional nor referentially transparent, that

\(^6\)The connection between aboutness and situation theory is mediated by the relation of carrying information. The basic notion of a situation is that of the part of the world some set of statements is about. This becomes particularly clear in Devlin’s account of the theory: “Without the situations to refer to, we would be forced to make theorist's assertions of the form "The agent acquires additional information about whatever in the world it is that the agent acquires that additional information about." By putting situations into our theorist's ontology, we avoid such awkward circumlocutions. “ (Devlin 1991: 71) Seligman (1991: 290) puts the point succinctly: “On our account, a situation just is the sort of thing in which information can be said to be located.”

\(^7\)This does not mean that we have to deny that the 'intuitive' idea of referential position as the idea that the term occupying it "is used purely to specify its object for the rest of the sentence to say something about" (Quine 1960b: 177) While we may treat reference of singular terms within belief contexts as exceptions to a general rule, our theory of reference has to provide also for them.

\(^8\)That what a sentence is about cannot just be read off from what singular terms occur in it has been noted by Marti (2003): “That a term can contribute its referent as logical subject does not entail that it does contribute the logical subject of a content no matter where the term appears in the structure of the sentence.” Hence that some open sentence \(\phi(x)\) is satisfied by \(t\) does not entail that it may legitimately be taken to make a claim about \(t\).

\(^9\)This claim will be importantly qualified later. For present purposes, it should be read as the claim that the following variant of the supervenience formulation (34) of the truthmaking principle (19) given by Lewis (2000b) (discussed on p. 98):

\[(\forall p \forall u, v (p \text{ is (entirely) about } T \rightarrow (u \text{ and } v \text{ are indistinguishable with respect to } T \rightarrow (u \models p \land v \models p) \lor (u \models \neg p \land v \models \neg p)))\]

does not give us an adequate analysis of the concept we are after: “the shortest spy is a spy”, eg., turns out to be about Ortcutt, even though, as Quine (1956) famously remarked, we do not therefrom learn anything of interest to the FBI.
is they neither allow for truth-preserving substitution of equivalent sentences nor of co-referential singular terms. Unlike modal contexts, they do not even allow truth-preserving substitution of necessarily equivalent sentences. In this, they are like epistemic and meaning-ascription contexts. They differ from meaning-ascription contexts and side with epistemic contexts, however, in the specific character of their referential opacity: they seem to allow for truth-preserving substitution of necessarily co-referential terms. If you tell me that the president of the United States is Texan, you do not tell me that Bush junior is Texan, for I might well ignore that Bush junior is the president of the United States and you do not tell me so. If I learn, however, that Cicero is a Roman orator, I thereby learn that Tully is a Roman orator. The information I received by hearing that Hesperus is Phosphorus is about. Venus, and is the information that it is self-identical. Even if senses enter into the explanation of how “Hesperus is Phosphorus” has greater ‘cognitive value’ than “Hesperus is Hesperus” (or: ‘is more informative’, as this is often unhappily put), the sentences are not about these senses. The case for predicates is somehow intermediate. While it certainly sounds weird to say that by telling you:

Cicero is Cicero

or

All equiangular plane figures are equiangular.

I give you the information that

Cicero is Tully

and

All equiangular plane figures are equilateral.

someone may still bite the bullet and hold that by telling you that all equiangular triangles are $F$, I also tell you something about all equilateral triangles. But someone who holds that I learn something about equiangularity will deny this: I do not learn anything about it if I am told that equilaterality is co-extensional with itself. For sentences, however, the situation is clear: even necessary equivalence does not preserve informational value. These observations may be summed up in the following way: informational contexts are ‘weakly extensional’ (in the sense of allowing substitution salva veritate of necessarily co-extensional words) with respect to the positions which refer to the entity the information in question is about, but opaque with respect to the position where the information conveyed is represented.

Another connection between informational content and aboutness became important in the inductive logic tradition championed by Rudolf Carnap and Karl Popper. Carnap (1942) offered two reconstructions of an idea on how to represent information he found in Popper (1935), identifying the informational content of a statement either with the set of its logical consequences or with the set of its possible falsifiers. One of the problems with the first reconstruction is how to prevent an explosion of the informational content due to the validity of $p \implies p \lor q$, $p \implies q \rightarrow p$ and the like. Taking a clue from Goodman (1961), Howard Smokler (1966: 207) proposed to exclude sentences $q$ from the informational content which are such that $p$ entails the universal generalisation of one of the ‘transforms’

10By the former, I mean sentences of the form “$a$ knows that $p$”, by the latter sentences of the forms “$p$” means that $p$”, “$a$” expresses the individual concept $a$” and “$F$” expresses the property $F$” (if the latter is based on a theory of predicates which allows for necessarily co-extensional predicates which are not identical).

11I am here assuming that proper names are rigid designators, referring to the same individual in all those worlds where this individual exists.

12You told me something about Bush junior, but nothing about Fermat’s Last Theorem, though “The president of the United States is Texan” and “The president of the United States is Texan and $\forall n \in \mathbb{N}$, there are no $x, y, z \in \mathbb{N} \setminus \{0\}$ such that $n > 2 \land x^n + y^n = z^n$” are necessarily equivalent.
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$q'$ of $q$ ($q'$ being $q$ with one individual or predicate constant replaced by a variable of corresponding degree). As S.G. Hair (1969) pointed out, however, this definition has some implausible consequences: it strips us from the possibility to say, e.g., that the informational content of a conjunction includes its conjuncts and it leads to a breakdown of transitivity of informational content for languages including polyadic predicates or identity. Even if these problems could be fixed, a more general problem with this kind of approach remains: if the informational content of $p$ is given as a set of sentences, the question naturally arises what the informational content of these sentences is and whether it would not be more appropriate (in order to avoid a regress) to include their informational content, rather than the sentences themselves into the informational content of $p$. This move, however, would make the account immediately circular, the informational content of $p$ being identified with (the fusion, plurality or union of) the informational contents of those sentences $q$ such that $\vdash p \rightarrow q$. We will therefore not pursue further this route.

What about the second of Carnap’s reconstructions, informational content as set of possible falsifiers? Can we say that a sentence is about those things that could make it false? A first problem pertains to necessary truths. If some truth could not be false, trivially, then it cannot be made false. If necessary truths have informational content, then their informational content is not the empty set of their possible falsifiers. On the other hand, not all possible falsifiers are part of the informational content: things can make truths false that are not about them. The deeper problem, however, is that our grip on falsemaking seems itself to depend on our conception of aboutness. It is because, intuitively, some truth is about some entity that this entity is a potential falsemaker for it.

We will return to these points later. First, however, we have to take a closer look at the long history of criteria of ontological commitment, the most venerable and most widely accepted ‘criterion’ of aboutness.

The champion of ontological commitment is undoubtedly Quine: if “to be assumed as an entity is […] to be reckoned as the value of a variable” (Quine 1948: 13), a theory or body of (putative) truths $T$ commits us to those entities that are assumed to be in the range of variables to make $T$ true. According to Quine, it is the presumed truth of the sentences we use that puts us under ontological obligations and it is our use of first-order quantification in a semi-formalised canonical idiom which makes these obligations explicit. I want to argue, first, that it is not the truth of what we assert but the inferences we are prepared to accept that commit us to entities: ontology cannot simply be read off our language. Instead, it is the acceptance of inferences that is our best guide to some person’s ontological commitments. Second, I want to argue that this notion of ontological commitment should not be formulated in modal terms and, third, that the intuitive notion of ontological commitment has two aspects which should be separated and are better captured by theories of aboutness and of truthmaking respectively.

According to Quine’s criterion, what a sentence commits us to is determined by what its variables range over and hence by how it is formalised. The connection between formalisation and commitment,

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13While “$(\forall x F x) \land F a$” entails the universal generalisation of its conjunct “$F a$”, we may still say that “$F a$” belongs to the informational content of the conjunction.

14The informational content of “$(\forall x (R(a, x) \lor R(x, a)) \land R(a, b))$” includes “$R(a, b)$”, the informational content of which contains “$R(a, b) \lor R(b, a)$”. Because the first sentence “$(\forall x (R(a, x) \lor R(x, a)) \land R(a, b))$” implies a universal generalisation of it, “$R(a, b) \lor R(b, a)$” cannot belong to its informational content. The informational content of “$(\forall x (F(x) \lor G(x)) \land (F(a) \lor G(b)) \land a = b)$” includes “$(F(a) \lor G(b)) \land a = b'$. “$F(a) \land G(a')$” is included in the latter’s informational content, but not in the former’s.

15This is a just a very loose rendering of the argument I will give in sect. 6.2 against the necessity of necessitation for truthmaking. For present purposes, a rough analogy will suffice: we are free to break the laws, Lewis (1980: 297) argues, because we can render them false in the sense that we can do something such that, if we did it, then they would be false. The laws of nature, however, whether or not we can break them without supernatural powers - are not about us.
however, may be in one of two directions:
(i) Formalisation uncovers ontological commitment: the commitment of a sentence is determined by its logical form.
(ii) Formalisation is constrained by ontological commitment: sentences have an 'ontological form' that a correct formalisation has to confirm.

Quine privileges the first direction, while I think that the second is more important: we cannot simply read of our commitments from the logical forms of the sentences we accept — rather, we are guided in our formalisation efforts themselves by a sense of which commitments are acceptable. But how, one may ask, is it even possible that formalisation is constrained by, rather than constrains, ontological commitment? After all we do not, one may think, have an independent grasp of 'ontological', as opposed to logical form. But perhaps we do.

There are many inferences we accept as valid but are uncertain about how to formalise. Consider the following inferences:

\[
\begin{align*}
(2) & \quad \text{Maria is a vixen.} & \text{Maria is female.} \\
(3) & \quad \text{Sam is slowly buttering his toast.} & \text{Sam is buttering his toast.} \\
(4) & \quad \text{He ought to } F. & \text{He is able to } F. \\
(5) & \quad \text{Spaghetti can be cooked à la Bolognese.} & \text{Spaghetti can be cooked à la Carbonara.} & \text{Spaghetti can be cooked à la Cinque P.} \\
\end{align*}
\]

\[\exists x, y, z (x, y \text{ and } z \text{ are ways of cooking spaghetti and } x \neq y \land x \neq z \land y \neq z)\]

We recognise these inferences as valid even though (and hence independently of the fact) that we do not want to commit ourselves to some particular formalisation of the sentences they contain. (5) will be considered valid by competent speakers, at least if the conclusion is read as “There are (at least) three different ways of cooking spaghetti”\(^\text{16}\). It is difficult to see why acceptance of the validity of the existential generalisation should commit us to formalising the premises by \(R(a, b)\).

But not only do we accept inferences as valid that we do not know how to formalise, we also formalise sentences without endorsing inferences that are licensed by those formalisations. Consider e.g.

\[
\begin{align*}
(6) & \quad \text{Britney lost her virginity} & \exists x (\text{Britney lost } x) \\
\end{align*}
\]

(6) will undoubtedly be judged unacceptable by (a majority of) competent speakers of English: we may truly say that Britney lost her virginity without thereby committing us to virginities. Does it follow from this that “Britney lost her virginity” does not have the logical form \(R(a, b)\), even though “her virginity” therein apparently functions as a singular term? Someone defending such a claim could

\(^{16}\text{It might be replied that it is only under this reading that competent speaker accept (6). They would not accept it, the thought goes, if it were read in some other way making the alleged ontological commitment more explicit, e.g. as “Ways of cooking spaghetti exist and there are three of them and they are all different”. But our disinclination (if any) to accept the latter sentence could be just due to the fact that the it is bizarre and that competent speakers are reluctant to accept sentences that are barely grammatical. A proponent of the view that ontological commitment can be read off from logical form is committed to some kind of correspondence between quantifier phrases logical notation and more familiar sounding sentences in natural language. It is not clear how such a correspondence could treat the conclusion of (6) differently from, e.g., “\(\exists x, y, z (x, y \text{ and } z \text{ are zebras and } x \neq y \land x \neq z \land y \neq z)\)” without presupposing that ways of cooking spaghetti do not (and are not taken to) exist.}\)
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point out that “Britney lost her virginity” is equivalent to (necessarily implies and is implied by or even is synonymous with) a sentence which predicates a monadic property of Britney and that it is this monadic predication which makes apparent the ‘true’ logical form of “Britney lost her virginity”. Such an argument, however, comes with substantial presuppositions:

(i) necessarily equivalent or, at least, synonymous sentences share their same logical form; and
(ii) logical form is what licenses existential generalisation.

Both these assumptions may be challenged. The first (i) seems especially tenuous. Even if “Sam is a vixen” and “Sam is a female fox” are synonymous, does it follow that “Sam is a vixen” has the logical form $Fa \land Ga$, which would make “Sam is a vixen” imply “There is at least one female”? Necessary truth-preservation, to be sure, but implication in virtue of logical form?

As these examples should have made clear, Quine’s criterion amounts to a quite restrictive regimentation of the way we ordinarily speak; it presupposes a substantive theory of logical form. But perhaps Quine has the resources to assuage these doubts.

The reluctance of ordinary speakers to read the conclusion of (5) as “Ways of cooking spaghetti exist and there are three of them and they are all different” may also be explained in a different way. Whenever several readings of a natural language sentence are available, Quine counsels us, we should adopt the ontologically least committal. This is expressed by the modal auxiliary in many statements of the criterion:

...a theory is committed to those and only those entities to which the bound variables of the theory must be capable of referring in order that the affirmation made in the theory be true ...(Quine 1948: 13–14, my emphasis);
...entities of a given sort are assumed by a theory if and only if some of them must be counted among the values of the variables in order that the statements affirmed in the theory be true ...(Quine 1953b: 103, my emphasis, cf. also 108);
To show that some given object is required in a theory, what we have to show is no more nor less than that that object is required, for the truth of the theory, to be among the values over which the bound variables range. (Quine 1969a: 94, my emphasis)

The “must” in these formulation, in my view, should not be interpreted as an alethic modality (alethic modalities are, after all, repudiated by Quine), but as a meta-theoretic statment: Whenever a claim may be evaluated as true over different domains, we should interpret it as committed to only those entities common to all these domains.

While some flexibility in setting the ontological price of a statement is clearly needed, quantification over available domains brings additional problems. For one thing, it greatly reduces the ontological commitment of many sentences. Quine (1969a: 96) himself has pointed out that some sentence may be true if interpreted with variables ranging over different, but non-overlapping universes, as, e.g., “$\exists x (x$ is a dog)” in universes containing only collies and spaniels respectively. If we take the specific objects required to be those common to all those universes, “$\exists x (x$ is a dog)” will not commit us to anything.

Not only paraphrase, however, can help us to limit our ontological commitments; so too can wholesale reinterpretation, not of individual sentences of the theory, but of the alleged subject-matter of the

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17 Quine (1953b: 114) himself claims that although “$\exists x (x$ is a dog $\land x$ is white )” and “$\exists x (x \in \text{dogkind } \land x \in \text{class of white things})$” are truth-functionally equivalent, they differ in ontological commitment.

18 Based on the presence of the modal auxiliaries, Cartwright (1954: 319) and Chihara (1968: 32) have falsely, in my view, interpreted Quine’s criterion as intensional.
theory as a whole. This is what the formalists do when they “keep [...] classical mathematics as a play of insignificant notations” (Quine 1948: 15), regarding mathematics as a (useful) myth without thereby coming – in their, as in Quine’s, view – under the obligation to retranslate it in any way. But not just formalist mathematicians may find their ontological bills easy to settle. For Quine retranslatability begins at home.

The problem already arises with referential indeterminacy: because empirical evidence only provides information about the assent patterns of sentences, there is no fact of the matter in Quine’s behaviouristic semantics which one of the group of sentences with the same stimulus-meaning is the correct translation of a the hitherto un-parsed foreign sentence. The radical interpreter’s decision “what expressions to treat as referring to objects, and, within limits, what sorts of objects to treat them as referring to” (Quine 1957: 3) is unconstrained by all possible empirical evidence:

English general and singular terms, identity, quantification, and the whole bag of ontological tricks may be correlated with elements of the native language in any of various mutually incompatible ways, each compatible with all possible linguistic data, and none preferable to another save as favored by a rationalization of the native language that is simple and natural to us. (Quine 1957: 45)

But even if we impute our referential apparatus on the natives’ language, i.e. assume that their ontological categories are roughly the same as ours, we still have only an essentially structuralist account of their ontology, leaving open the possibility of unintended, Pythagoreanistic interpretation (Quine 1976). We will come back to this worry in the next subsection.

The modal auxiliary in Quine’s formulation does not only raise the trivialisation problem. The fact that Quine (1948) thought it coherent to avoid ontological commitment by adopting a fictionalist attitude toward what one says teaches us an important lesson: whatever the merit of the notion of logical form, the logical form of a sentence should not be taken to give the “true” analysis of its inferential powers nor should it taken to settle once and for all the ontological commitments incurred by its assertion. There is, strictly speaking, no logical form sentences have by themselves, as if they were their skeletons: we language users give (for the most part, implicitly) various logical forms to the sentences we are using. Radical as this suggestion may sound, I think it is forced on us by a consideration of the philosophical career of Quine’s criterion.

Despite its notoriety, Quine’s criterion, aimed at doing away with an alleged distinction between what Anderson (1959: 451) called the “trivial” and the “honourific” uses of “exists”, is not widely observed. The trivial use keeps popping up, even among philosophers. The reason for this, I think, is that Quine allows us to avoid commitment in the presence of a translation scheme. “Presence” may now mean different things, and it is too easy to wave commitment in the expectation of such a scheme or just in the belief that such a scheme, ultimately, has to exist (even if no one has found it already).19

Even after half a century of intense discussion, it is still not clear what exactly the logical form of Quine’s criterion is supposed to be. Various candidates have been proposed, but they all seem to face difficulties. Suppose, for instance that we try to explicate:

\[(7) \quad T \text{ is ontologically committed to (for short: assumes) } a.\]

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19 We have already discussed, in ch. 3, some of the the broader implications of a claim asserting the availability, in principle, of such a translation scheme and the question whether supervenience can be interpreted as availability-in-principle of a translation scheme.
4.1 Ontological commitment

by

\( T \vdash \exists x (x = a) \)

Does “\( a \)” in (7) occur referentially or is the context opaque? In (8), the singular term \( a \) occurs in what Quine calls 'purely referential' (i.e. quantifiable) position. If (7) is analysed by (8), therefore, we are licensed to infer from it:

\( \exists x (T \text{ assumes } x) \)

While (9) is unproblematic for those who share the commitment to \( a \) expressed in (7), it shows that (8) is inadequate as an analysis of the criterion of ontological commitment. For to apply (7) as a criterion, we should be able to say that others are committed to entities that do not exist, which, in the presence of (9) we cannot.

If “\( a \)” in (7) does not occur referentially, however, it seems impossible to construe ontological commitment as a relation between a theory and a thing (Scheffler & Chomsky 1958–1959). If we construe it, with Chomsky and Scheffler, as a relation between a theory and a class, however, we get the unacceptable result that “\( \exists x (x = \text{Pegasus}) \)” and “\( \exists x (x = \text{Count Dracula}) \)” have the same ontological commitment, namely \( \emptyset \) (Jubien 1972: 383), and, in addition, that every statement commits its proponent to the existence of classes.

The formalisation of Quine’s criterion as (8) faces another, apparently fatal, objection: Terence Parsons (1967a) has shown that any account of ontological commitment as a sentential functor \( C(\phi) \) from expressions to classes which obeys the following principle:

\( \text{If } \phi \vdash \psi, \text{ then } C(\psi) \subseteq C(\phi). \)

and either accepts \( C(\exists x \phi) \subseteq \{ x \mid \phi \} \) or \( \{ x \mid \phi \} \subseteq C(\exists x \phi) \) entails that for any two atomic predicates \( P \) and \( Q \), \( C(\exists x (P x)) = C(\exists x (Q x)) \). Parsons (1967a: 450) concludes that “the only recourse for a meaningful notion of ontological commitment is to move into the domain of a theory of meaning”.

It is not clear how we are to do this, however. If we want to keep ontological commitment as a relation between theories and *things*, “\( T \) assumes \( x \)” should not be opaque in “\( x \)”. This rules out a meta-linguistic rendering, as Jubien (1972: 383) has noted:

\( T \) uses “\( a \)” referentially.

“Being used referentially” is a property not of things, but of their names. When I criticise you for believing in the existence of Pegasus, I am not criticising you for having a false attitude towards (what you take to be) a thing, nor of wrongly using a name – I am chiding you for believing in the existence of something I think does not exist. This was the original puzzle in Quine (1948) and we seem to have made little progress.

Quine’s original advice was to replace talking about Pegasus by talk about the unique Pegasizer, where ‘pegasizing’ is the “ex hypothesi unanalyzable, irreducible attribute of being Pegasus” (Quine 1948: 8).

Ontological disputes then becomes meaningful: the believer in Pegasus is quantifying over pegasizing things while the disbeliever does not. After elimination of the definite description “the Pegasizer” by Russell’s method, our dispute becomes one solely about the domain of quantification. If such reformulations were generally available, some progress would have been made. But are they?\(^{20}\) How

\(^{20}\) For the following, I am indebted to Eliza Block who, in an unpublished paper “On Pegasizing”, also points out that Quine’s ‘description theory’ (if it works) surprisingly escapes Kripke’s modal and semantic arguments against description theories of names.
are we to understand the new predicate “$x$ pegasizes”? Suppose the attribute it ascribes is a general feature of things, i.e. could, as far as the semantics of “$x$ pegasizes” is concerned, be exemplified by more than one thing. We then have the disturbing consequence that “Tom is Pegasus” and “Tom pegasizes” are not synonymous, for the former, but not the latter, implies that there is at most one pegasizing thing. It therefore must be a semantic feature of the predicate that it is true of at most one thing.\textsuperscript{21} Such predicates, however, are normally semantically complex: paradigmatically, they are composed of the identity predicate and a singular term. If, however, we are to understand Quine’s unanalyzable attribute as

\[(12) \quad x \text{ pegasizes} \iff x = \text{Pegasus}\]

our understanding of the predicate is derived from our prior grasp of the semantics of the proper name. That “$x$ pegasizes” is true of at most one object must be stipulated by some meaning postulate for it. The proposed method of Quining away empty terms bites itself in the tail:

…the employment of terms like ‘pegasizes’, with a “guarantee” (whatever that might mean) that they are truly predicatable of one and only one thing (or of nothing), does nothing more than introduce “proper names” at the predicate level. (Hochberg 1957: 553)

Hochberg’s point, I think, is well taken: nothing in what Quine says gives us any clue to how we may understand his unanalyzable predicates (especially those that are, necessarily or contingently, unsatisfied).\textsuperscript{22} The ‘artificially seeming device’ allows us to say “Pegasus does not exist” without committing ourselves to Pegasus’ existence. But this is just a consequence of the general trade-off between ontology and ideology: if, as Quine (1960a) himself has shown, we can construct languages that do away with variables altogether, we should not conclude from this that sentences couched in such variable-free languages do not incur ontological commitments.

These difficulties, I think, show that Quine’s dismissal of names as paradigmatical bearers of ontological commitment in favour of variables was premature. He was right, however, that some kind of semantic ascent is asked for. To say that, contrary to what proponents of $T$ believe, Pegasus does not exist, is to say that even their domain of quantification does not contain any such thing than Pegasus. This is not to say that Pegasus lies outside their domain of quantification, but to say that it is not ‘where’ it would be if it existed (namely in their domain of quantification). We can do this by assuming, for reductio, that “Pegasus” refers, devise a predicate true of its putative referent, if of anything, and then use that predicate to say that it is not true of anything – or we can, more simply, just say that “Pegasus”, as used by proponents of $T$, does not refer. Are we then back to (11)? Not quite.

Even if the whole of the ontological weight of a theory, according to Quine (1948: 12), is carried by its quantificational apparatus and proper names can be dispensed with in favour of descriptions, there is a connection between ontological commitment and what we might call “genuine proper names” given by the rule of existential generalisation:

\[
(\text{EG}) \quad \frac{\Phi \alpha}{\exists x (\Phi x)} \quad \text{EG}
\]

\textsuperscript{21} Cf. “To be able to use definite descriptions instead of proper names one would have to know that the uniqueness clause of the description is fulfilled.” (Hochberg 1957: 551)

\textsuperscript{22} Our lack of understanding of “pegasizes” also prevents us from asserting many other apparently true statements apparently about Pegasus that are not implied by “Pegasus does not exist”. “Pegasus is a fictional entity”, e.g., comes out false under the contextual definition à la (12), but seems true. Marcus (1972: 242) goes as far as calling “Necessarily, Pegasus is Pegasus, and Pegasus is not a fish” an “obvious truth”. They would not be obvious if our only ground to believe the second conjunct were that Pegasus does not exist.
4.1 Ontological commitment

We should resist the suggestion to treat (EG) as “anomalous” (Quine 1953c: 167) and take seriously Quine’s idea that it is “the logical content of the idea that a given occurrence is referential” (Quine 1953d: 146). The validity of (EG) presupposes that “a” names something (Quine 1953c: 161) and that it occurs referentially (Quine 1953d: 145); whenever a theory accepts “∃x(x = a)”, it is said to use “a” as naming (Quine 1969a: 94).

The ontological commitments of a theory and its range of referring expressions are thus seen to be interchangeable, at least if the latter are understood as including definite descriptions used referentially.23 As Church (1958: 1009) has remarked, we may therefore turn matters round and say that “a symbol is genuinely a proper name only if it admits the existential inference typified by the inference from [Fa] to [∃x(Fx)]”.24

(13) \( T \) is deductively closed under (EG).

(13), because it only mentions, but does not use “a”, has the obvious advantage that it does not commit its proponent to “a” having a referent. Does it therefore turn ontological commitment into a relation between theories and names? Arguably, it does not. Before arguing for this, we have to go back to the most serious problem a “modal” account of ontological commitment faces.

4.1.2 Domains of quantification

Russell clearly recognised the availability of ‘Pythagoreanistic’ interpretation as a threat to his structuralist theory of scientific knowledge (Russell 1927: 4)25 and Quine could – and does – adopt Russell’s solution to it. Abstract models are ruled out on the ground that they are not appropriately connected with our observations. We ‘acquiesce’ in our home language, as it were, take it ‘at face-value’ and determine the ontological commitments of our theories relative to it. In this subsection, I would like to point out some consequences of this move.

If we identify our knowledge of the world with knowledge of only its structure (in so far it is describable by purely general quantified Ramsey-sentences) – if “of the external world we know its structure and nothing more” (Newman 1928: 142) – then our theories admit of different, incompatible but equally ‘good’ interpretations even if the domain of their interpretation is fixed: The problem arises, as Newman realises, from Russell’s claim that we know the structure \( W \) of the world in virtue of a relation \( R \) about which we only know that exists – the problem then is that “any collection of things can be organised so as to have the structure \( W \), provided there are the right number of them” (Newman 1928: 144):

Thus, on this [Russell’s 1927] view, only cardinality questions are open to discovery! Every other claim about the world that can be known at all can be known a priori as a logical consequence of the existence of a set of \( \alpha \)-many objects. (Demopoulos & Friedman 1985: 627)26

This is a devastating result, on anyone’s standards. Proxy-functions do not only allow for the exchange of the whole domain, but can do away with ontological commitment even within one fixed domain. In

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23The latter proviso is needed to account for sentences like “There are unspecifiable real numbers” (Quine 1969a: 93).

24We do not have to make the further and stronger claim that ontological commitment to entities \( x \) such that \( M \) is only given by the assertion of “∃xM” (Church 1958: 1014).

25For the link between Russell’s theory and Newman’s critique and Putnam’s model-theoretic argument I am indebted to Lewis (1984: 61, fn. 9) and Demopoulos & Friedman (1985).

26They add: “(The relevant theorem from set theory or second-order logic is the proposition that every set \( A \) determines a full structure, that is, one which contains every relation (in extension) of every arity on \( A \); such a structure forms the basis for a (standard) model for the language of second- (or higher) order logic.)” (Demopoulos & Friedman 1985: 628)
a similar vein, Putnam (1977 1978 1980 1981) has argued that the availability of reinterpretations of even our best theories makes the very notion of an “absolutely mind-independent reality” incoherent. This is so, he argues, because it makes no sense to suppose that a theory $T_1$ “that is “ideal” from the point of view of operational utility, inner beauty and elegance, “plausibility,” “simplicity,” “conservatism,” etc.” (Putnam 1977: 488) might be false. From this, he concludes that so-called “metaphysical realism”, a position committed to such a possibility, is itself incoherent. A compact version of his argument with respect to an ideal theory $T_1$ runs as follows:

Pick a model for $T_1$, $M$. Relative to the interpretation of ‘reference’ for $L$ that yields $M$, $T_1$ must come out true. How could it not then be true? This interpretation must meet all operational (and theoretical) constraints on reference because $T_1$ is ideal. There can be no further constraints that would rule out $M$ as the “intended” model. To, $T_1$ is true in any “intended” model and so must be true. The idea that $T_1$ might be false is unintelligible. (Devitt 1983: 297–298)

Putnam relies on the model-theoretic proof that given a consistent theory $T_1$ demanding a universe of cardinality $c$, and given any set $s_M$ of cardinality $c$, there exists a model of the theory $M$ the universe of which is $s_M$. Because $M$ and the intended model are in one-to-one correspondance, we can extend the interpretation of $T_1$ in its intended model to an interpretation of $T$ in $M$. Under this correspondance between the language of the theory and $s_M$, he argues, the theory is true of $s_M$ as a matter of logic – no matter what $s_M$ is.47

We must come up with additional constraints on admissible interpretation. Putnam considers an appeal to a causal theory of reference by the metaphysical realist: but this would be, he answers, just the addition of more theory to $T_1$ (Putnam 1978: 126) and therefore not help, as long as “reference” is not “glued to one definite relation with metaphysical glue” (Putnam 1980: 477). I think that it is this ‘just more theory’ reply to realists may plausibly be rejected:

Constraint $C$ is to be imposed by accepting $C$-theory, according to Putnam. But $C$-theory is just more theory, more grist for the mill; and more theory will go the way of all theory. To which I reply: $C$ is not to be imposed just by accepting $C$-theory. That is a misunderstanding of what $C$ is. The constraint is not that an intended interpretation must somehow make our account of $C$ come out true. The constraint is that an intended interpretation must conform to $C$ itself. (Lewis 1984: 62)

This, I think, is the right answer to Putnam’s paradox, but more must be said. I will discuss two strategies and show that they come to the same thing.

The first answer is to bite the bullet face-on: the reference of “reference” falls indeed within the scope of a theory of reference and belief in it “arise[s] out of a causal interaction between the believers and a reality independent of those beliefs” – but the fact that the determinacy-of-reference question can be raised at any stage does not mean that it is never answered (Devitt 1983: 298):

Putnam’s anti-realist argument depends on there being no answer to the question about what determines reference for $T_1$. Using a theory of reference there is an answer: reference is determined by causal relations of a certain sort. That answer works for ‘causally related’ just as it does for ‘cat’. (Devitt 1983: 299)

47 As Demopoulos & Friedman (1985: 634) have noted, this is a weakening of Newman’s result: while Newman shows that fixing the domain and models up to isomorphism does not fix the intended reference of the $T_1$ vocabulary, Putnam shows that it is not fixed by fixing the domain and models up to elementary equivalence (which is strictly implied by isomorphism).
This means that we go back to the answer Russell gave Newman in a letter dated April 24th, 1928:

> Is it of course obvious [...] that the only effective assertion about the physical world involved in saying that it is susceptible to such and such a structure is an assertion about its cardinal number. [...] It was quite clear to me, as I read your article, that I had not really intended to say what in fact I did say, that nothing is known about the physical world except its structure. I had always assumed spatio-temporal continuity with the world of percepts, that is to say, I had assumed that there might be co-punctuality between percepts and non-percepts...[...] And co-punctuality I regarded as a relation which might exist among percepts and is itself perceptible. (Russell 1968: 176, quoted after Demopoulos & Friedman 1985: 631–632)

Though he never says so in his published works, Russell here seems prepared to assume acquaintance “with a cross category notion such as spacio-temporal contiguity or causality” (cf. Demopoulos & Friedman 1985: 632, who criticise this solution as “quite artificial”).

If Russell counts the causal connections in virtue of which we have knowledge of the external world as falling under his notion of “acquaintance”, then he introduces for relations, as Newman urged, an analogue of the important/unimportant distinction for domains. Those relations will qualify as important knowledge of which is not purely structural. In this sense, the Russell-Newman reaction to reinterpretability comes to essentially the same as the second solution to Putnam’s paradox, proposed (on behalf of the realist) by Merrill (1980) and endorsed by Lewis (1984):

> ...realists typically hold that not only are there objectively existing entities (both observable and unobservable) in the world, but also that these entities bear to one another certain... objective relations. And according to this latter view the world must be represented not simply as a set, but as a set together with a class of relations among the members of that set. To describe the world is to describe the entities (or kinds of entities) in it and their relations to one another. (Merrill 1980: 72)

The ‘ready-made world’ dear to metaphysical realists must be understood not just as consisting of mind- and language-independent entities, but as having a structure that is independent of language:

> ...if, as the realist surely must hold, the real world is a structured domain, then we are not free to ignore its intrinsic structuring in playing our model-theoretic tricks. (Merrill 1980: 74)

The intrinsic structure of the world, according to Lewis’ proposal building on Armstrong’s scientific realism about universals, comes from more or less natural properties, the ‘real joints’ in nature:

> Among all the countless things and classes that there are, most are miscellaneous, gerrymandered, ill-demarcated. Only an elite minority are carved at the joints, so that their boundaries are established by objective sameness and difference in nature. Only these elite things and classes are eligible to serve as referents. (Lewis 1984: 65)

---

28This interpretation is justified because Russell clearly expresses agreement with Newman’s conclusion which the latter states as follows: “The conclusion that has been reached is to maintain the view that something besides their existence can be known about the unperceived parts of the world it is necessary to admit direct apprehension of what is meant by the statement that two unperceived events are causally adjoined, i.e. happen near each other, temporally and spatially, or overlap or do something of the sort.” (Newman 1928: 148)
4. Grounding truth in being

Just structure, however, is not enough: the structure of the world must be specific, the elite properties and relations sparse (Merrill 1980: 77). These elite properties and relations will then act as ‘reference-magnets’, constrain admissible interpretations and make for “an objective inegalitarianism of classifications” (Lewis 1984: 67).

How does this apply to Quine? In our search for the ontological commitments of a theory, the slogan “to be is to be the value of a variable” advises us to look at how the apparatus of quantification in the underlying logic (usually assumed to be first-order) interacts with the predicates of the theory. We are, in short, to look at the extensions of predicates and therefore at the domain of quantification. The addition of the modal auxiliary, in this context, makes our ontological commitments depend on our choice of a domain. Logical techniques of exchanging one domain for another and for permutating the domain while preserving the truth-values of sentences then become available – to devastating effect. Quine’s reaction, to “acquiesce in the home language”, comes to more than just privileging one referential apparatus over another: it amounts, in Ludovician terms, to an inegalitarianism of classifications.

The model-theoretic argument, its ancestors and variants show that Quine’s original picture of ontological commitment is wrong in at least two respects: it gets the respective priority of reference and satisfaction wrong and it reverses the priority of reference and ontological commitment. The first point becomes apparent if we consider what it means to postulate ‘objective inegalitarianism’ as a constraint on admissible interpretations: it means that interpretation must link our predicates and singular terms with the extensions and referents that are most eligible overall, taking into account all trade-offs with the eligibility of other extensions or referents of other parts of the language (Lewis 1984: 66). There must be a correlation between things (and classes of things) in the world and the words we use to talk about them over and above the requirement that plugging the singular terms into some sentential function expressing some condition true of all and only the things in the class leaves us with a true sentence. In this sense, then, Putnam’s paradox shows the need for thick notions of reference and satisfaction: for something to be the referent of “a”, for example, it is not enough for “x = a” to be true of it; for something to satisfy “F(x)”, it is not enough for “F” to have an extension including it.

Putnam’s paradox also shows that Quine’s insistence on the domain of quantification puts the cart before the horse: In advance of a criterion of ontological commitment, the very idea of choosing a domain of quantification to interpret our predicates in and have our variables ranging over does not make any sense. We cannot pick the domain over which the variables in a theory range before we know what its ontological commitments are and we cannot know what the commitments are before we have a domain in which to interpret the theory. Framed this way, I think, it can be easily seen that Lewis’ response to Putnam’s (and Quine’s) trivialisation problems is on the right track: we have to take the idea seriously that domains are not choosen by us, but given, independently of and prior to our interpreting our theories. Putnam’s model-theoretic argument is based on the assumption that “we, [i.e. our intentions] interpret our languages or nothing does” (Putnam 1980: 482) and can therefore be taken as reductio of that assumption. As Lewis (1984) argues, some referents, things and classes of things, are more eligible than others – intended interpretations of our language must maximise eligibility of referents overall (Lewis 1984: 65). Their eligibility does not depend on whether or how we conceive of them; it is itself a natural (and hence, highly eligible) feature of the things we quantify over.
4.1 Ontological commitment

4.1.3 Identity inferences

We recognise inferences as valid even though (and hence independently of the fact) that we do not want to commit ourselves to some particular formalisation of the sentences they contain. We do recognise, however, that their validity depends on what the premisses and the conclusion are about: if I was talking about two different people called “Sam”, for example, the inference (9) from “Sam is slowly buttering his toast” to “Sam is buttering his toast” would be fallacious. We presuppose, in other words, that our uses of names, variables and anaphora are coordinated: that identical words and sequences of syntactically dependent words refer – de jure, not just de facto – to the same thing.

A genuine proper name is a linguistic item that allows us to pick out an object as our subject of predication. The important thing about proper names as opposed to other singular terms is that they do so reliably, that they are (comparatively) immune against reference shifts and do not for their reference depend on contingent facts. In metaphysical terms: the naming relation in the case of proper names is internal (supervenes on the relata), while it may be external for other singular terms. Proper names track an object and they do so (relatively) invariably. Coordination, in its simplest form, is presupposed whenever we fuse two predications into one:

\[
\frac{F_a}{G_a} \quad \frac{(F \land G)}{a}
\]

I will call an inference of the type \((\text{id}_a)\) an “inference trading on identities” or “identity inference” for short. The conclusion of \((\text{id}_a)\) is meant to rule out cases of conjunction introduction where the proper name type is used ambiguously, as in

\[
(\text{id}_{DL}) \quad \text{David Lewis is an American-born philosopher famous for his modal realism.}
\]

\[
(\text{id}_{DL}) \quad \text{David Lewis is a Russian-born Canadian lawyer and politician.}
\]

\[
(\text{id}_{DL}) \quad \text{David Lewis is both a philosopher and a politician}
\]

\((\text{id}_a)\) is valid only if we are able to rule out this kind of equivocation. Identity is crucially involved in the validity of \((\text{id}_a)\), as can be seen from the fact that

\[
(\text{id}_{\text{something}}) \quad \text{Something is red.}
\]

\[
(\text{id}_{\text{something}}) \quad \text{Something is round.}
\]

\[
(\text{id}_{\text{something}}) \quad \text{Something is red and round.}
\]

is not a valid inference. To get validity (under an assignment), we need an additional premise as in

\[
(\text{id}_{xy}) \quad x = y
\]

\[
(\text{id}_{xy}) \quad x = y \quad \text{is red and green.}
\]

In other words, the assignments of values to \(x\) and \(y\) respectively have to be coordinated. How coordination is achieved is a vast, and partly empirical question. Some typical examples may however be useful. A first class of cases involves intentions of co-reference: two utterances are coordinated in this way if one of them essentially involves an intention to use some syntactical-lexical form, some sound pattern or some other physical item in the same way, whatever it is, as the salient physical item is used in the other. In typical cases when I am about to use a word, it already exists as a sequence of tokens, ending in one particular token – an intention of co-reference will then determine whether another phonetical or graphical item is a token of the same word or not. In other cases, as in the case of pronouns and anaphora, coreferentiality is encoded in the syntax of the word in question and the
structure of some stretch of discourse.

It has long seemed mysterious how our brains achieve such coordination and how it can be formally and conceptually modelled. Many of the different sub-problems discussed under the label of the ‘binding problem’ pertain to this kind of coordination.\textsuperscript{39} In the philosophy of perception, Clark (2000) has argued that so-called feature integration = perceiving something as being both $F$ and $G$, where $F$ and $G$ are sensible properties registered in distinct parallel streams, as in the classical problem of Molyneux or in the ‘Many Properties’ problem of Jackson (1977: 65) = requires a referential apparatus and that perception should therefore not be modelled as simple ‘feature-extracting’, but as a process having propositional structure: features are unified by their locations (in visual space),\textsuperscript{30} into so-called ‘proto-objects’ or ‘pre-attentive objects’ (Clark 2004) that are picked out by ‘visual indices’ (Pylyshyn 2001: 127). It is only with such objects that we get from mere conjunction to coordination (Clark 2000: sct. 2.5). With this, Quine would agree:

The conjunction [of ‘Lo, a pebble’ and ‘Lo, blue’] is fulfilled so long as the stimulation shows each of the component observation sentences to be fulfilled somewhere in the scene = thus a white pebble here, a blue flower over there. On the other hand the pre-dication [‘The pebble is blue’] focuses the two fulfillments, requiring them to coincide or amply overlap. The blue must encompass the pebble. It may also extend beyond; the construction is not symmetric. (Quine 1990: 4)

According to Clark (2000), coordination is achieved by placing features in regions and re-identifying those, thereby tracking visual objects through visual space.\textsuperscript{31} It is not important for our present purposes whether, as Clark (2000 2004) believes, proto-objects are regions or whether, with Cohen (2004) and Matthen (2004), we take them to be (intentional) objects located at regions.\textsuperscript{32} Whatever it is an identification of, however, it is not yet identification of particulars, but only a prerequisite for it:

These ultimate facts [of feature-placing] do not contain particulars as constituents but they provide the basis for the conceptual step to particulars. The propositions stating them are not subject-predicate propositions, but they provide the basis for the step to subject-predicate propositions. (Strawson 1959: 218)

While different authors characterise the missing element differently (availability of a sortal is a popular

\textsuperscript{39}For relatively accessible surveys of some more recent literature, cf. Treisman (1996), Roskies (1999) and von der Malsburg (1999). The term “binding problem” has been introduced by von der Malsburg (1982) to describe the problem in brain research of modelling connections between cells that are active at the same time and in the same circumstances, held to be a challenge to classical connectionist networks. It has (at least partly) motivated a lot of research in neuroscience, most famously the ‘40 hz’ theory of consciousness of Crick & Koch (1992). Recent neuro-psychological research seems to indicate that the conceptual capacities that underlie our competence with inferences like (6d) are comparatively basic and sui generis.

\textsuperscript{30}More generally, the location is in a quality space, the number of dimensions of which corresponds to the number of independent dimensions of variation that the creature can sense among the stimuli that confront it in that modality.

\textsuperscript{31}Visual objects are mere intentional objects, treated by the visual system as if they were objects, regardless of whether they in fact are (Clark 2004). For a comparison of different object-concepts in developmental psychology and neuroscience, cf. Casati (2004) and references therein. For present purposes, it is important that the ‘proto-objects’ and their localisations may be parochial to just one modality (which would rule out the answer given to Molyneux’s question by Evans (1988b)). As Campbell (2005) points out against Evans (1982), even if deictic and intrinsic locations of objects (‘it is to the left of the ball’, ‘it is on Bill’s left’) are derived from basic egocentric locations, the computational procedure used may be modality-specific. The model is developed mostly for vision and touch and it is not clear whether the binding problem even arises with respect to, say, smells (cf. Clark 2000: 97).

\textsuperscript{32}I do not think that the arguments advanced by Cohen and Matthen are particularly compelling, however. Rather than talking of places, Clark would perhaps better have formulated his claim in terms of events. The obvious advantage of locations is that they require ontologically only what we have independent reasons to believe in – quality spaces for sense modalities –, while in the case of the ‘objects’ of Cohen (2004) “...there is no reason to expect visual objects to deliver the ontological goods” (Cohen 2004), i.e. are real.
candidate), there is clearly an additional step involved. This suggests that the mechanism captured by \((\text{id}_a)\) is more basic than and prior to explicit recognition of particulars within an ontology, and hence more fundamental than \((\text{EG})\), which in turn can be considered a special case of it. Proper names for whatever feature-placing locations there may be are prior to their representation by the quantificational apparatus of the language:

The relevant part of Quine’s programme of paraphrase can most simply be summed up as follows. All terms other than the variables of quantification will be found, in canonical notation, to be general terms in predicative position. The position of singular terms is reserved for the quantifiers and the variables of quantification; and since quantifiers themselves do not count as terms, the only singular terms left are the variables of quantification. But, merely formal distinctions of grammar apart, how was the distinction between singular terms and general terms in predicative position explained? It was explained in terms of the contrasting roles of predication of the definite singular term and the general term in predicative position. This contrast of roles is our fundamental clue to all the theoretical notions employed. So our theoretical grasp of the nature of canonical notation rests upon our theoretical grasp of the identificatory function of singular terms. (Strawson 1961: 49)

Here is another way of making essentially the same point: when Quine says that it is the quantificational apparatus of a language that brings out most clearly what ontological commitments sentences of that language may have, the kind of quantification he has in mind is the objectual one. But what is objectual quantification? A familiar explication goes as follows (e.g. Schiffer 2003: 90): To say that the quantification in

\[ \exists x Fx \]

is objectual is to say that \((14)\) is true iff there exists some entity in the domain of quantification which satisfies the open sentence

\[ Fx \]

To say that the quantification in \((14)\) is non-objectual is to say that \((14)\) may be true even though there does not exist an entity in the domain of quantification which satisfies \((15)\).\(^{33}\) This means that to say that we objectually quantify over an \(F\) (and hence, according to the criterion, are ontologically committed to \(F\)) is to say that there is something in the domain that satisfies “\(Fx\)”. To say the latter, however, we need a grip on the \(F\) in question. Without such a prior grip on it, we cannot even say that we intend to be ontologically committed to it.

Treating a position as referential is not something that a language does by itself – it is a matter of interpreting the language in a certain way. It is highly misleading, therefore, to say that “[w]hat entities there are, from the point of view of a given language, depends on what positions are accessible to variables in that language” (Quine 1951a: 68). The point of view of a language, if there is such a thing as all, is not a stance on what there is, nor on what there is taken to be. At most, it is a stance on what sentences are grammatical and under what constructions grammaticality is preserved. Ontological commitments depend on the point of view not of a language, but of those making claims using this language – making claims liable to figure as premises in \((\text{id}_a)\)-type inferences.

\(^{33}\)On this construal, substitutional quantification is just one species of the non-objectual kind. The quantification in \((14)\) is substitutional if \((14)\) is true iff the open sentence \((15)\) has a substitution instance

\[ Fa \]

which is true and where “\(a\)” is syntactically a singular term, but where it need not be required that “\(a\)” refers.
It is by acceptance of inferences like \((\text{id}_2)\), that we commit ourselves to the existence of the referent of “\(a\)”, hence to the existence of \(a\). This allows us to bring out what is right in the explication of ontological commitment as referential use \((\tau)\). A commitment is something one acquires by doing something. If I tell you “You can count on my help”, I commit myself to doing certain things if asked to. It is not required that I actually do them (perhaps you do not need my help) – but I am under an obligation to be prepared to do them. In an entirely analogous way, an ontological commitment to \(a\) means that one is under an obligation to be prepared to draw inferences like \((\text{EG})\) and \((\text{id}_1)\) given suitable premises. The commitment we incur is not to \(a\) specifically – it is to something or other that makes \((\text{id}_2)\) come out sound – the entity we are committed to us is no further characterised than as the substratum, whatever it is, of this inference. In this sense, ontological commitment is unspecific.

Acceptance of an inference is intentional, a matter of the will, an attitude we take towards our statements, not something we express in these statements themselves: ontological commitment then depends on what attitude we adopt to our claims, and may be reduced just by changing that attitude, as it is in the case of the formalists regarding mathematics as “a play of insignificant notations” (Quine 1948: 15). If we want to understand their talk, however, we have to provide a translation scheme, and sometimes it may provide impossible to find a translation that both preserves their ontological commitment and makes their theory true. In such cases, Quine thinks, semantic ascent is demanded for. But this means that from the ontological commitment of a theory, even a true one, we cannot just read off what there is – we first have to translate the theory into our own language, and then apply the criterion to the translation. But this presupposes that we already have a grip on what there is. Quine himself was quite clear about this:

…how are we to adjudicate among rival ontologies? Certainly the answer is not provided by the semantical formula “To be is to be the value of a variable”; this formula serves rather, conversely, in testing the conformity of a given remark or doctrine to a prior ontological standard. We look to bound variables in connection with ontology not in order to know what there is, but in order to know what a given remark or doctrine, ours or someone else’s, says there is; and this much is quite properly a problem involving language. But what there is is another question. (Quine 1948: 15–16)

Quine’s criterion and his insistence on the importance of the quantificational apparatus are thus best understood in voluntarist terms: it gives us a way of incurring ontological commitments, if we are prepared to do so. Persons, not sentences, commit themselves ontologically – sentences incur commitments only insofar as they are used to do so. This also explains why the criterion is so closely bound up with the idea of the regimentation of ordinary language, i.e. the project of translating our vernacular into “canonical form”, i.e. an idiom (first-order logic) in which our commitments may (but do

34It is, of course, difficult to say what the appropriate kind of acceptance of an inference consists in. Presumably, someone accepts the inference iff s/he is unreflectively disposed to treat it as truth-preserving, where this disposition is not derived from the acceptance of any more basic inference pattern. For a more careful discussion, cf. Boghossian (1994).

35Subsequently Quine adopted this metalinguistic stance also toward advocates of substitutional quantification who denied that the existential quantifier has any existential import and that therefore the quantifiers cannot be read as “there is an object such that” and “all objects are such that” respectively (cf. e.g. Marcus (1972: 245) and Martin (1962: 527)).

36This explains why Quine (1982a: 173) can take the criterion to be trivial and even explicate it in clearly intentional terms: “What there are, according to a given theory in standard form, are all and only the objects that the variables of quantification are meant in that theory to take as values.” (Quine 1970: 89, my emphasis) To be sure, there are passages (Quine 1953b: e.g., 103), where Quine explicitly says that his notion of ontological commitment applies primarily to sentences and only derivatively to persons. But in these passages, I take him to mean only that unwelcome ontological commitments may be removed by paraphrase.
not have to be) unambiguously expressed.\(^ {37} \) And only such regimentation is what makes the criterion applicable:

In a loose way we often can speak of ontological presuppositions at the level of ordinary language, but this makes sense just in so far as we have in mind some likeliest, most obvious way of schematizing the discourse in question along quantificational lines. (Quine 1953b: 107)

If someone resists the invitation to regiment his language in canonical notation, we cannot impute an ontology to that person (Quine 1979: 161–162). Ontological commitment, therefore, has both a dispositional and a normative aspect to it – it is captured by the instances of (EG) and (\( \text{id}_2 \)) we should be prepared to accept, given what we say and the standing presumption that we should express ourselves as clearly as possible (which, for Quine, means: in canonical notation).

To say that ontological commitment applies primarily to persons and only derivatively to what they assert helps us solve a problem raised by William Alston (1958): how can it be, Alston (1958) asks, that paraphrase may reduce one’s ontological commitment? Does not a difference in ontological commitment ipso facto show that the paraphrase is inadequate? The difficulty evaporates if we accept, with Quine (1960b: 260), that “paraphrase” means restating in a different way what one wants to say (“accomplishing those same purposes through other channels”), thereby possibly changing what one in fact says. This means that Quine’s criterion of ontological commitment is a package-deal: we do not just have to accept that to be is to be a value of a variable, but also that we best cast our theories in a language with objectual quantification. But even this is not enough, as we have seen in the case of the ‘spaghetti’-inference (5): ontological commitment is not only relative to a logic, but to the specific choice of logical form for the sentence by which it is incurred. Ontological commitment and logical form, for Quine, are just two sides of the same coin.\(^ {38} \) The logical form of what you say not only determines which conclusions you should rationally accept, but the conclusions you accept may conversely constrain the ascription of some logical form to what you said. In some, or even most, cases the latter direction is prior, setting the adequacy conditions for a search for logical form that has only just begun. The same happens with ontological commitments: they do not just fall out of a theory of logical form, but are incurred by persons using sentences of the logical form of which they might have no clear conception. Here, I think, is another advantage of (\( \text{id}_2 \)) over (8) and even (EG): treating something as recurrent object of predications is not relative and indeed prior to its expression within a logical formalism.

More generally, entities to which we are ontologically committed may be conceived of as what we might call the ‘substrata’ of inferences we should be prepared to draw given what we say.\(^ {39} \) These inferences can be ‘material’, thereby divorcing ontological commitment from logical form. Consider e.g. the following inference:

\[
\begin{array}{c}
\text{(17)} \\
\text{Rupert kills Randolph.} \\
\hline
\text{Rupert causes the death of Randolph.}
\end{array}
\]

\(^ {37} \)It is just beside the point, therefore, to point out that some uses of “there is” in ordinary language do not carry ontological weight (Azzouni 1998: 4). It is equally false to think, with Chihara (1968: 30), that Quine attempted to replace an ordinary locution like “presupposes as existing” with a semi-technical one (as arguable Tarski intended with the concept of truth).

\(^ {38} \)This seems to apply to inferences more generally: Rational agents do not have deductively closed belief sets and there are good reasons for that. Nevertheless, they are committed to the truth of what follows from what they say according to logical principles they accept (or have no reason not to accept). Confronted with an agent unwilling to draw conclusions we think follow from what he says, we are not obliged to blame him for irrationality or logical deviance, however, for we may also change our interpretation of what he said, trying to give another logical form to it such that the disputed conclusion does no longer follow.

\(^ {39} \)This has been the use Davidson (1967) made of Quine’s criterion to argue for the existence of events.
4. Grounding truth in being

There is no situation in which Rupert may kill Randolph without causing his death. So (17), being necessarily truth-preserving, seems at least prima facie valid. Should we therefore conclude that “killing” means “causing someone’s death in some way” or that the logical form of “Rupert kills Randolph” involves a quantification over an event said to be a death? I think that we are at least not obliged to say so. Let us say instead that the acceptance of (17) shows an ontological commitment to Randolph’s death on the part of someone who asserts the premise. And this, I think, was Quine’s basic point: that in at least some cases, there are ways of making explicit our ontological commitment, and that first-order quantification logic may allow us to do so by being used to regiment the way we speak. It is just not the only way, and sometimes not the best way.

I think that there are two main arguments not to settle exclusively, with Quine, on standard first-order predicate logic as our measure-stick for ontological commitment. The first reason is that there are many sentences, with which intuitively we may very well incur ontological commitments, which cannot be formalised in first-order predicate logic. The whole debate about whether second-order logic is committed to sets would not make much sense if ontological commitment were only incurred by first-order quantifiers.

The second reason is that formalisation, even where it is possible, is not only non-unique but often also takes place at some given level of “granularity”. Consider the following example of Chihara (1968: 38):

(18) \( \exists x(x \text{ is a winged horse}) \)

It seems clear that an assertion of “Pegasus is a winged horse”, via (18), commits us to the existence of a winged horse. But does it commit us to the existence of wings, via (19)?

(19) \( \exists x, y(x \text{ is a horse } \land y \text{ is a wing } \land x \text{ has } y) \)

I think it is too strong to call that consequence “counterintuitive” (Chihara 1968: 38). In some contexts “Pegasus is a winged horse” may very well commit us to wings, in others it does not. It all depends on whether “Pegasus is a winged horse” is taken to be an acceptable possible answer to the question whether there are wings (or better: whether there are entities having wings). In some contexts, the inference from “Pegasus exists” to “Wings exist” is valid, in others it is not. Shall we say that “Every boy loves a girl” “really” contains an occurrence of “if”? In a logic course yes, but not in a language acquisition study.

In determining the ontological commitments of a discourse, we cannot presuppose a prior translation into canonical notation. But can we at least go for the values of the variables? I think there are good reasons not to do so – reasons to prefer (id_a) to (EG). The first reason is that, as I tried to argue above, Quine’s method for paraphrasing names away in favour of variables relies on a prior understanding of essentially ‘particularised’ attributes, which in turns seems derived from our competence with the proper names they are concocted from – we would better not kick away that ladder, especially if, second, our competence with proper names is underwritten by a more basic capacity of bundling perceptual features into the demonstrata of perceptual indices. Third, and more importantly, Quine’s method for paraphrasing names away would not suffice, even if it were successful. As Quine (1953b: 104) acknowledges and as Quine (1960a) has shown himself, Schönfinkel’s and Curry’s combinatoric

\[ 40 \text{Such a line would have a couple of problems: If } a \text{ kills } b \text{ entails that there is an event } x \text{ which is } b \text{’s death, then does not the existence of this very event entail that } b \text{ is dead, i.e. does not exist? But then we are under an obligation to give a logical form to "a kills b" that does not license existential generalisation (EG) and it is not clear what this could be.} \]

\[ 41 \text{Standard predicate logic is not expressive enough to handle many quantificalional constructs of natural language, like "most", "many" and "few". "Most men are right-handed" e.g. cannot be represented adequately in a regimented language if its underlying logic is standard predicate logic (Rescher (1972), cf. also Wiggins (1980: 326) and (Davies 1981: 124-127)).} \]
logic affords the ressources to paraphrase away not just proper names and descriptions, but also the variables themselves. This does not, by itself, show that the criterion is inapplicable, so long as a translation is available:

Once we know the systematic method of translating back and forth between statements which use combinators and statements which use variables [...] there is no difficulty in devising an equivalent criterion of ontological commitment for combinatory discourse. The entities presupposed by statements which use combinators turn out, under such reasoning, to be just the entities that must be reckoned as arguments or values of functions in order that the statements in question be true. (Quine 1953b: 104)

But how do we know that this translation is the right one, i.e. the one preserving ontological commitment? Not all logical equivalences, after all, preserve ontological commitment (cf. Quine 1953b: 114). Because we already know that the commitments of our discourse are the potential referents of our singular terms ("the arguments and values of functions"), had they not already been paraphrased away. Names, especially as used in inferences trading on the identities of their referent, are thus acceptable as clues to someone’s ontology. What counts as a name, however, is not something to be read off from logical form; it should ideally be reflected in the logical form, but often is not.

As things stand, we simply have to acknowledge that we are not (yet, perhaps) in a position to give to all inferences we accept a logical form which makes them valid. This does not mean, however, that no such inferences commit us ontologically nor that they do not commit us via (EG). Ontological commitment does not fall out of a theory of logical form, it guides and constrains it as well. Ontological commitment shares this feature with truthmaker theory: rather than falling out of a theory of logical form which somehow allows us to see through a proposition’s varied clothes, our judgements of ontological commitment constrains what logical forms we find acceptable. A theory of logical form might explain why we find (5), in contrast to (6), acceptable, but it cannot explain why none of them commits us to the things quantified over in their conclusion. The theories of ontological commitment and of logical form, then, deal with different questions: the first explains how inferences we accept depend on how the world is, while the second explains how we can turn such inferences into valid ones by analysing appropriately their premises and conclusions. Rather than shape our semantics after our syntax, we should shape our syntax after our semantics.

### 4.2 Truth as a formal concept

"It is necessary to say and to think Being; for there is Being, but nothing is not." (Táran 1965: 54)

We all, I hope, care about truth. “What is truth?” has long been one of philosophers’ most cherished questions, and many of the best philosophers of our history cared to stay for an answer. Our contemporaries were more impatient: the only question allowed to be asked in a sober symposium, Austin

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42Van Fraassen’s injunction therefore seems premature: “Quine’s elimination of names can be carried further; we can also eliminate the variables! [...] Does the use of one language rather than another, when we know that each can be translated perfectly into the other, carry any ontological implications? Of course not. Quine’s programme, to deduce ontology from syntax, was just a mistake.” (van Fraassen 1991: 458, 459)

43Therefore, I do not agree with Orenstein (2000: 517) that “[t]he essence of a theory of logical form is to explain why some natural language inferences are valid and some not”. Logical form alone cannot do that. What it can do, however, is to analyse inferences we accept as being valid according to some criterion and thereby explain that some of them are valid.
(1950) admonished us, is what truths are. But once the question is asked in this way, its triviality becomes apparent. Truths are many things: statements, claims, propositions, perhaps even teddy-bears for some tribe on some distant possible world (Kirkham 1992)! What does their truth consist in? Well, simply in things being as they are said to be. Once the question is framed this way, there do not seem that many interesting things to be said about truth.

But there are good reasons not to frame the question in this way, as I hope to show. The truth predicate, it is true, has the disquotationalist feature enshrined in Tarski’s famous ‘convention T’:

\[(T) \quad \text{“}p\text{” is true iff } p.\]

But \(T\), while it is trivially true, still raises a lot of questions:

1. The truth of \(T\), for some substitution instance of “\(p\)”, imposes rather tight constraints on this substitution instance: “\(p\)” has to be a truth-evaluable, non-indexical and non-ambiguous sentence of English. How can we capture these restrictions on the implicit universal quantifier in \(T\)?
2. The truth of \(T\), for some substitution instance of “\(p\)”, also imposes constraints on ““\(p\)””, the name of the substitution instance. If instances of \(T\) are supposed not just to be true, but to be a priori or logical truths, then not just any name will do.
3. It is in virtue of \(T\) that the truth-predicate fulfills its primary purpose of capturing generalities. But the instances of \(T\) by themselves cannot do that; what else do we need?
4. What does \(T\) tell us about truth – the concept, the predicate and the property of truth?
5. If \(T\) tells us something about truth, does it tell us everything about it?

Many questions, which I will take up in turn.

In this section, we ask Pilate’s questions: is truth a property of statements, or propositions, or judgments? has it a nature? is it a thick or a thin concept? can it be given a ‘deflationary’ analysis (whatever this may mean specifically)? We will then turn, in sct. 4.3, to the question what grounds the truth of the truths we are interested in, which is the question about what makes them true. This relation of truthmaking is analysed in some depth in the following two chapters, and the domain of its application circumscribed. In ch. 6, I will argue that the truthmaking relation is not a relation of necessitation, as it is ordinarily assumed. I submit, instead, that it is an internal relation, and explore the consequences of this claim.

4.2.1 A predicate, but not a property?

To say that some statement that ... is true, is to say that .... This much is beyond dispute. But if our initial platitude is to inform us about the concept of truth, much care is needed in its precisification. “The statement that ...”, e.g., should not be explicated by “the statement having the truth-condition that ...” or “the statement that is true iff ...”, for this would make our account depend on a previously understood notion of truth.

How else, however, are we to understand the that-clause? One way is to adopt what Hartry Field calls\(^4\) a “quotational reading”: to say that \(S\) (as we actually use it) means that neutrinos have mass, where \(S\) is a sentence of our language, is simply to say that \(S\) means the same as our sentence “Neutrinos have mass” (as we actually use it). Meaning-the-same-as is cognitive equivalence: the rules of our language or the norms we accept license the immediate inference of either of them from the other. To extend this account of “\(S\) means that \(p\)” to other languages, we have to give an account of the factors involved

\(^4\)In a seminar on truth at NYU in fall 2005, to which I am indebted also for much of the following.
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in good translation without relying on a prior account of truth-conditions. We may want to restate

(EP) To say that the statement that ... is true is equivalent to saying that ...

as

(EP') For each English sentence that one substitutes for "p", "the proposition that p is true"

is equivalent to p.

If the equivalence is at least modal, (EP') entails (instances of) the schema:

(EP*) Necessarily, the proposition that p is true if and only if p.

To get

(T') The sentence "p" expresses a true proposition iff p.

we need another premise, namely

(EXP) The sentence "p" expresses the proposition that p.

By the introduction of the technical term "proposition", the precisification of the original, platitude

uous equivalence (EP) leaves us with to a claim about the logic of "...is true" (EP') and a claim about

how sentences relate to propositions (EXP). This may seem innocuous enough: do we not have an

independent grasp of what propositions are, namely the objects of so-called 'propositional attitudes'

like believing, hoping and fearing? Even if this were true, however, there is still some mismatch

between what is hoped and believed and what is expressed by sentences and quantified over in (EXP).

Both (EP') and (EP*) are a theory of truth only for propositions given in the form the proposition, that p, where an English sentence is substituted for 'p'. We not only do yet not have an account of the form

(T++) For any proposition x, x is true iff C(x)

not even one of the form

(T-) For any proposition x, if x is expressible in English then x is true iff C(x)

but just a collection of claims of the form:

(T-) For any proposition x, if x is the proposition that ... then x is true iff ...

This means that many accounts of the relata of so-called 'propositional attitudes' will not help us to

understand the role propositions play in (T'). This is an example of a broader tension: the cash-value of talk of propositions in (T') is to 'stabilise' the application of the truth-predicate, to identify that in virtue of which the truth-predicate is correctly applied to items as diverse as statements, beliefs and sentences. This is captured in (EXP) and the theoretical role "proposition" plays in it is aptly

As a theory about such attitudes, propositionalism carries a lot of commitments: that to stand in such an attitude is to stand in a relation to an object, for example, that such objects are expressed by (rather than eg. identical to) linguistic items, that they have the 'completeness' required of them to be autonomously truth-evaluable, that different bearers of attitudes are related to the same thing iff the component clauses of true ascriptions of these attitudes express the same thing and so on.

(E) and (EP') do not tell us, for example, what it is for propositions described as sets of possible worlds or as an equivalence class of sentences to be true.
characterised by what Schiffer (2003: 12-15) calls the “face-value theory about propositions”:

(i) Propositions are the referents of singular terms.
(ii) Propositions are abstract.
(iii) Propositions are mind- and language-independent entities.
(iv) Propositions have truth-conditions and they have them both essentially and absolutely.

These characteristics are in tension with the role of propositions as the objects (and not just the contents) of beliefs, however. If believing that Zed is dead is standing in a relation to the referent of “that Zed is dead” (i) and this referent is both essentially and absolutely such that it is true iff Zed is dead (iv), then we may wonder how the belief could have turned from false to true on the occasion of the historical event that was Zed’s death. Nothing, it seems, about the proposition changed at that time, hence nothing about the ‘propositional part’ of the belief. And still it went from false to true.

Apart from the unclarity of “proposition”, there are, I think, two other reasons to stay with the non-committal (T) rather than (T’). The first is methodological, the second logical.

Suppose I produce the following shape:47

Zed is dead.

By fixing your gaze on it, you learn that Zed is dead. How is this possible? How is it that by fixing our gaze on some marks of ink we learn something about people and things in no (obvious) connection to us? This, I take it, is the primordial philosophical question here. It is ordinarily assumed that it divides into two sub-questions:48

(i) how is it possible that the marks of chalk mean what they do?
(ii) how is it possible that by understanding what they mean, we learn something about the distant past?

It is only if you accept this sub-division, that the notion of a proposition starts playing an (apparently) explanatory role:

(i) the marks of chalk express the proposition that p;
(ii) the proposition that p is true iff (or: in virtue of the fact that) Zed is dead.

The notion of a proposition is a means to divide our initial question into these two two sub-questions. Deflationism about truth then becomes an attractive position: it becomes almost irresistibly plausible to say that (ii) holds just because the proposition in question is what it is – saying that it is true that Zed is dead is just saying that Zed is dead. (i), though it encodes a contingent fact about language, seems utterly trivial – all you need to see its truth is some competence of English. Our initial puzzlement thus evaporates into two trivialities and we wonder what made us think our question was interesting in the first place.

I do not think that this dissolution is a felicitous one, however. Just a little below the surface of the two trivialities lie two deep mysteries, which seem completely untractable if approached in these terms:

(i) How is it possible that our activities as language-using intentional agents bestow mind-independent and abstract entities with powers of representation?
(ii) How is it possible that an interesting relation of truthmaking holds between these abstract

47I am indebted to Vann McGee to have made me see the problem this way.
48Simons (1992: 102), e.g., says that the question of truthmakers arises as soon as on recognizes that truth is the joint outcome of two largely independent factors: one about the language which determines what a sentence means and one about whatever it is in the world which determines that the sentence, meaning what it does, is true or false.
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entities and the things they are about?

It may be replied that neither of these questions is primarily a question about truth, that the truth-predicate merely serves as a device of generalisation in stating them. In some sense, this is undisputably true: in this sense, the theory of truthmaking is not really a theory of truth – talk of truth facilitates merely generality of exposition (Bigelow 1988b: 127).49

There is quibble about the “merely”, however. Even deflationists want to say things about truth, i.e. claims that are supposed to hold of all truths because they are truths. Some of us, for example, want to say things like:

Truth is a matter of reality, which means that if a statement is true, it is because reality renders it true: No sentence is true but reality makes it so... (Quine 1970: 10-11)

If the truth-predicate allows us to make general claims about an interesting class of items in the world (the true truth-bearers), then this by itself gives us reason to think that the property of truth is an interesting one.

The more important reason not to think of the truth-predicate as merely a device of generalisation is that the nature of the things the generalisation is over is not independent of our account of truth. The generality achieved by the truth-predicate is the one propositions have been introduced to secure. If you have propositions, then you do not need truth – in this I agree with deflationists. If you have truth, however, you do not need propositions. Faced with this choice, I will argue, we should rather choose truth.

According to the minimalist theory of truth developed by Paul Horwich (1990), grasping the concept of truth is to have the disposition to underivedly accept all (or at least, all but the Liar-like) instances of the so-called “equivalence schema”:

\[(20)\quad \text{the proposition that } p \text{ is true} \iff p\]

Underived acceptance is acceptance that does not stem from the acceptance of other sentences containing the truth-predicate. Because we do not want to say, as Tarski has to, that our concept of truth changes with every change to our language, instances of (20) have to be accepted in virtue of their having a certain form, i.e. in virtue of their being instances of the schema (20). But this means that everyone having the concept of truth must have the concept of material equivalence \(\iff\). This implausible consequence of the minimalist theory could be avoided if we required that someone possessing the concept of truth has a disposition to accept all (unproblematic) instances of the following inferences:

\[(21)\quad \frac{\text{the proposition that } p \text{ is true}}{p} \quad \frac{p}{\text{the proposition that } p \text{ is true}}

The problem with (21), however, is that underived acceptance of an inference is less clear a notion than underived acceptance of a sentence: while the primitively compelling introduction rules for logical constants add deductive power, nothing of that kind seems to happen with the trivial reformulation in (21). It seems that we would have a use for inferences of the kind (21) only if “proposition” had a more substantive sense than the one bestowed to it by (21).

49 Cf. also Grover et al. (1992) and Lewis (2000b). I agree with Horwich (2004: 117) that Armstrong’s “theory of the nature of truth” – a proposition \( p \) is true if and only if there exists some entity \( T \) in the world such that \( T \) necessitates that \( p \) and \( p \) is true in virtue of \( T \) – (Armstrong 2004c: 17), which is also a statement of truthmaker maximalism, is an outside constraint on the theory of truthmaking, and has to be supplemented both by claims about truthmakers (that there exist enough for all instances of the \( T \)-schema, for example) and about truth (that all non-paradoxical instances of the \( T \)-schema are true, for example.)
4.2.2 Ramsey's challenge

Frank Plumpton Ramsey argued in 1925 that “the whole theory of particulars and universals is due to mistaking for a fundamental characteristic of reality what is merely a characteristic of language” (Ramsey 1925: 13,405). In this section, I want to reassess his arguments and the arguments of others to the same effect, elaborate their criticism of the traditional distinction between particulars and universals and see how much of it can be salvaged.

Quickly dismissing alleged differences between universals and particulars of a physical or psychological sort, Ramsey first undercut the most obvious way of finding a 'logical' difference, namely the contention that particulars must, whereas universals may or may not occur as the subject, as opposed to the predicate, of an atomic proposition. His argument to this effect is that

(22) Socrates is wise.

and

(23) Wisdom is a characteristic of Socrates.

“assert the same fact and express the same proposition” (Ramsey 1925: 12,404), while having their subject and predicate exchanged respectively. A distinction based solely on the difference in grammatical role between the subject and the predicate term in (22) thus does not seem to cut any ice. Two lines of criticism immediately suggest themselves: First, (22) and (23) incur different ontological commitments and therefore cannot be synonymous (Simons (1991b: 152), Mulligan (2000: 12)); second, “Socrates”, the subject term of (22), is not the predicate in (23) (Simons (1991b: 152), Mulligan (1998: 12)). (22) and (23) are then analysed as “F\text{a}” and “G\text{b}” respectively, with relational, but nevertheless atomic, properties \mbox{F being \textit{wise}.} and \mbox{G being a characteristic of Socrates}.

Unfortunately as this is for the friends of the distinction, both these arguments beg the question against Ramsey. Ramsey's argument, as I understand it, is best presented as follows: We start with the sentence “Socrates is wise”, without, at this stage, already any particular logical form attaching to it. Someone who wants to ground the distinction between particulars and universals on a grammatical asymmetry between the terms representing them e.g. in the sentence under consideration might want to claim that \mbox{at most one} of two possible precisifications of its logical form, namely “\ldots is wise (Socrates)” \mbox{(F\text{a})} and “\ldots is a characteristic of Socrates (Wisdom)” \mbox{(G\text{b})}, gives the true ontological picture. Ramsey does not have to dispute that, \textit{within a theory of logical form}, these two precisifications differ e.g. with respect to what they logically entail – but what, he asks, makes us prefer one precisification over the other and what makes us see our choice as marking out an \textit{ontological} distinction if, as Ramsey contends, they do in fact “assert the same fact and express the same proposition”\footnote{By 'universal' I mean here and in the following whatever it is that, if it existed, were involved, over and above Socrates, in the truthmaking of simple sentences such as "Socrates is wise". I use "property" as the ontologically non-committing generic term (properties are semantic values of predicates, whatever their ontological analysis is). The arguments I discuss and put forward may be suitable adapted to apply to fusions or sets of tropes.}

After this first critique of the legitimacy of the distinction, Ramsey (1925: 14,405) goes on to question the prospects of any distinction based on the subject/predicate model on an even more basic level. The subject/predicate distinction, he claims, is inapplicable to complex propositions. Surface grammar does not give us any ground to accept complex and relational universals, i.e. universals which occur in

\footnote{If we choose the first, as most of us probably would, we have to justify it against the second (this was the way Ramsey originally put the dilemma). If we choose the second, we have a symmetrical obligation – and the additional difficulty of explaining what \textit{being a characteristic of Socrates} and, say, \textit{being a characteristic of Plato} have in common.}
propositions the categorical structure of which they not uniquely determine.\textsuperscript{52} If there were such a ground, Ramsey (1925: 14,406) asks, how could it then be the case that $$(\lambda x(aRx))b$$, $$(\lambda y(yRb))a$$ and $$(\lambda x, y(xRy))(a, b)$$ represent (are logical forms of) the same proposition, given that they have different components?\textsuperscript{53}

This argument can be seen as questioning Russell’s notion of the ‘logical subject’ of a phrase. There is no canonical way, Ramsey suggests, to mark out one or several of the singular terms occurring in a sentence as being its logical subject or subjects. Because this choice is arbitrary, it lacks an ontological ground.

This problem already surfaced in the work of Frege whose thoughts admit of several equally legitimate analyses and have no joints privileging one of them above the others: our carving them up in one rather than another way is not based on a real distinction. Their predicative and their non-predicative elements are separated by *fict*, not by *bona fide* boundaries. If thoughts consist of saturated and unsaturated parts (cf. e.g. Frege 1906: 208–210), and if two thoughts are identical iff someone who does not hold them true or false conjointly fails to grasp at least one of them,\textsuperscript{54} what assures us then that two thoughts are identical iff they have the same parts? The difficulty is aggravated by the fact that Frege repeatedly claims that different decompositions of a thought may be equally correct,\textsuperscript{55} and that the composition of a sentence by and large (or at least in a logically perfect language as the concept-script aspires to be) corresponds to the composition of the thought expressed (cf. e.g. Frege 1914: 243). In “Über Begriff und Gegenstand”, he says that the thought expressed by “$\exists x(x^2 = 4)$” may, with equal right, be represented by “There is at least one square root of 4”, by “The concept square root of 4 is non-empty”, and by “the number 4 is such that there is something she is the square of”. In this context, Ramsey’s worry may then be reinstated as follows: what justifies us in claiming that there is one particular thing that is the unsaturated part of the (unique) thought expressed by those sentences?

If we dismiss any distinction based on grammar, Ramsey asks, how are we then to explain (away) the intuitive difference between (what we unanimously take to be) particulars and (what we unanimously take to be) universals? In what exactly does this difference consist? Ramsey explicates it by what Simons (1991a) calls “variation classes”. “Socrates ...” seems to give us but one such class, namely the class of sentences in which “Socrates” occurs. “...is wise”, however, seems to give us two: the class of sentences of the form “$x$ is wise” in which “wise” occurs as part of the predicate and the (wider) class of sentences of the form “$f$ (wise)” (including “Neither Plato nor Socrates are wise”, “nobody is wise” etc.) in which it occurs in any position. Do we not, then, have the grammatical difference we were after? We seem so, Ramsey argues, only because we tendentiously interpreted the data. All we have to do to restore symmetry is acknowledging basic universals – he calls them ‘qualities’ (as opposed to ‘characteristics’) – and form “Socrates is $q$” for qualities $q$ as opposed to “$f$(Socrates)”. For both “Socrates” and “...is wise”, then, do we have a wider and a narrower variation class.

Colin McGinn (2000: 55–56) has elaborated Ramsey’s symmetry considerations into an argument against the Quinean contention that predicates have ‘divided reference’, i.e. are true of things but do

\textsuperscript{52}Ramsey includes under this heading both relational and impure universals, the latter arising from logically complex propositions.

\textsuperscript{53}We will return to the question of how relational facts are uniquely analysed on p. 186 in sect. 9.1.

\textsuperscript{54}Equipollence (“Äquipollenz”), defined in this way, is only one of the identity conditions Frege gives for thoughts (Frege 1906: 213). He uses it in his letters to Husserl to justify the claim that the active/passive transformation preserves the identity of the thought (Frege 1976: 105).

\textsuperscript{55}This thesis may be found in “Über Begriff und Gegenstand” (Frege 1892: 173), in a letter to Marty (29.7.1882) (Frege 1976: 164) and repeatedly in the posthumous writings (Frege 1969: 155, 203, 209, 218). He goes as far as to claim that the same assertion may be of (“von”) a concept according to one conception (“Auffassung”) of it, and of an object according to another (Frege 1892: 173).
4. Grounding truth in being

not denote any properties: “a” in “Fs” stands for a single entity of which we predicate a plurality to which “Fs” ‘dividedly’ refers; “Fs” is true iff the referent of “a” belongs to the extension of “Fs”. McGinn’s point is just that this picture is not forced on us: we may with equal right construe “Fs” differently, with “Fs” referring to a property and “a” referring ‘dividedly’ to the set of all and only the properties a has (its ‘secondary extension’). “Fs” would then be true iff the extension of the predicate is a member of this secondary extension of the singular term. Again, we have a symmetrical picture: any semantics committing us to particulars may uniformly be translated into another semantics committing us to universals.

Ramsey’s argument, exposed at the beginning of this section, may be put as follows: for any sentential matrix S(a, b) which features (what we would ordinarily think of) a proper name a and (what we would ordinarily think of) an open sentence b, we have a bijective function a → c and b → d such that S(d, c) is a sentence which cannot be assumed to differ with respect to the ontological status of its two components from S(a, b) without presupposing a prior distinction between particulars and universals. The worry with this line of argument is that, even if we agree that “…is wise” stands for a property in about the same way than singular terms stand for their bearers, “wisdom” is importantly different. “Wisdom”, as it occurs in “Wisdom is a characteristic of Socrates” (23), stands for a kind rather than a property: it takes adjectives (“ironic wisdom”), nominal modifiers (“Socrates’ wisdom”), may be measured (“much more wisdom”) and does not allow for negation – all this in contrast both to “…is wise” and to “being wise”.

Kinds differ from properties in that they are instantiated, not exemplified: their relationship to the things they qualify is the one between types and their tokens and between the species and one of its exemplars.

The distinction between properties and kinds in place, however, we get two versions of Ramsey’s transformation: one mapping a proper name a on “…is a kind instantiated by a” and predicates on their corresponding kinds, another one mapping a on “…is a property exemplified by a” and predicates to proper names of the corresponding properties. Instead of one argument, we therefore get two: one against the distinction between particulars and properties, another one against the distinction between particulars and kinds. In this section, I will only properly address the second of these arguments. We will come back to the first one in sect. 7.2.1.

The most common and general criticism made of Ramsey’s symmetry arguments is that he only considers logico-linguistic means of drawing the universal/particular distinction and too quickly dismisses psychological and ontological (he calls them “physical”) resources to do so (cf. e.g. Simons 1991b: 158–159). In a series of recent papers, Fraser MacBride has tried to back up Ramsey’s position in this respect, arguing that no obvious ontological criteria suggest themselves and that the possibility of a deep-rooted metaphysical indeterminacy has to be taken seriously. MacBride (2002a) considers, and rejects, three ways of appealing to a metaphysical asymmetry of the exemplification relation.

The first option appeals to numerical patterns of exemplification, the idea being that it is characteristic of universals that they have a definite adicity, i.e. that for any universal, there is a definite number of items it connects. The obstacle to this view, as MacBride points out, is the apparent conceptual coherence of multigrade universals, universals which connect an indefinite number of items, such as

56 A possible precursor of this line of argument may be found in the contention of Nelson Goodman (1978: 347–348) that discusses the view that “a predicate applies initially to a property as its name, and then only derivatively to the things that have that property”. He thinks this view is mistaken on the ground that nominalists might want to cut the middleman out.

57 In his original example, “Socrates” was mapped on “…is a property of Socrates” and “…is wise” on “wisdom”.

58 Both the type/token and the species/exemplar distinction explain the ambiguity between what we might call ‘generic’ and ‘individual’ counting in the answers to questions like “How many words are on the blackboard?”, “How many different plants do you have in your garden?” (Wolterstorff 1970: 237).
those expressed by “...cause ...”, “...are adjacent”, “...are consistent”.

The second option is to help oneself to an asymmetric exemplification relation and postulate that particulars always figure in the first position while universals occur in the second as well as the first (if higher-order universals are admitted). The difficulty with this proposal is that it does not do anything to meet Ramsey’s worry, namely in virtue of what, the exemplification relation is asymmetrical: that its relata are of different categories is what is to be justified.

The third option, finally, is Frege’s: universals are essentially ‘incomplete’ and in need of ‘saturation’, while particulars are ‘complete’ and able to ‘stand alone’. These terms, however, are just metaphors: nothing assures us that particulars, in need of being ‘glued’ to universals to give us facts, are likewise ‘unsaturated’. Even if ‘unsaturatedness’ may sensibly applied to thoughts at all, it cannot give us the distinction we are after: The denotation of a predicate like “...smokes” is said to be ‘unsaturated’ because it is in need of something else to form a well-formed sentence like “the Pope smokes”. It can also, however, be completed by something which again is ‘unsaturated’, like the second-level predicate expression “someone”. Not all entities terms for which can complete an ‘unsaturated’ expression are therefore particulars. Neither are all those entities terms for which are in need of ‘saturation’ properties: As Kaplan (1989) remarked, demonstratives are also in need of something else to give a truth- evaluative content.

Let us now return to Ramsey’s argument. We may, by saying of wisdom that it is a characteristic of Socrates, be talking about the kind Wisdom and predicating of it that it classifies Socrates. But it does not classify him thus simpliciter: it classifies him in virtue of his qualitative character or some trope or property exemplification essentially dependent on him. Kinds, in this sense, are ‘predicable of’ but not ‘in the subject’, according to Aristotle’s classification in the Categories, and instantiated by things which are also in a subject, but which are not said of a subject (i.e. are not predicable). “Wisdom”, the name for the kind Wisdom, is grammatically very different from the predicate “...is wise”: only the latter takes negation and adverbial modifiers, only the former adjectives and possessive determinations. Taken as applying to kinds, Ramsey’s observation does indeed show that kinds and particulars cannot be distinguished on grammatical grounds alone. This does not, however, show that there is no basis for a distinction between particulars and universals, for the supposed indistinguishability is confined to one side of the saturated/nonunsaturated divide.

Frege was driven to acknowledge unsaturated senses by the observation that the concatenation of

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59 We will come back to multigrade relations on p. 183 in sect. 9.1.2.

60 This was Bolzano’s option (Wissenschaftslehre, I §86)

61 For reasons mentioned above, this is highly dubious. Kemmerling (1990) has argued that Frege’s thoughts (at least those expressed by logically simple atomic predications) are best conceived of as not having parts at all: “unsaturatedness” would then be applicable only on the level of “sentences-under-a-particular-decomposition”. As Mayer (1990: 49) has noted, however, Frege locates the multiple analysability of sentences expressing one and the same thought at the level of ‘appearances’ (cf. his draft for “Über Begriff und Gegenstand” in Frege (1969: 117, 2nd column, b)) – the claim that thoughts are essentially logically structured is thus open to him, even though it is not evident how Frege might ground it.

62 Higher-order universals are problematic for Frege on yet another count: how can two equally ‘incomplete’ entities, if ‘glued’ together, give us something ‘complete’? Another problem, noted by Caton (1982: 471), is that there is not one concept of unsaturatedness on Frege’s theory, but an infinity of such: one for every level of the hierarchy of types.

63 Kaplan (1989) speaks of a demonstration, conceived of in Fregean terms, while Kaplan (1989) prefers to speak of a ‘directing intention’. It is far from clear that either gives us the right truth-conditions: there are many cases where I refer by “this” to a, even though I have the intention to refer to b. Typically, these are cases of “mediated” demonstration (as when I am pointing to a picture which I take to be a picture of b but which depicts a). But we still have something that ‘completes’ the (use of the) demonstrative.

64 Contra Aristotle, however, it is not true that “whatever can be said of the predicate can also be said of the subject”, as an examination of subkind classifications shows: when we say that the Horse is an animal, we are not predicating the kind Animal of the kind Horse, but rather of the individual horses (Wolterstorff 1970: 248).
singular terms does not make a sentence (Frege 1892: 205). Whenever we analyse a sentence like “the number 2 is prime” as the concatenation of “the number 2” and “the concept prime number”, we need a doubly unsaturated relation to bind them together, “...falls under ...” in Frege’s, “...instantiates ...” in my terminology. Because its sense is unsaturated, its referent must be too. Geach (1961: 155–156) proposed to replace Frege’s “...is a concept” by “...is a kind of thing” and this indeed gives us good results as long as the need for an (unsaturated) instantiation relation is acknowledged. As soon as the kinship between “Socrates” and “wisdom” is recognised and put aside, the original question, namely how to distinguish between “Socrates” and “...is wise” in the sentence “Socrates is wise”, may be rephrased as how to distinguish between “Socrates” and “...instantiates the kind Wisdom”. The latter, however, does not stand for a kind, but for a property. There are, as we noted at the end of the last section, a number of grammatical differences between “...is wise” and “Socrates”. Traditionally the most important has been that the first does, while the latter does not take negation. Aristotle famously remarked that substances do not have contraries (Cat. 5 3b4) and we may hold, with Dummett (1981: 64), that the most fundamental grammatical difference between the proper name “Socrates” and the second-level predicate “...is a property of Socrates” is that the second, but not the first is an x such that there is something y such that the following biconditional holds: there is a z such that $S(z, z)$ if it is not the case that $S(x, z)$. Ramsey, however, need not dispute that singular terms and predicates differ grammatically: his worry concerned our justification, given that there is grammatical evidence to distinguish two classes of expressions, to mark one of them out as ‘referential’ and the other as ‘predicative’, i.e. to take one of them to stand for particulars and the other one to stand for universals. The logical peculiarities of singular terms for predicative entities stand in need of an explication, and this explication has to appeal to the predicative nature of the items designated.

Kinds and properties, as I said, are very different: kinds are instantiated, properties exemplified; kinds tell us what a thing is, while properties characterise how it is. Kinds and properties are obviously interrelated: to instantiate the kind MAN is to exemplify the property being human. They differ

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66Otherwise, “the concept dragon is a concept under which no object falls” translates into “dragons are a kind of thing, but no object is that kind of thing” which is objectable not only because it involves an irreducible plural (like “husbands are a sorry lot”, cf. Gustason (1972: 129)), but also because the second conjunct should better not say that no object is a kind and hence must be supplemented by an “of” between “is” and “that”.
67In the second case, the y in question is what is expressed by “is not wise”; while in the first case we would need something like “NonSocrates”, introduced by the stipulation that, for every predicate $F_i$, “$F(NonSocrates)$” is true iff it is not the case that $F(Socrates)$.
68This is conceded by Dummett: “…with respect to an analysis of the second type [which analyses sense as what is needed in order to determine the validity of inferences rather than as what is grasped by a competent speaker], it is indeed true that, on Frege’s own principles, we must admit not only the analysis of “Socrates is wise” as resulting from putting the proper name “Socrates” in the argument-place of the first-level predicate “$z$ is wise”, but also the analysis of it as resulting from putting the first-level predicate “$z$ is wise” in the argument-place of the second-level predicate “$Φ$(Socrates)”.” (Dummett 1981: 65) This is why he backs up his diagnosis of the “error in Ramsey’s argument” (Dummett 1981: 63) by the purely epistemological, and hence irrelevant, observation that we could never understand truth-conditions if sentences were not analysable in the first sense as well (Dummett 1981: 66).
69I do not want to deny that the logical peculiarities may be of help in characterising the distinction; it is just that they cannot be applied to for drawing the distinction in the first place – this is what Ramsey’s challenge teaches us. I agree with Strawson (1974: 77) that “…general characters of substantial things intrinsically enjoy logical relations with other such characters when considered in relation to any and every substantial thing they might be assigned to; whereas it is not the case that substantial things intrinsically enjoy logical relations with other such things when considered in relation to any and every general character which they might be assigned to. (Rather, they intrinsically don’t enjoy such relations).”
70Kinds will be further discussed in much detail in sect. 7.2.2
71A different construal of the relation between kinds and their instantiations takes tropes to be the instantiations of kinds. Because tropes are ontologically dependent on their bearers, their bearers may then be said to be (indirectly) classified into kinds (by the tropes that are dependent on them). The tropes themselves, however, do not exemplify the property associated
mostly in that kinds cannot plausibly be said to be 'unsaturated' (on any acceptable understanding of this term), they are themselves not predicative, though they capture and codify the content of a predication.

Kinds are Aristotle’s ‘secondary substances’ such as **HUMANITY** or **MAN**. Following D.W. Baxter (2001a), I conceive of kinds as something like classes, though with a membership relation construed non-extensionally in terms of the accompanying property. Kinds and properties are closely interrelated: as I said, to be a member of the kind **MAN**, something has to exemplify the property **being human**.

It is important to distinguish them, however, for they answer to different metaphysical needs. Kinds are classificatory in a way properties are not. We may classify things *by* their properties, but we classify them *into* kinds. This does not commit us to anti-realism about taxonomies: we may still hold that different classifications match better or worse the joints in nature. Classification by kinds is typically a high-level phenomenon — it is grounded in, but not reducible to, what qualitative features the classified particulars have. It is a way of privileging some features over others, to say what similarities are causally relevant for middle-sized objects as we are. The similarity in question is typically less than perfect: it is true that dogs, by nature, have four legs and hence it is true of the kind **Dog** to have four legged exemplars — even though the loss of a leg does not turn a dog into a non-**dog**. While it makes sense to accept in one’s ontology only the perfectly natural, completely determinate properties, the same move for kinds would be ridiculous. We need more than the ultimae species, and typically the whole Porphyrian tree.

Properties and kinds do not only differ metaphysically, they also differ in the grammatical behaviour of their singular terms. Kinds are most clearly designated by general terms like “**man**”, “**dog**” and sometimes by adjectives used in nominal position as “red” in “**Red** is my favourite colour”. They are also plausibly taken to be the referents of abstract nouns like “**manhood**”, “**wisdom**” and “**redness**” as they occur in “**Wisdom** is a virtue” and “the redness of ripe tomatoes reminds me of my childhood”. Properties, if anything, are the semantical values of predicates like “...is wise”, “...is a **man**”. In many cases, the clearest way to designate them is by some participal form: “**running**”, “**weighing**” and “**lying** between Glasgow and St. Andrews” all designate properties. If the main verb of the predicate we obtain by deleting at least one proper name from a sentence is the copula or if the sentence is sufficiently complex, what we obtain by this method may be ungrammatical. Fortunately, there is another, equally cumbersome, but at least grammatical way of designating properties: the property which is the semantic value of the predicate **F** is the referent of “what **F** stands for” (Dummett 1981: 213).

Are we therefore relieved from the sad obligation to say, with Frege (1892: 196, fn. 2), that the concept **horse** is not a concept or the property **being a horse** not a property? No, for it is not quite true that

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72While every property may be taken, within an appropriate taxonomy, to determine a kind and every kind classifies its instances by their exemplifying a property, they cannot be reduced to each other. It is true that the **Dog** is four-legged, that Red is a colour and that the Apple-Blossom is the state flower of Michigan, but the same is not true of the corresponding properties (cf. Wolterstorff 1970: 259).

73This is why Armstrong (1997: 66–67) argues that kinds are not universals: they are not strictly identical in all their exemplifications.

74Wiggins (1984: 320) concludes from the fact that abstract nouns are not substitutable for general terms *salva congruitate*, that they cannot stand for the same thing, applying what Crispin Wright (1998: 79) has called the ‘Reference Principle’, namely that "co-referential expressions should be intersubstitutable *salva veritate*, at least in extensional contexts, and intersubstitutable *salva congruitate* in all".
“what “...is a horse” stands for” is interchangeable with “...is a horse.” There are two problems here: one is that “Bucephalus is a horse” is a complete sentence while “Bucephalus what “...is a horse” stands for” is not. The second problem is that I may owe you a horse, and hence something which is a horse, but I do not owe you what “...is a horse” stands for (to pay my debt I have to give you an animal and not a property). What “what “...is a horse” stands for” is interchangeable with, as Dummett (1981: 214) remarks, is not “...is a horse” but “a horse”, if the latter is construed predicatively, i.e. as involving second-level quantification. To get a complete sentence, we still need the copula: perhaps this was not much of a problem for Frege, but it certainly is a problem for us and for Ramsey. If it were the case that whenever we try to say what a predicate stands for, we unavoidably miss our target and talk about something else, then any attempt to match the metaphysical distinction between universals and particulars with the grammatical difference between singular terms and predicates would be hopeless.

Having the distinction between kinds and properties at our disposal, we could say something similar: only the kind corresponding to some property may be referred to.

Frege himself, after all, despite of what he said about theundenotability of the concept horse, said a lot of things about concepts, and he did so in a clear and understandable way. In order to whistle what he wanted to say, he used expanded spacing (Frege 1892: 197). I try to do the same using italics. The expression “being a man,” then, denotes the property which is the semantic value of “...is a man” — though this is not the right way to put it. Rather, we are in the situation Cantor was when he referred to sets using an inconsistent theory. He could not say what he wanted to say but we understand him nevertheless.

I readily concede that there is some regimentation involved here. We may say, for example, things like “The property of being red is George’s favourite colour” — on the regimentation proposed, a statement of an identity between a property and a kind. Because we also say “George’s favourite colour is Red”, but do not want to say that the property of being red is identical to Red, we better expand the original sentence into “The property of being red is George’s favourite colour property”, thereby switching from kind to property.

But even this switch is imperfect: while both “George’s favourite colour property” and “the property of being George’s favourite colour” derive from “...is George’s favourite colour” only the first can replace “George’s favourite colour” in “The property of being red is George’s favourite colour” salva significacione. This can be seen in the difference in modal

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75 The same is true, in cases where the result is grammatical, of what López de Sa (2003: 3) has called “canonical nominalisations”, i.e. the introduction, corresponding to some predicate $P$, of the term “$P$-ing” to refer to the property (if any) all and only those things have that $P$.

76 This depends on whether Frege was right in treating the copula as “a mere grammatical device, with no content, which serves the purpose of converting a phrase into a verbal phrase when grammar demands a verb, just as the word ‘thing’ serves to convert an adjectival phrase into a substantival one, where grammar demands a noun, or the pronoun ‘it’ supplies a subject when the sense requires none” (Dummett 1981: 214). For some doubts about this construal of the copula, cf. Wiggins (1984) and Wright (1998). Even if, however, this is granted, Frege faces another problem pointed out by Russinoff (1992: 64): even though “man” does not refer to Jesus, and therefore has a referent that is different from Jesus, Frege cannot phrase this as “Jesus is not what “man” refers to”, for this is equivalent for him to “Jesus is not a man”. So he has to say, as Dummett (1981: 214) does, that “what “man” refers to” stands for the concept man, only if used predicatively. But then we may ask with Russinoff (1992: 66) how he can legitimately claim to have achieved what he was after, namely an expression that is both a proper name (and hence not used predicatively) and captures the ‘predicative character’ of “...is a man”. And we need, after all, proper names for concepts: “What “man” refers to is a concept” is true, but “...is a man is a concept” is nonsensical.

77 This, I think, is a smaller change than might appear at first sight: Frege (1892: 190) acknowledges uses of the definite article to refer to kinds, as in “the horse is a four-legged animal”, which appear to be exceptions to his rules that terms formed with the singular definite article always designate objects. He proposes to understand them as “all non-deviant horses are four-legged animals” (cf. also Wölterstorff 1970: 246), but this is highly problematic, as the discussion about statistical and stereotypical quantifiers has shown (cf. sc. 7.2.2).

78 One might protest here and hold that neither “The property of being red is George’s favourite colour” nor “Red is George’s favourite colour” are identity-statements at all, but rather predications, on a par with “Chastity is a virtue”. The problem with this reply is that it seems open to us to coin a proper name, using “George’s favourite colour” as reference-fixing description.
4.2 Truth as a formal concept

behaviour between the following two sentences:

(24) Red is George’s favourite colour.

and

(25) The property of being red is the property of being of George’s favourite colour.

If George’s colour preferences are contingent, (24) fails to be necessarily true.\(^7\) If George had different colour preferences, some other colour than red would be his favourite one. The contingency of (24) is readily explained by the fact that the singular description “George’s favourite colour” may pick out different colours with respect to different circumstances of evaluation: in a world where George prefers green, it picks out green.\(^8\)

(25) requires a different story, for “the property of being of George’s favourite colour” is not a singular description in the same way than “the property I am thinking of right now”. This explains why we feel tempted to count it as false, notwithstanding our stipulation to the effect that George prefers red. On the face of it, (25) is an identity statement featuring two proper names\(^9\) and still, I take it that most of us are inclined to take (25) to be contingent, though perhaps less so than (24). But even those who do not share this intuition, I think, feel the need to draw a distinction between (25) and theoretical identifications like “water is H\(_2\)O”.

The problem with this is that there is a powerful argument to the effect that (25), and indeed any statement of an identity between properties, is necessary, all singular terms designating properties being automatically rigid (Macbeth 1995; Schwartz 2002; Soames 2002). The recipe is as follows: any supposedly non-rigid singular term “P-ing” designating a property may be taken to refer to the disjunctive property of “P-ing in w or P”-ing in w’ or ...” for the different referents of “P” in those different worlds. Instead of saying that “P-ing” non-rigidly refers to whatever P’s in the relevant world, we may then say that it rigidly refers to this disjunctive property. This has become known as the ‘generalization problem’ (Soames 2002: 260).

It is instructive to see why a parallel argument fail for kinds: kinds are not in the same way spread out across possible worlds than properties are. In other possible worlds, actually existing kinds can be extinct and hereabout extinct kinds still exist – properties, on the other hand, may become empty but do not therefore cease to exist. Kinds may also have different properties in different possible worlds: if history had been different, the state flower of Michigan would not be the Apple-Blossom.\(^{10}\) So, whatever kinds are, they are things that can be referred to non-rigidly.

---

\(^7\)So does “The property of being red is George’s favourite colour property”. As this nominalisation does not correspond to the pattern I gave above, I will not consider it further.

\(^8\)It just seems undeniable to me that in some other possible world than the actual one, the bumblebee and not the honeybee is the insect species typically farmed for honey (LaPorte 2000: 298). Some, e.g. Schwartz (1980) and Macbeth (1995), have denied this, holding that every singular term designating a kind designates it rigidly. While I think that this argument has some force as an argument against contingent property identities, I think it is hopeless against kind identities, for reasons I will put forward on p. 4.2.2. It seems to me that the discussion about rigidity for general terms generally suffers from the failure to make the distinction between properties and kinds (cf., e.g., the revealing footnotes 3 in LaPorte (2000) and 2 in Schwartz (2002)).

\(^9\)This might be disputed. There are examples, e.g. “what is it to be a philosopher? – to be crazy and to be paid for it”, “being a man is being a lonesome cowboy”, that are more plausibly construed as (bi-)conditionals. I surmise that these are exactly the cases in which a paraphrase in terms of “means” is possible. If this is true, they may safely be excluded as deviant.

\(^{10}\)It even seems that this is equally possible for biological kinds (even though not for biological properties, if something like essentiality of ‘constitution’ is only half correct): if evolution had taken a different course, penguins could be fish (would instantiate the kind Fish). This is not to say that some (actual or possible) penguin a might have been a fish – it might still be essentially a penguin and hence a bird. Nor is it to say that the property being a penguin, might have been compatible with the property being a fish (property exclusions might still be necessary). It is just to say that the kind PENGUIN, identified by such and such biological criteria, might have had another place in our classification of animal subkinds into Bird and Fish.
But I think we can do better than that. What the paradox of the horse shows, after all, is not that it is impossible to talk about properties. Nor does it show, as Rheinwald (1997: 11) thinks, that “the concept horse is not a concept” violates the principle that all Fs are F, nor does it lie in the fact that “...is a horse” and “the concept horse.” are not substitutable salva congruitate.

Let us then return to (24) and (25). The difference between them, and the associated difference between properties and kinds, is most clearly seen with respect to rigidification: while

(26) Red is George’s actual favourite colour.

is unproblematically necessary, there is a reading under which even

(27) The property of being red is the property of being of George's actual favourite colour.

fails to be necessarily true: under counterfactual circumstances, it may happen that what it takes for something to be of George’s actual favourite colour is for it to be green. The reason for this is that even though “being red” and “being of George’s actual favourite colour” are necessarily coextensive, they characterise their exemplifications in different ways and classify them by different qualitative features: to be red is to have a certain surface property or to appear to perceivers in such-and-such a way under such-and-such conditions, while to be of George’s actual favourite colour is to have the dispositional property of being actually preferred by George with respect to its colour. This latter dispositional property depends on George’s discriminatory abilities in a way being red does not.

We have to distinguish this question from the different, though related question whether singular terms contained in the specification of a property have to be read rigidly or not.\(^3\) In evaluating the truth of “this tomato has a colour which is such that George would actually colour-prefer it” with respect to some counterfactual scenario, we have a choice as to whether we want to talk about the actual George’s colour preferences or the ones of his counterparts.\(^4\)

But this is not the property we are talking about in (27). “Actual” in (27) does not rigidify “George”, but his colour preferences: what it is to be of George’s actual favourite colour in some other possible world is to be colour-preferred by some counterpart of George who has the same colour preferences than George actually has. Because these colour-preferences might be different, (27) is contingent. It is perhaps useful to contrast (27) with the “water = H\(_2\)O” case. By saying that water is H\(_2\)O, and necessarily so, we may again be saying two things. The identity of kinds is unproblematically necessary: whatever satisfies our criterion for being water is H\(_2\)O. The problem, then, is that this seems a matter of taxonomy: given that we have found out that water is H\(_2\)O, we do not call “water” anything else than H\(_2\)O. The same holds for “the tiger = the species with X DNA” – we assert it as soon as we decided to classify species by their DNA. The case is clearest with explicit taxonomical assertions as “The honeybee = Apis mellifera”. The problem with kind-identities, as Schwartz (2002: 271) has remarked, is that their truth of “is based more on decision than a discovery” – as in the case of proper names in general, it is built into their semantics. Their rigidity is de jure, and not de facto.

It seems, however, that de facto rigidity is needed to grind out the essentialist intuitions (LaPorte 2000: 308) Kripke wants to elicit by what he calls “theoretical identities”. This is why “water = H\(_2\)O” is better construed as an identity of properties. For, if Kripke is right, we do not just want to say that, for the most part, water is composed of H\(_2\)O molecules: we want to talk about the hidden essence of

\(^3\)This latter question plays some role for the definition of intrinsicness (cf. p. 168).

\(^4\)This has also been remarked by Sider (1996a: 23, n. 8): “In Lewis’s framework, “being Ted” might denote either the property had by only the world-bound individual Ted, or might denote the property had by all and only Ted’s counterparts.”
4.3 Grounding truth

the property being water and we want to say that this hidden essence is not in any way hypothetical.\footnote{I do not want to take a stand on the question whether hypothetic properties are ipso facto extrinsic.} It is also as an identity of properties that “water = H₂O” is unproblematically a posteriori. As Schwartz (2002: 270) has remarked, it is not altogether clear how identifications of kinds can be so.

What, then, is the difference between “water is H₂O” and “the property of being red is the property of being of George’s actual favourite colour”? It lies, I think, in the fact that in the colour, but not the water case, we refer to some property by picking it out via a condition. What it is to be of George’s actual favourite colour is to exemplify the property, whatever it is, that makes something match George’s actual colour preferences. In the case of “water”, we do not have a corresponding condition: even if some other substance would fill the actual lakes etc. and would therefore be called “water”, it would not therefore be water. Property identities, then, are necessary iff they are not criterial, i.e. if the properties in question are characterised by what they bestow on the particulars exemplifying them and not by whatever it is that makes the particulars satisfy the condition imposed.\footnote{This also explains why a familiar argument against the trivialisation objection does not work.} The argument is from analogy: if the re-construction of P-ing as the disjunctive property something has in a world if it P’s there is allowed, why not the analogous move consisting in the claim that “the president of the USA”, after all, is rigid for it designates in every world the ‘office person’ (Sidelle 1992), call it “Bushy”, constituted by the US president in that world (LaPorte (cf. 2000: 301) and López de Sá (2003a: 30)? The reason for this, I think, is that office persons are ‘criterial’ in a way ordinary persons are not: what it is to be Bushy is not what it is to be a person (i.e. it does not include having a haircolor, a sex, parents etc.) – even though in every possible world in which it exists Bushy is some (unique) person.

This proposal has the advantage that singular terms for the properties designated by ‘artifical kind predicates’ like “…is a knife” and ‘nominal kind predicates’ like “…is a bachelor” come out non-rigid (as requested by Schwartz (2002: 266) ), for they are naturally understood as criterial.\footnote{Cf. LaPorte’s Lockean explication of what he means by the ‘nominal essence’ that determines the membership of a nominal kind: “Roughly, a nominal essence consists of properties speakers associate with a kind ...” (LaPorte 2000: 313, italics mine).} What is a knife and who is a bachelor in some possible scenario depends on what the social institutions in that scenario are like. We cannot conclude from the fact that something becomes – ceases to be or could be but actually is not – a knife or a bachelor that it does not persist over time or across possible worlds.

This, however, cannot be the case of all singular terms standing for properties: by pain of an infinite regress not all singular terms for properties can be criterial, i.e. some at least have to specify their referent not by some other condition all and only its exemplifications satisfy, but directly, by what it bestows on those particulars.\footnote{I do not mean by this that properties are uniquely characterised or reducible to their nomological role. Most fundamentally, properties are ‘qualitative roles’, locating particulars exemplifying them in a quality space, and these roles may or may not be causal.} It is by these rigidly referring terms that we may characterise how particulars are under different circumstances; we do so by saying in what ways they would be similar to actually existing particulars, holding the respect in which they would be similar fixed.

4.3 Grounding truth

We ask how the truth of our statements connects with what they are about, how it is grounded in their subject matter and depends on how the world is. This is the question not just of truth, but of truthmaking. The truthmaking intuition that we shall explore in this chapter may be taken to consist roughly of the following two tenets:

1. Truth is relational: being true is being made true by something.

2. Truth is grounded: true truthbearers are true because the world is how it is; truth is not always brute.
These two tenets are obviously interrelated: the relationality of truth means that the grounds must enter into true ascriptions of truth; the groundedness means that the other relatum of such ascriptions must be of an ontological, rather than say an epistemological nature.

Let me emphasize again that these tenets are not about the truth predicate or about the property (thick or thin) of truth. For all that will be said in this section, the question how ‘deflationist’ an account of the truth predicate can be given will still be open.

Historically, the truthmaker principle has often been used polemically against philosophical claims postulating unreduced counterfactuals that could not possibly be made true by anything which exists (cf. Armstrong 2001).

The phenomenalist, aiming to reconstruct ordinary objects out of sense-data, tries to account for unobserved objects by mounting unreduced phenomenalist counterfactuals like “the unobserved physical object x is the thing that would cause a perception F in a suitable perceiver under suitable circumstances”. Unperceived objects, in Mill’s apt phrase, are “permanent possibilities of sensation”. Such claims, however, cannot be made true by actual sense-data (perceptions actually had by actual perceivers), they cannot be grounded in neither actual nor merely possible sense-experience. There is nothing else in the phenomenalist ontology that could make them true:

“But what answer [to the truthmaker question] had the actual Phenomenalists got? All they had available for truthmakers were the actual sense-data or sense-impressions had by actual minds. Truthmakers for true counterfactuals about the perception of unobserved material reality would have to be found in the actual, bitty, sense-data.” (Armstrong 2002a: 27)

Gilbert Ryle (1949) gave a dispositional account of mental states and analysed beliefs, e.g., as certain dispositions to act. Armstrong (1968: 85–88), following C.B. Martin, argue that Ryle could not provide truthmakers for these dispositional truths about the mind:

“...the truthmaker insight, as I take it to be, prevents the metaphysician from letting dispositions 'hang in the air' as they do in Ryle's philosophy of mind. For one who espouses truth-makers, such hanging on air is the ultimate sin in metaphysics.” (Armstrong 2002a: 29)

As a criticism of Ryle, this does not seem very fair: Ryle assimilates ascriptions of dispositional properties to what he calls ‘open hypotheticals’ (Ryle 1949: 117), of which he thinks as statements of laws (Ryle 1949: 122). And as Mumford (1998: 28) has noted, it is open to Ryle, as to any other empiricist, to provide an ontological grounding for laws of nature. He would not, of course, be able to ground them upon actual mental states or episodes, but only upon physical states and would still have to defend his claim that mental ascriptions are just about behavioural dispositions.89

What truthbearers have truthmakers? Fox (1987: 189) states what he calls the “truthmaker axiom” as the claim that every true sentence has a truthmaker: for any p, if p, some x exists such that x’s existing necessitates that p. Armstrong (1989b: 88) restricts the claim to contingent truths, but Armstrong (1997: 2) thinks that necessary truths also have, albeit impoverished, truthmakers, namely the contingent states of affairs that are their constituents. Abstracting from the different question how to spell out the truthmaking relation, we have the following statement of truthmaker maximalism:

--

89I am indebted to Kevin Mulligan for these precisions.

90The formulation of (10) is to be found in (Armstrong 2002a). Armstrong (2003b: 13) formulates it as “every truth has a truthmaker”. (Read 2000b: 68) calls it the “correspondence intuition”, which, as Lewis (2001b) has argued, might not be the
4.3 Grounding truth

10 (Truthmaker maximalism). *Necesarily, for every true proposition* \( p \) *there is some entity* \( e \) *that makes* \( p \) *true.*

If truth is taken to be relational and if there is only one kind of truth, then truthmaker maximalism is certainly the natural starting-point for friends of truthmaking. Any exceptions would seem to force us to make a principled distinction between truths having truthmakers and truths without truthmakers. It is difficult to see how such a distinction could be independently motivated.

Given this understanding of truthmaking, truthmaker maximalism (10) seems a rather strong claim: it says that every proposition is entailed by what may be called a positive existential, a statement of the form “\( \exists x (x = a) \)”.

\[
\forall p \square \exists e (p \text{ is a true proposition} \rightarrow \exists(e) \square \rightarrow p)
\]

In terms of possible worlds, (28) may be reformulated thus (Lewis 2001d: 605):

\[
(TM) \quad \forall p \forall w, v \exists e (w \models p \rightarrow (w \models \exists(e) \land (v \models \exists(e) \rightarrow v \models p)))
\]

(TM) implies the following ‘difference principle’ for worlds (Lewis 2001d: 606):

\[
(30) \quad \forall p \forall w, v \exists e (w \models p \land v \not\models p \rightarrow (w \models \exists(e) \land v \not\models \exists(T))
\]

(30) says that every distinction in truth is a distinction in being.

Truthmaker maximalism (10), then, says that every true proposition entails that at least something exists. But surely there are other statements too, e.g. negative existentials and negative generalisations. It seems hard to maintain that there is something in the world that makes it true that there are no unicorns. This is a general problem, to which we will return below, but it is especially pressing with respect to an account of truthmaking as strict implication of positive existentials.

If we want to account for negative existentials such as that there are no unicorns, we have to postulate something that replaces them in worlds where there are none, something the existence of which excludes the existence of unicorns. It is just not clear what such a thing might be (Lewis 2001d: 610). To see the problem, note that (10) is the claim that any two worlds differing ‘in being’ differ with respect to which things exist in them:

“The Truthmaker principle [truthmaker maximalism (10)] turns out to imply something about how possible worlds can and cannot differ. It says that every difference between worlds [...] is a two-way difference in population: each world has something that the other lacks. In other words, every difference between worlds requires a difference-maker. In fact, two difference makers: one in one world and the other in the other.” (Lewis 2001d: 606)

We might think, with Lewis, that one difference-maker is enough and therefore weaken truthmaker maximalism (10) to truthmaker dualism (11):

So we might want to retreat to something weaker:

\[
\forall p \square \exists e (p \text{ is a true proposition} \rightarrow \exists(e) \leftrightarrow p)
\]

one would have to combine (28) with strong mereological principles (the sum of all \( F \)s makes true all existential generalisations \( \exists x (Fx) \)) and assume that there is a minimal truthmaker for every truth.
11 (Truthmaker dualism). Necessarily, for every true proposition \( p \) either there is some thing \( T \) that makes \( p \) true or there is no thing \( T' \) that makes \( p \) false.\(^{92}\)

(11) says that true propositions are true in virtue of the existence of truthmakers or the absence of falsmakers. There are no unicorns, for example, because there are no things that could make it false, i.e. no unicorns. (11), as opposed to (10), does not rule out the possibility that there might be nothing, at least if it is not interpreted as postulating the existence of lacks (Molnar 2000: 75). This is certainly a point in its favour.\(^{93}\)

Even (11), however, does not seem satisfactory. It gives up the important link between truth and existence, lying at the bottom of the truthmaking intuition (Martin 1996). On the other hand, it does not seem to go far enough, for it still leaves us with the difficult task to account for general facts.

To see what is at stake, consider that (DM) is equivalent with the following principle (assuming excluded middle \( (v \neq \neg \exists \left( F_i \right) \Rightarrow v \vdash \exists \left( F_i \right) ) \) for the (MI) \( \Rightarrow \) (DM) direction).\(^{94}\)

\[
\text{(MI)} \quad \forall p \forall w, v \exists F_1, F_2, \ldots \left( w \vdash p \rightarrow (w \vdash \neg \exists \left( T_1 \right) \land w \vdash \neg \exists \left( T_2 \right), \ldots \land (v \vdash \neg \exists \left( T_1 \right) \land w \vdash \neg \exists \left( T_2 \right), \ldots \rightarrow v \vdash p) \right) \]

(MI) precisifies the following idea: whenever a truth is made true by some truthmaker according to (TM), then there is something the existence of which would have made it false. Any such truth is true both in virtue of the existence of truthmakers and in virtue of the absence of falsmakers. If we thus have a notion of falsmakers, why do we need truthmakers in addition? What makes it true that there is no such thing as an \( F? \) Is it the absence of a truthmaker for \( \exists x \left( Fx \right) \) or rather that, there is no such truthmaker? Short of reifying absences, we may feel to be forced to modify the truthmaker principle: negative existentials, at least, are not made true by anything (Mulligan et al. 1984: 315).

Lewis (2001d: 610) suggests the following as an explication of (11) to dispense with the need for negative facts as truthmakers.

\[
\text{(TM)} \quad \forall p \forall w, v \exists T \left( w \vdash p \land v \neq p \rightarrow (w \vdash \exists \left( T \right) \land v \neq \exists \left( T \right)) \lor (w \neq \exists \left( T \right) \land v \vdash \exists \left( T \right)) \right) \]

Lewis analysis of negative truths (true in virtue of the absence of falsmakers) (Tm) presupposes modal realism (Armstrong 2004c: 69) \( \text{“To try to analyse ‘the absence of falsmakers’ in terms of the} \)

\(^{92}\)I take this to be the upshot of the following formulation of Bigelow (1988b: 13): “If something is true, then it would not be possible for it to be false unless either certain things were to exist which don’t, or else certain things had not existed which do.” Lewis (1992: 216) argues that we should allow for cases where some proposition is true not because its truthmaker exists but because none of its falsmakers exists.

\(^{93}\)Even if it were really impossible that there might be nothing (and there were a conclusive a priori argument for this conclusion), it clearly is not the business of truthmaker theory (but of the general theory of modality) to rule out this (at least apparent) epistemic possibility.

\(^{94}\)A weaker principle than (DM), namely \( \forall w, v \exists T \left( w \vdash \exists \left( T \right) \land v \neq \exists \left( T \right) \right) \) is equivalent with (without assuming excluded middle):

\[
\text{(MP)} \quad \forall p \forall w, v \exists F_1, F_2, \ldots \left( w \vdash p \rightarrow (w \neq \exists \left( T_1 \right) \land w \neq \exists \left( T_2 \right), \ldots \land (v \neq \exists \left( T_1 \right) \land w \neq \exists \left( T_2 \right), \ldots \rightarrow v \vdash p) \right) \]

\(^{95}\)The one-way truthmaker principle (TM) is equivalent with the following one-way difference-making principle:

\[
\text{(DM)} \quad \forall w, v \exists T \left( (w \vdash \exists \left( T \right) \land v \neq \exists \left( T \right)) \lor (w \neq \exists \left( T \right) \land v \vdash \exists \left( T \right)) \right) \]
unrealized possibility that the world might have been such that ‘unicorns exist’ is true seems ludicrous if it is truthmakers one is seeking.” (Armstrong 2004c: 70)

We may thus think it necessary to retreat even further (Lewis 1992: 218). The bottom line of the truthmaking intuition, then, seems to be something like the following (Bigelow 1988b: 132–133):

12 (Truthmaker minimalism). The truth of every proposition supervenes on being.

If we say, with Lewis (2003: 25), that differences in being come in sorts – “differences in whether something is, and [...] differences in how something is” – (12) seems trivial. It does, however, rule out haecceistic differences between worlds, at least if supervenience is spelt out as invariance among worlds indistinguishable with respect to being. We could, with Lewis (2001d) rule out indiscernible worlds by fiat, stipulating that any two worlds differ in what truthbearers they make true:

\[
(31) \forall w, v (w \neq v \rightarrow \exists p (w \models p \land v \models \neg p))^{96}
\]

It is therefore fortunate both for us and for Lewis that not much hinges on the dubious status of (31). Lewis (2001d: 606) calls a proposition discerning iff it does not have different truth-values in indiscernible worlds. Some of the discerning propositions are non-haecceistic, i.e. qualitative. If we restrict the claim made by (12) to qualitative propositions, we make it true by fiat (Lewis 2003: 26). It is therefore more advisable just to restrict all claims depending on (31) to discerning propositions.

A different problem arises from an unexpected angle. We already saw that even for the weakest truthmaking principle (12) to be valid, we have to accept a principle of identity of indiscernibles for worlds (31) or else restrict our consideration to what has been called discerning propositions. But does not this problem equally arise for lesser individuals as worlds? Does the truthmaking principle – a kind of ontological variant of the Leibnizian principle of sufficient reason (Mulligan 2003) – commit us to a general principle of identity of indiscernibles, the latter capturing the “sense that, if individuals are distinct, there must be something about them that makes them distinct” (van Fraassen 1991: 464).

This would be an indeed remarkable interdependence of two Leibnizian doctrines.

The main problem with (12) is that it seems too weak to capture the original intuition that true truthbearers are made true in virtue of some specific thing (allowing for the possibility that they may be made true by different things in different circumstances). The truthmaker principle, after all, is not just a claim of global supervenience: minimally, it amounts to the following precisification of (12) (Parsons 1999: 326):

13 (Truthmaker principle). Every true proposition's truth supervenes on the nature of some thing.

It is a difficult question to determine what properties of a thing are to be included in its nature, but it is a question acceptable answers to which seem to be constrained by (13). Lewis (2001d) gives the

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96 Cf. “...every proposition, no matter what lesser subject matter it may have, is entirely about being. It cannot have different truth values in two worlds exactly alike with respect to being.” (Lewis 2003: 26)

97 Fox (1987: 200) has said of (12), which he calls “weak truthmaker”, that it is not able to bear “much metaphysical weight”.

98 A stronger principle would be the following:

\[
(32) \forall w, v \exists p (w \models p \land v \models \neg p)
\]

(32), but not (31), commits us to total valuations, i.e. a conception of possible worlds as ‘full answers to every possible question’.

99 For a more thorough discussion of the identity of indiscernibles and my reasons to think it is not necessarily true.
following form to (13):

\[(33) \quad \forall p \Box \exists T \ (\text{the truth of proposition } p \text{ supervenes on } T)\]

He explicates “supervenience” as invariance among indistinguishables as follows:

\[(34) \quad \forall p \Box \exists T \forall w, v \ (w \text{ and } v \text{ are indistinguishable with respect to } T \rightarrow (w \models p \land w \models p) \lor (v \models \neg p \land v \models \neg p))\]

As Parsons (1999) has noted, however, (13) is entirely compatible with the denial of specific entities doing the truthmaking job. It may, but does not have to be, connected with such an ontological thesis. It had been so connected in the seminal paper on truthmaking: Mulligan et al. (1984) take moments (ontologically dependent entities denoted by nominalisations of verbs) to be truthmakers and state their basic principle, intended to apply to “many simple sentences”, thus:

“If “This cube is white” is true, then it is true in virtue of the being white (the whiteness) of this cube, and if no such whiteness exists, then “This cube is white” is false.” (Mulligan et al. 1984: 297)

The tropes of Mulligan et al. (1984), like the states of affairs of Armstrong (1997), are entities the existence of which we are (allegedly) entitled to assume because of our prior commitment to the existence of truthmakers. Both tropes and states of affairs seem to be definable as the truthmakers of certain predications.\(^{100}\) To adopt an ontologically non-committal truthmaker principle is to miss the point that truthmaking was proposed as a link between truth and existence in the first place.

So let us return to truthmaker maximalism (10): Given an identification of indiscernible worlds (31) or an equivalent restriction to discerning propositions and assuming excluded middle for possible worlds (\(\forall w (w \not\models p \rightarrow w \models \neg p)\)) and the claim that any two worlds are divided by some proposition, the following Difference-Making Principle follows from (TM):

\[(DM) \quad \forall w, v \exists T \ (w \neq v \rightarrow (w \models \exists(T) \land v \models \neg \exists(T)))\]

Assuming (31), (TM) is equivalent with the following principle of distinct occupants:\(^{101}\)

\[(DO) \quad \forall w \exists T \forall v \ (w \models \exists(T) \land v \not\models \exists(T))\]

(DO) says that for any world, there exists something in that world which exists in no other world. Assuming excluded middle, (DO) implies (DM) (Lewis 2001d: 607).

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\(^{100}\)“Medieval philosophers customarily defined something’s whiteness, heaviness, existence, manhood, or colour, as that by which it was white, was heavy, existed, was a man, or was coloured.” (Fox 1987: 190).

\(^{101}\)It is also equivalent to the following plural truthmaking principle: \(\exists \exists\) is the plural existential quantifier:

\[(TMP) \quad \forall p \forall w, v \exists T_1, T_2, \ldots \ (w \models p \rightarrow (w \models \exists(T_1) \land w \models \exists(T_2), \ldots \land

(v \models \exists(T_1) \land w \models \exists(T_2), \ldots \rightarrow v \models p))\]

(TMP) is equivalent with the following plural version of (DO):

\[(DOP) \quad \forall w \exists T_1, T_2, \ldots \forall v (w \models \exists(T_1) \land w \models \exists(T_2), \ldots \land v \not\models \exists(T_1) \land v \not\models \exists(T_2) \land \ldots)\]
4.3 Grounding truth

Truthmaker internalism (20) also explains why supervenience alone is not enough for truthmaking: truths must be grounded in the intrinsic nature of some precise and delimited thing, not just counterfactually depend on the way the world is.

We already noted that Lewis (2001d: 611) pointed out against Martin (1996: 61) that statements of the form “a makes b true” are rarely informative and hence do not normally give an explanation of why b is true. This does not mean that truthmaker theory itself is not informative, but just that it, as any metaphysical theory, aims at making manifest what underpins the trivial.103

102 Cf: “Truthmaker theory is a theory of the groundedness of truth-values. Minimally, such a theory should enable one to identify whatever it is that explains why the truth-bearers have the truth-values they have.” (Molnar 2000: 82)

103 The un-informativeness of particular truthmaking claims is compatible with the fact that the theory as a whole is motivated by an explanatory demand: “Central to this strategy [of truthmaker theorists] is the “correspondence intuition”, that truth (of propositions or whatever) requires an explanation in the form of something which makes that truth true.” (Read 2000b: 68)
Chapter 5

Truthmaker realism and our taste for desert landscapes

What is it for some entity to be a truthmaker of a proposition? We already met the simplest account of truthmaking on the market: An entity $e$ is a truthmaker for the sentence "$p$" iff "$e$ exists" entails "$p$". The classical account of truthmaking is as necessitation.¹

14 (Truthmaking as necessitation). $a$ makes it true that $p$ if and only if $a$ exists $\land \Box(a \text{ exists } \rightarrow p)$

Having accepted states of affairs for contingent predications of intrinsic properties to contingent existents, we note that contingent intrinsic predications come in all sorts of logical complexity. How are we to account for truthmakers of logically complex truthbearers? Is their syntactic complexity matched by an ontological complexity on the side of the world or do we rather want to stay with Wittgenstein’s ‘basic insight’ that the logical constants do not represent? The latter would motivate a restriction of the truthmaker principle to atomic statements (Fox 1987: 204).²

In this chapter, I first discuss such a restriction, and endorse it (5.1) and then argue for truthmaker maximalism, the view that every truth has a truthmaker (5.2), and truthmaker actualism, the view that all truthmakers are actually existing entities (5.3).

5.1 Truthmaker realism

"…perhaps truthmaker maximalism has one major advantage that has been ignored. It preserves the unity of the concept of truth, or at least a unity in the account of what it is to be true."

(Mumford 2005: 269)

To avoid postulating conjunctive and disjunctive facts and in order to be able to give recursive clauses for the truthmaking of truth-functional compounds, friends of truthmaking have defended the following claims:

¹Variants of (14) are to be found in Lewis (1998: 217).

²This is why Mellor (2003: 213) allows for non-atomic basic truthmakers: “The fact is that only atomic propositions, and such non-truth-functional compounds of them as ‘$a$ believes that $P$’, ‘If $P$ were the case $Q$ would be’ and ‘$\text{ch}(H) = p$’ need truthmakers.”
15 (Disjunction thesis). \(a \text{ makes it true that } p \lor q \text{ true iff either } a \text{ makes it true that } p \text{ or } a \text{ makes it true that } q\).

16 (Conjunction thesis). \(a \text{ makes it true that } p \land q \text{ iff both } a \text{ makes it true that } p \text{ and } a \text{ makes it true that } q\).

17 (Negation thesis). If \(a \text{ makes it true that } p\) then there is nothing that makes it true that \(\neg p\).

An immediate problem of the Disjunction, Conjunction and Negation theses is that they trivialise an account of truthmaking as necessitation (cf. p. 102). This is not so much of a problem for us, as we will give independent reasons not to adopt that account. The right-to-left Disjunction thesis makes every truthmaker “an inexhaustible fountain of truths” (Armstrong 2004c: 21). The account of truthmaking as necessitation (14) entails both the Conjunction and the Negation theses (16) and (17) respectively. Another immediate consequence of (14) is that everything is a truthmaker for a necessary truth (i.e. \(\Box p \rightarrow \forall x(x \text{ makes it true that } p)\)), which “gives logic a certain grandeur” (Restall 1996: 333, n. 3).

The account of truthmaking as necessitation (14), when conjoined with the Disjunction thesis (15), implies that every truthmaker makes true every truth (Restall 1996: 333) and thus trivialises truthmaker theory.

This means that the Disjunction thesis would have to be given up. Because its right-to-left direction seems incontestable, this would mean to accept truthmakers for disjunctions which do not make true any of the disjuncts — not very plausible a claim. Such a move would also, as Restall (1996: 333) has remarked, commit us to necessary connections between unrelated truthmakers (the truthmaker for \(p \lor q\) necessitating the existence of a truthmaker for either \(p\) or \(q\)) and to undetectable differences between necessarily equivalent concepts of disjunction.

Read (2000b: 73) argued for a weakening of the Disjunction thesis to the following: whenever something makes a disjunction true, there is something that makes one of the disjuncts true. So far, this follows just from the truthmaker requirement. But can we really allow for the case where something different from the truthmaker for the disjunction makes one of the disjuncts true? Read’s example to this effect, a horse race where the local conditions favour two of the horses over the others without deciding which will win (Read 2000b: 74), is tendentious: ‘conditions’ are precisely the things that are not suited as truthmakers, being global constraints on sets of truths and not specific enough to be responsible for the truth of singular truthbearers. We may therefore conclude that the weakening does rather bring up new problems than solve our old ones. Even if truthmaker theory does commit us to necessary connections between truthmakers and truthbearers, it better had not give us necessary connections between different truthmakers too.

But even if we were to give up the Disjunction thesis, however, we would not have solved all problems — distribution of truthmaking over entailment is as bad as that. If we accept that any truthmaker for \(p\) is also a truthmaker for everything entailed by \(p\), we again have the consequence that every truthmaker

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3This is much stronger than the claim made by Mulligan et al. (1984: 314, n. 47) that there are cases where the existence of some things (relevantly) entails a true disjunction, but where these things nevertheless do not make it true.

4Read (2000b: 75–76) disputes this later claim, arguing that the stipulated connective does not satisfy appropriateness conditions in place for such connectives. However, he identifies only one such: that the connective not leads to the result that every truth is made true by any thing whatsoever (truthmaker monism). His argument from analogy involving an truth-conditionally equivalent concept of negation which leads to monism, seems rather to show another important point: that truthmaker theory needs to have the resources to distinguish between necessarily equivalent truthbearers. But we might still have such a distinction in the case of negation (in the specific case: negation as falsemaking versus negation as failure of truthmaking) and have no grounds for one in the case of disjunction.

4His formal argument relies on monotonicity of truthmaking with respect to parthood (i) which we already saw to be dubious.
5.2 Truthmaker maximalism

We have already seen on p. 96 that Lewis (2000c: 610) suggests a one-way truthmaker principle:

\( \forall p \forall w, v \exists T (w \models p \land v \not\models \neg p \rightarrow (w \models \exists(T) \land v \not\models \exists(T)) \lor (w \not\models \exists(T) \land v \models \exists(T)) \) \( ^8 \)

If the conditional in (TM) is true in virtue of the truth of the second disjunct of its consequent, \( T \) may be called a ‘falsemaker’ for \( p \): \( p \) is true in \( w \) not because there is a truthmaker for it in \( w \), but because there is no falsemaker. Can we therefore say that the ontological ground of there being no unicorns is that there are no falsemakers (Lewis 1992: 216)? C. B. Martin does not find it satisfactory:

“There aren’t any fals-makers for ‘There are no […] arctic penguins!’ is a negative existential claiming the non-existence of arctic penguins, and this is a state, or how it is, not of objects, but of a spatio-temporal region of the world. This statement about there not being any fals-makers for ‘There are no arctic penguins’ needs a state of the world at the end of it (as truth-maker) for it to be true, just as much or as little as ‘There are no arctic penguins’ does, and so can’t be used to explain or show how the latter needs no truth-making state of the world for it to be true. (Martin 1996: 61)

Martin makes two different claims here. Insofar as his worry is that a statement of what is true in virtue of what is not informative, we may dispense with it: truthmaking relations do not have to be

\(^8\)Read (2000b: 70), following Armstrong (1997: 122) and Fox (1987: 189), calls this principle “truthmaker fusion”.

\(^7\)This is Read’s ‘expressibility thesis’.
explanatory, and they rarely are. The other claim, about which Martin is right, is that the absence of falsemakers is, in most cases, localised. The fact that the beer in the shop usually does not count as falsemaker for “there is no beer left” carries over into the more general contention that it is something about my room (or my fridge or apartment) in virtue of which I truly say that my guests drank all the beer. That there seems to be something local about the ontological grounds of there being no beer left may make us think that any true negative statement is made true by a truthmaker for some other statement, something which, on the account of truthmaking as necessitation, excludes any possible falsemaker for it.

Apart from the possibility that there might be nothing, there are other reasons to resist the acceptance of negative facts. They seem to be characterisable only negatively—what makes us think that they are facts, if they are not built out of their components in the way positive facts are (and even have no components at all) (Molnar 2000: 76–77)? While they may be causally explanatory (Martin (1996: 64) calls them “causally relevant”), negative facts are not causally operative (Molnar 2000: 79–80) and they cannot, contra Taylor (1952: 444–445) and Martin (1996: 64), be perceived. On a rather widespread theory, adopted by situation theorists (Barwise & Perry 1983: cf. e.g.), dialetheists (Priest 2000) and advocated as a solution to the truthmaker problem by Beall (2000), negative states of affairs differ from positive ones (only) by having a different polarity. The obvious problem with this (that Beall does not address) is that the polarity account forces us to model states of affairs as tuples of relations, objects and either 0 or 1 (or something essentially similar). But the truthmaking relation is not the one that holds between a truthbearer and some such tuple. It holds at best between a truthbearer and what is represented by such a tuple, and there we have the problem of negative facts again, in the form of the question what the 0-polarised tuples represent.

The main problem with truthmaker dualism (11) is, as Lewis (2001d: 610–611) has remarked, that even (DM) forces us to posit general facts, which are not mereologically composed out of their components and whose making true is a necessary connection between distinct existences. Again, we seem to be forced to something along the lines of (12). We can do so by arguing that (DM), claiming that any difference between two possible worlds is a difference in population, is not forced upon us, if we allow at least for fundamental, intrinsic and perfectly natural properties and relations making a difference. So, for Lewis (2001d: 612), the “strongest principle of difference-making that seems [...] clearly acceptable” is the following difference-making principle:

\[(\text{DM-})\quad \forall w, v \exists T \exists R \exists X_1, \ldots, X_n \quad ((w \models \exists(T) \land v \not\models \exists(T))
\land (w \not\models R(X_1, \ldots, X_n) \land v \models R(X_1, \ldots, X_n))
\land (w \not\models R(X_1, \ldots, X_n) \land v \models R(X_1, \ldots, X_n)))^{10}\]

The problem, again, is that (DM-) seems definitionally true. It is not surprising that every difference in the overall pattern of perfectly natural properties and relations if these notions have

\(^{9}\)The point has been made by Lewis (2001d: 611). Unfortunately, he does not consider the second pattern quoted.

\(^{10}\)Again, given (31), this is equivalent with the following truthmaking principle (cf. Bigelow 1988a: 38):

\[(\text{TM-})\quad \forall p \forall w, v \exists T \exists R \exists X_1, \ldots, X_n \quad (w \models p \land v \not\models p \rightarrow ((w \models \exists(T) \land v \not\models \exists(T))
\land (w \not\models R(X_1, \ldots, X_n) \land v \models R(X_1, \ldots, X_n))
\land (w \not\models R(X_1, \ldots, X_n) \land v \models R(X_1, \ldots, X_n))))\]
been defined to captured those properties on the distribution of which everything else supervenes.\textsuperscript{11}

## 5.3 Truthmaker actualism

If we want to keep a minimal relation between truthmaking, aboutness and ontological commitment, it would seem to follow that necessary truths are taken to have no truthmakers, given that merely possible beings are not part of Armstrong’s ontology (but ‘constructed’ out of actual existents). Surprisingly, this new view leads Armstrong to a number of (at least prima facie) conflicting affirmations: that “if any considerations in the rational sciences [which deal with the sphere of the possible] lead us to postulate actual existents, then these will have to be necessary beings” (Armstrong 2003b: 19) and that “[w]hen the mathematician or logician demonstrates the existence of some entity we should understand it as demonstrating the possibility of existence of some structure in the empirical world which instantiates the entity in question” (Armstrong 2003b: 20).\textsuperscript{12} Infinite numbers in mathematics is vindicated as long as it is possible that “there is infinity somewhere in the structure of the empirical world” – otherwise they “would join the round squares in ontological oblivion” (Armstrong 2003b: 20). This, however, seems both too strict and too permissive. It leaves the realm of the possible to the mathematician, thereby invalidating any other a priori considerations – and it makes the truth of mathematical statements depend on what, for Armstrong, is open to empirical refutation. It will not do just to say that thereby mathematics “moves in the realm of the possible” and that “no realm of the merely possible need be postulated as truthmaker for truths of mere possibility” (Armstrong 2004c: 118). For let us take any merely possibly exemplified large cardinal $\kappa$ and ask for the truthmaker of “$\kappa$ is a number”. If being a number is an internal property, the truthmaker for this will be the truthmaker for “$\kappa$ is possible”. Because $\kappa$ cannot be combinatorially built out of actually existing components, the truthmaker for the possible existence of $\kappa$ will be the all-inclusive totality state of affairs. But the very same all-inclusive state of affairs will also make it true that $\kappa$ is not exemplified, hence does not exist. So the very same state of affairs makes it true both that $\kappa$ is a number and that $\kappa$ does not exist. The problem is perhaps more pressing with respect to propositions.

Armstrong has astonishing things to say about what he calls ‘truths of impossibility’:

“We may begin with the law of non-contradiction <it is impossible for $p$ and not-$p$ both to be true>. We have already, in effect, dealt with the case when we noted […] that the truthmaker for any proposition is simultaneously a falsemaker for the contradictory of that proposition. In the case of an impossible conjunction having the form $p\& \neg p$, it is the very same entity (collection of entites) in the world that acts both as truthmaker for one conjunct and falsemaker for the other.” (Armstrong 2004c: 107)

This is all very well, but one might have hoped that he tells us what are the truthmakers for the modal truth that it is impossible that both $p$ and not-$p$. He tells us that the colour incompatibilities, if we take them to be metaphysical impossibilities, have “much the same truthmaking structure that we found for $p\& \neg p$ and that their truthmakers “are, of course, the colours themselves” (Armstrong 2004c: 108). If, however, the truthmakers of “it is impossible for any surface to be at the same time red and green all over” are the properties being red and being green, (or whatever universals to which these colours can be reduced) and not the possible surfaces making true either one but not both of the conjuncts, then the case is very different from the law of non-contradiction.

\textsuperscript{11}We will come back to this conception of natural properties and relations as the (or better: a) minimal supervenience base for everything in sect. 7.1.2.

\textsuperscript{12}The same claim is made in Armstrong (2000: 158).
To safeguard the account of truthmaking as necessitation, Armstrong has to claim that it is not possible, however, that some actually existing contingent being exists together with a necessary existent - this seems a rather far-reaching necessary connection between distinct existents indeed.\footnote{Suppose some actually existing contingent being is the truthmaker of the truth that it is possible that there is nothing. So, by truthmaking as necessitation, in every world in which it exists, there are no necessary existents. So every world containing necessary existents cannot contain any of the actually existing contingent beings.}

Besides their promise of ontological economy, another motivation for totality states of affairs is that they are needed to provide truthmakers for modal truths. While Armstrong (1989b: 88) restricted the truthmaker principle to contingent truths, Armstrong (1997: 149) came to think that their lack of truthmakers would be “an enormous and implausible disvaluing of modal truths”. Armstrong (1997: 150) proposed that the “truthmakers for a particular modal truth will make that truth true in virtue of nothing more than relations of identity (strict identity) and difference between the constituents of the truthmakers”. As these are internal relations, the mereological sum of the constituents themselves will make the modal truth true.

To secure the supervenience of the modal on the actual, Armstrong (2004c: 83–85) appeals to what he calls the “Possibility Principle”: that truthmakers for contingent truths are also truthmakers for the possibility of their contradictories. Hence Theo makes it true not just that Theaetetus is not flying, but also that he might fly. Armstrong (2000: 155, 2004c: 84, 2006d: 247) argued for the Possibility Principle using the Entailment Principle and the claim that, for any contingent truth \( p \), \( p \) entails “it is possible that \( \neg p \)”.\footnote{As stated by Armstrong (2004c: 10), the Entailment Principle is inapplicable (cf. fn. 15) since he takes “it is possible that \( p \) and possible that \( \neg p \) to be necessary for contingent truths \( p \) (Armstrong 2004c: 85). He says that “it is possible that \( \neg p \)” is very tightly linked to the truth \( [p] \) and that the principle can therefore nevertheless be applied (Armstrong 2004c: 84).} Even if we grant him the Entailment Principle,\footnote{Simons (2005: 254) points out that it is relevantly invalid.} the minor premise is highly questionable: Even if “it is of the essence of contingency that the contradictory of a contingent truth be a possibility”, the connection between contingency and the possibility of the contradictory is analytic and “holds in virtue of what we mean by the phrase ‘contingent proposition’” (Armstrong 2004c: 84), this does not show that \( p \) entails “it is possible that \( \neg p \) given that \( p \) is contingent: even if being unmarried is of the essence of bachelorhood, we cannot say that “Sam is happy” entails “Sam is happy and unmarried”’ given’ that Sam is a bachelor. We also need a truthmaker for the claim that Sam is a bachelor (and for the claim that \( p \) is contingent).

In earlier and better versions of the argument (2000: 155, 2002a: 35), the claim that \( p \) is contingent was enlisted as an explicit premise (rather than a ‘presupposition’): the truthmaker for “it is possible that \( \neg p \)” will then be at least the sum of a truthmaker for \( \neg p \) – call it “\( a \)” – and a truthmaker of the claim that \( p \) is contingent. An appeal to the Entailment Principle is then no longer necessary: if it is true that \( p \) is contingent, there is, by maximalism, a truthmaker \( b \) for it. If “[\( p \] is contingent” is equivalent to “it is possible that \( p \) and it is possible that \( \neg p \)” (Armstrong 2004c: 81), we need much weaker principles than the Entailment Principle to conclude that \( b \) makes it true that it is possible that \( \neg p \): distribution of truthmaking over necessary (or even analytic) equivalence (Armstrong 2004c: 25) and conjunction will suffice. Now \( a \) will no longer do any work – the truthmaker for “it is possible that \( \neg p \)” will just be one for “\( p \) is contingent”. This is more perspicuous in the argument Armstrong (2004c: 111) and Armstrong (2005: 271) give for the Possibility Principle:

\begin{itemize}
  \item[(i)] Suppose \( p \) is a contingent truth.
  \item[(ii)] Hence it has a truthmaker \( T \).
  \item[(iii)] By truthmaker necessitarianism, \( T \) is contingent.
  \item[(iv)] \( T \) is the truthmaker not only for “\( T \) exists” but also for “It is possible that \( T \) does not exist”.
  \item[(v)] Hence \( T \) is the truthmaker for “It is possible that \( \neg p \)”.
\end{itemize}
Aside from premise (iv), the crucial step is from (iv) to (v). Armstrong does not do much more than state that it is obvious. But it is not: even if a is the truthmaker for p, “a exists” and “a might not have existed”, it does not follow that it is also the truthmaker for “it is possible that ¬p” – that there is a world without a does not show that there is a world where p is false, for p might be made true by something else in that world.

Armstrong produces something that sounds like a transcendental argument:

“If T is the only minimal truthmaker that p has, then the possible non-existence of T must be reflected at the level of propositions by it not being that case that p is true. Hence T will be truthmaker for <it is possible that not p>, which is what is being argued for.”

(Armstrong 2005: 272)

It is a pivotal principle of Armstrongian truthmaking, however, that it does not have to be one-one, i.e. that there may be many different (and many different minimal) truthmakers for one truth. Whenever this is the case, the ‘possible non-existence of [a]’, the actual truthmaker, is not ‘reflected’ by the possible falsity of p – in worlds where I do not exist, someone else may still make it true that there are humans. Armstrong (2005: 272) seems to think that this can be remedied by taking the mereological sum of all minimal truthmakers. This will not do, however, for the worry concerns not just actual, but also merely possible non-uniqueness of minimal truthmakers: Suppose Theo makes it true that Theaetetus is not a poached egg and is a minimal truthmaker for this truth. But its possible non-existence (e.g. in worlds where Theaetetus is flying) does not reflect the possibility that Theaetetus might be a poached egg; it might still be impossible that Theaetetus is a poached egg. Necessary truths may have contingent truthmakers: If truthmaking distributes over disjunction introduction (Armstrong 2004c: 21), Sam is a truthmaker for “either Sam is human or he is not” – a unique minimal truthmaker that is contingent but makes its truthbearer true without making it contingent (because it is not).

For the step from (iv) to (v) to go through, we need a reason to think that the truthmaker of “p is contingent” cannot have any other truthmaker than the one p actually has. The truthmaker of p, if p is contingent, must be a contingent existent. So there is a world where it does not exist and hence is unavailable to make it true that p is contingent – which is, given S5, if true, necessarily true. Hence something else must make it true in that world. The Possibility Principle and S5 are incompatible.

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18I think that it may be granted that contingency is a feature of the nature of the things to which it applies (cf. Almog 1996: 423–424). (iv) only requires in addition that it is intrinsic, a matter of “what [the contingent being] is in itself” (Armstrong 2004b).

19Whether we need a property of contingency in re., a special categorial property of the truthmaker, is a difficult question of metaphysics that I trust need not be entered into here. [...] But, however one resolves that matter, it is difficult to quarrel with the idea that any truthmaker for p is also the truthmaker for <p is contingents>. (Armstrong 2003b: 15) “Given that [T] is contingent, it necessitates the possibility of p.” (Armstrong 2004c: 111)

20Taking the mereological sum of possible unique truthmakers will not do either, for that sum is not contingent. Armstrong (2004d) explicitly assumes that any contingent truth has a purely contingent truthmaker (every part of which is contingent).


22This worry cannot be countered by the claim that we are looking for truthmakers not in other worlds but only in this one, which is the only one that exists. Armstrong (2004c: 90) relies on this claim to counter the objection that an empty world lacks unicorns and this truth has to be made true even there, in the absence of any totality states of affairs (Lewis 2001d: 611). Given S5, if p is contingent, it is necessarily so. Hence the necessity not just its possibility is in need of a truthmaker.

23It is not clear whether Armstrong really accepts S5. Armstrong (2003b: 18) and Armstrong (2004c: 90) argue from the Possibility Principle to the claim that any contingent existent makes it true that there might be nothing, a claim which
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Given S5, the truthmakers for both ‘statements of mere possibility’ and the possibility of aliens are the truthmakers for the necessary statements that some proposition or some state of affairs is contingent and hence do not ‘reflect’ this contingency. 22 For necessary truths quite generally, Armstrong (2002a: 36), expressed the hope that they “set up an internal relation between entities” which will then themselves serve as truthmakers for it. 23 As we have seen, however, more than just the truthmaker of p is required to make “it is contingent that p” true. It seems that the proposition itself has to be brought into the truthmaker of the contingency claim. In this case, the propositions themselves would make it true that they are contingent—no special work for totality states of affairs here.

22 While Armstrong (1989a: 21) thought that he would need a realistic theory of possibilities to provide truthmakers for the claim that alien properties and relations are possible, Armstrong (1997: 165) accepted them in the ‘outer sphere of possibility’, in particular to provide possible exemplifiers for mathematical properties (Armstrong 1997: 181) and to keep S5 as his logic of metaphysical possibility (Armstrong 1997: 170). The truthmaker for “there could be alien particulars and properties” are the “actual constituents of the maximal state of affairs W” and their [internal] relations of mutual difference (Armstrong (1997: 167), but cf. fn. 48 below). For any alien particular a, this state of affairs makes “a is possible” true. If the latter truth is necessary, however, it will be possible that it is made true by many different maximal states of affairs.

23 Cf. Armstrong (2000: 156), Armstrong (2003b: 21) and also: “Consider the truth t7 is a prime number”. Given the number 7 and the property of being prime, then the truth is necessitated. This entity and this property, then, can serve as truthmakers for the truth. A predicative tie is not required. All we need are truthmakers for the existence of the number and the property.” (Armstrong 2004c: 99)
Chapter 6

Truthmaker necessitarianism

In the first two sections of this chapter, I will present and criticise the two theories of truthmaking David Armstrong offers us in *Truth and Truthmakers* (Armstrong 2004c), show to what extent they are incompatible and identify troublemakers for both of them, a notorious – Factualism, the view that the world is a world of states of affairs – and a more recent one – the view that every predication is necessary. Factualism, combined with truthmaker necessitarianism – ‘truthmaking is necessitation’ – leads Armstrong to an all-embracing totality state of affairs that necessitates not only everything that is the case but also everything else – that which is not the case, that which is merely possible or even impossible. All the things so dear to realists – rocks, natural properties, real persons – become mere abstractions from this ontological monster. The view that every predication is necessary does in some sense the opposite: it does away with totality states of affairs and, arguably, also with states of affairs. We have particulars and universals, partially identical and necessarily connected to everything else. Just by the existence of anything, everything is necessitated – the whole world mirrored in every monad. Faced with the choice between these two equally unappealing alternatives, I suggest in sct. 6.3.1 to return to Armstrong’s more empiricist past: the world is not an all-inclusive One, nor necessitated by every single particular and every single universal, but a plurality of particulars and universals, interconnected by a contingent and internal relation of exemplification. While a close variant, truthmaker essentialism, can perhaps be saved, this means giving up on truthmaker necessitarianism. This, I think, what it takes to steer a clear empiricist course between the Scylla of Spinozist general factness and the Charybdis of a Leibnizian overdose of brute necessities. In the last section of this chapter (6.2), I will generalise my criticism of Armstrong and give a general argument that we should accept contingent truthmaking.

6.1 Factualist truthmaking

“Armstrong has become a bit pregnant. He has lost his empiricist virginity and subscribed to the existence of abstract and non-spatio-temporal general factness...”

(Martin 1996: 59)

As realists, we hold that truth depends on the world. What we hold true, we would like to be able to say, commits us to certain views about what exists and what does not. As serious metaphysicians, we should be prepared to pay the ontological bill of what we assert. But how are we to determine the price? A venerable method, championed by Quine and discussed in much detail in sct. 4.1, is to look at the domain of quantification of the variables occurring in (some regimentation of) what we are
asserting. In his early work, David Armstrong (1978ab) pointed out that this is not always satisfactory: the ontological ground of our alleged truths does not only consist of things, but of their properties as well: we need an ontologically robust account of properties in virtue of which the alleged truths are true. In recent years, truthmaker realism has seen something of a renaissance and it is its recent defence in Truth and Truthmakers (Armstrong 2004c) I mostly want to discuss in the following.

First of all, let me emphasise the high degree of agreement I have with Armstrong’s views. I agree with him that asking the truthmaker question is a promising way to regiment metaphysical enquiry (Armstrong 2004c: 4), that, in particular, “continually to raise the truthmaker question about properties makes for ontological honesty” (Armstrong 2004c: 43) and that there is, “in the general case, no cheap and easy way to determine the truth-makers even of simple descriptive sentences via linguistic transformations” (Mulligan et al. 1984: 300) (cf. Armstrong 2004c: 16). I agree that “philosophy is not meant to be easy” (Armstrong 2004c: 117) and that part of its difficulty comes from thinking metaphysics through from a truthmaker perspective. I also think that answering the truthmaker question commits us to an ontology of sparse properties, “in terms of which the world’s work is done” (Armstrong 2004c: 17), and that this is motivated by the fact that, intuitively speaking, we do not need the whole of the particular to make non-relational predications true (Armstrong 2004c: 41).

As I argued in sect. 4.3, I also think that the cash value of truthmaking is most visible in its critical use, e.g. as against ungrounded phenomenalist counterfactuals about unobserved objects or Rylean unactualised dispositions to behaviour. I argued on p. 4.3 that in these uses, the truthmaker intuition consists in roughly the following two tenets:

1. Truth is relational: being true is being made true by something. It is then a further question whether the things in virtue of which truthbearers are true are states of affairs, some objects or ways they are.

2. Truth is grounded: true truthbearers are true because the world is how it is; truth is not brute. It is a further question whether some truthbearers may ground themselves and what the grounding in question comes to.

These rough intuitions, of course, do not amount to a theory. There are different ways to flesh them out, three of which, all at some time put forward by Armstrong, I will discuss in the following. The first theory, advocated by him in 1978 and a variant of which I would myself like to advocate, holds that the world is a world of particulars and universals, which are connected by a relation of exemplification. Armstrong never says much about this relation, except that universals are “immanent”, i.e. are “constituents” of things and “part of [their] internal structure” (Armstrong 1989ab: 77), that exemplification is a ‘non-relational tie’ (Armstrong 1978a: 109) making for an identity in nature of particulars that is “literally inexplicable”:

“I take it that the Realist ought to allow that two “numerically diverse” particulars which have the same property are not wholly diverse. They are partially identical in nature and so are partially identical.” (Armstrong 1978a: 112)

1 Of exemplification, he said in 1978 that “it is interesting, but somewhat saddening, to notice that the great modern defenders of transcendent universals, Moore and Russell, do not even consider this problem of the nature of the relation between particulars and Forms to which Plato gave such close attention.” (Armstrong 1978a: 69) It is equally interesting, but somewhat saddening, that the same can be said of the great contemporary defender of universals.

2 Armstrong characterises the alternative position, transcendentalism, as the view that “put[s] properties ‘outside’ their particulars”. A truthmaker theory that has particulars instantiating transcendent universals seems to put properties ‘outside’ their particulars. It offends against the original insight that the thing itself should serve as truthmaker, even if not as minimal truthmaker, for truths that particulars have certain (non-relational) properties. A theory of immanent universals is required if the truthmaker for a non-relational property of a particular is to be found ‘within the particular’.” (Armstrong 2004c: 42)
6.1 Factalist truthmaking

Both David Lewis\(^1\) and Keith Campbell\(^4\) have interpreted Armstrong as holding that universals are non-spatiotemporal parts of the particulars exemplifying them and this is the view for which I will argue on quite independent grounds.

Although Armstrong introduced them already in 1978,\(^5\) non-supervenient states of affairs ‘officially’ entered his ontology via another truthmaker argument, providing entities ‘encapsulating’ the fundamental tie of exemplification and necessitating the corresponding predications: Because the truthmaker for the contingently true predication “\(Fa\)” must necessitate its truth, it cannot be \(F\) or \(a\) alone, nor their fusion, for all three of them could exist without “\(Fa\)”’s being true. Hence it is the state of affairs \(a’s\) being \(F\) (cf. Armstrong (1989b: 88), Armstrong (1997: 115)), which, by necessity, exists if and only if \(a\) is \(F\):

“If it is said that the truthmaker for a truth could have failed to make the truth true, then we will surely think that the alleged truthmaker was insufficient by itself and requires to be supplemented in some way. A contingently sufficient truthmaker will be true only in circumstances that obtain in this world. But then these circumstances, whatever they are, must be added to give the full truthmaker.” (Armstrong 1997: 116)

By this ‘sufficiency argument’, as I will call it, we arrive at the following:

18 (Truthmaker necessitarianism). Truthmaker Necessitarianism: The determining of a truth by a truthmaker is an absolute necessitation (Armstrong 2004c: 5).

6.1.1 Truthmaking by thick particulars

Truthmaker necessitarianism, coupled with the view that every truth has a truthmaker (‘truthmaker maximalism’), populates the world with entities that, by necessity, exist only if some corresponding truthbearer is true. If these two categories of entities do not overlap, truthmaker necessitarianism violates combinatorialism, the view that there are no necessary connections between distinct existents.\(^6\) Truthmakers and truthbearers, while different, stand in the truthmaking relation in every world in which the former exists, thereby ruling out combinations of both without the truthmaking relation holding between them.

If the truth of truthbearers requires the existence of the things they are about and if these things are not mereological parts of the respective truthmakers, combinatorialism is even doubly violated: for

\(^{39}\) A universal is supposed to be wholly present wherever it is instantiated. It is a constituent part (though not a spatiotemporal part) of each particular that has it. [...] Things that share a universal have not just joined a single class. They literally have something in common. They are not entirely distinct. They overlap. (Lewis 1983b: 10–11). Cf. also Lewis (1986a: 80): “Whenever it [a universal] is instantiated, it is a nonspatiotemporal part of the particular that instantiates it.”; “[The universal of charge] is located there, just as the particle itself is. Indeed, it is part of the particle. It it not a spatio-temporal part... [...] I reserve the word “universal” strictly for the things, if such there be, that are wholly present as non-spatio-temporal parts in each of the things that instantiate some perfectly natural property.” (Lewis 1986d: 64, 65, cf. also 204–205).

\(^{40}\) This [Armstrong’s] view requires us to acknowledge that there can be parts other than spatio-temporal parts. (Campbell 1990: 39): “The most promising reply to [the ‘Third Man’ argument] is that the substance _substratum_, of Socrates neither contains nor resembles humanity, while the complete substance Socrates does contain humanity (has humanity inhering in him) and in that way resembles humanity. It is a one-sided case of partial identity (a non-spatio-temporal part of Socrates is identical with humanity).” (Campbell 1990: 42).

\(^{1}\) At the time, he did not take them as basic: “I do not think that the recognition of states of affairs involves introducing a new entity.” (Armstrong 1978a: 80).

\(^{6}\) I use “combinatorialism” for what Armstrong (1989a: 116) and Armstrong (2004c: 71) call the “Distinct-Existence Principle”, that each of any two wholly distinct things may exist in the absence of any part of the other, which follows from his combinatorial theory of possibility. Armstrong (1997: 139) calls it “Independence”.

then not only the truthbearer but also the things it is about are necessitated by the truthmaker. If this truthmaker is a state of affairs a’s being F, then it necessitates not just that “Fa” is true, but also that a and F exist and are related by the exemplification relation.

This is a considerable price to pay. Combinatorialism underlies both Armstrong’s and Lewis’ re-combinatory theories of possibility and is our best handle on what possibilities there are. It seems worthwhile, therefore, to reconsider the argument why it is that, whenever a makes it true that p, it has to do so in all worlds in which it exists. The sufficiency argument for it is that if there were a world where a would not make it true that p, say w, then the question what it is that makes it true that p was (partly) the question what distinguishes our world from w. Because that difference not only concerns a but also something else, this something else has to be ‘brought into’ the truthmaker. The property of making it true that p, in other words, has to be an intrinsic property of the truthmaker.

The sufficiency argument, as Armstrong (1997: 115) says, establishes that the truthmaking relation is internal. This brings out a viable intuition: the truthmaking relation cannot depend on facts about things outside the items it relates. If a makes it true that p, nothing else than a and p have a bearing on whether the truthmaking relation holds. If the truthmaking would depend on something outside of them, this additional circumstance would have to be brought into a, as Armstrong says. Another reason to take the truthmaking relation to be internal is the following: external, but not internal relations are ontological additions to their terms. If truthmaking were an external relation, it would be an addition to the “ontology of the situation” (Armstrong 2004c: 9) — it itself would have to be brought into the truthmaker, creating an infinite regress. Whether we get truthmaker necessitarianism out of truthmaker internalism (the thesis that truthmaking is an internal relation), however, depends on what we mean by “internal”.

“Internal relation” is a notoriously ambiguous term. Bradley (1893: 392) used it to characterise relations that “essentially penetrate […] the being of [their] terms”, Moore (1919–1920) for relations that supervene on monadic foundations which are “critical to the identity of the terms to which they belong” in the sense that without them, they would not be what they are, and Wittgenstein in the *Tractatus* for relations the relata of which are inconceivable without them (Wittgenstein 1921: §4.123). Armstrong (1978b: 8§) said that two or more particulars are internally related if and only if there exist properties of the particulars that logically necessitate that the relation holds. They are externally related if and only if there are no properties that necessitate the relation or a part of it. As the context of the passage makes clear, the properties in question must be understood as intrinsic properties. We thus get the standard account of internal relations:

19 (Internal relations). *A relation is internal if and only if it supervenes on the intrinsic properties of its relata.*

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7This has been pointed out by Fox (1987: 196–197). Lewis has advanced both recombinatorialism (Lewis 1998: 219) and reluctance to accept (and inability to understand) non-merological composition (Lewis 1986c: 109) reasons to reject the truthmaker principle, where the complaint about non-merological modes of composition is subsumed by the worry about necessary connection between distinct existences (Lewis 2001d: 611).

8If Lewis’ charge is taken to concern just the necessary connection between the state of affairs and its components, then it is not a problem for truthmaking in general but rather for truthmaking by states of affairs, as Daly (2000: 90) rightly points out. There is another necessary connection, however, between the truthmaker, the truth and its ontological commitment. *Contra* Daly (2000: 97), *ibi* necessary connection is not avoided by truthmaking by tropes: the F-ness tropes that makes it true that a is F is necessarily connected to a, if “Fa” could not be true if a did not exist.

9Bigelow (1988b: 126) gives essentially the same argument: “…unless the existence of a thing does entail a truth, that thing cannot be an adequate or complete truthmaker for that truth.”

10Ewing (1934) identifies ten senses of “internal relation”.

11Lewis (1986d: 62) calls an internal relation in this sense “intrinsic to its relata” (Lewis 1983b: 26, fn. 16). An intrinsic relation that is not internal is called “intrinsic to its pairs” by Lewis (1983b: 26, fn. 16) and “external” by Lewis & Langton (1998:
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Armstrong also characterises internal relations somewhat differently:

“I mean by calling a relation internal that, given just the terms of the relation, the relation between them is necessitated.” (Armstrong 2004c: 9)

This turns truthmaker internalism into truthmaker necessitarianism. How is such a transition to be justified? Armstrong (1997: 12, 87, 115) says that a relation is internal if and only if it is impossible that its terms should exist and the relation not exist, where the joint existence of the terms is possible. He adds that “to fall under our definition of internal relations, the particulars involved must be taken as having their non-relational properties” (1997: 88). The terms necessitating the internal relations are “thick particulars”, particulars ‘taken together’ with their intrinsic properties.12

The thesis that truthmaking is internal in the sense of supervening on intrinsic properties of truthmaker and truthbearer is at least prima facie different from necessitarianism because it can be reasonably doubted whether all intrinsic properties are “given just the terms of the relation”. It may well be that some intrinsic properties of some truthmaker are not essential to it, i.e. such that the truthmaker could exist without them.13 This, I think, is reason enough to distinguish truthmaker internalism from truthmaker necessitarianism.14

20 (Truthmaker internalism). Truthmaking is an internal relation.

Truthmaker internalism (20) brings out the sense of sufficiency we are after in our quest for truthmakers, for it means that the truthmaking powers of something are a matter of how this thing is itself. We only have chosen our truthmaker inclusive enough if its truthmaking ties do not depend on anything ‘outside’ of it, i.e. if they cannot be made to vary by variation in the intrinsic properties of things disjoint of it. Such a relation, however, may still be contingent. It is one thing to say that what makes it true that an internal relation obtains are just the terms of the relation (Armstrong 2004c: 92, 98, 104, 139) and that internal relations are ontologically innocent (Armstrong 2004c: 104). It is quite another thing to take this to entail necessitarianism.

Why does Armstrong link internalism and necessitarianism so closely? To understand his reasons to do so, we must discuss his distinction between thick and thin particulars, which, I think, has done a lot of damage to his metaphysical system. The paradigms of truthbearers in need of truthmakers are singular existentials, claims to the effect that such and such an entity exists. In such cases, it seems incontestable that the entity in question, if it exists, makes the corresponding claim true.15 But how

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12This matches Armstrong’s other definition (1989a: 105): particulars having certain properties are internally related by a relation \( R \) if in each possible world which contains them and where they have these properties, they are related by \( R \). Similarly, Armstrong (2004: 116) says: “Where a pair stands in a fixed relation, one that is fixed, that is, necessitated, by the nature of the pair, there we have an internal relation.”

13Being n meter tall is an intrinsic, but not an essential property of mine. Armstrong (1997: 92) himself warned against the confusion of intrinsic and essential properties.

14This is also why it is misleading for Parsons (1999: 328) to call truthmaker internalism “truthmaker essentialism”, even doubly so because it unnecessarily buys into a dubious modal theory of essence, which will be discussed in detail in sect. 2.1.

15(Cf. eg. Mulligan et al. 1984: 300) Armstrong (2004c: 6) calls the relation between John and the proposition that John exists “the simplest of all truthmaking relations”. Even this case, however, is only seemingly simple: Armstrong holds both that having a rest-mass of one kilo (if it is a contingently existing universal) is a minimal truthmaker for the proposition that having a rest-mass of one kilo exists (Armstrong 2004c: 20) and that, for a complex entity \( a \), the minimal truthmaker for the truth that \( a \) is possible is the mereological fusion of \( a \)’s ultimate constituents (Armstrong 2004c: 94). If there are no alien universals and every possible universal is actually existing, it follows from his entailment thesis (that truthmaking distributes over entailment) that the mereological fusion of having a rest-mass of one kilo is also a minimal truthmaker for the truth that this universal exists. It seems that either he is assuming that having a rest-mass of one kilo is simple (which contradicts Armstrong’s account of quantities in 1978b: 122, 1988 and 1997: 52–53) or the second principle is a slip. The universal cannot be identical
is this compatible with the world's being one (solely) of states of affairs? John's existence, after all, is not a state of affairs (Armstrong 2004c: 6). But perhaps John is?

John is a non-mereological component of the state of affairs of John's being human, which makes it true that John is human and hence, by the Entailment Principle (truthmaking distributes over entailment), also that at least one human being exists (Armstrong 2004c: 21). Is John's being human a minimal truthmaker? Could not the remainder of the state of affairs be abstracted, leaving us just with John? Armstrong says it can: “Minimal (or at least close to minimal) truthmakers for this existential truth [at least one horse exists] will be each individual horse” (Armstrong 2004c: 53). Though every state of affairs involving humans is a truthmaker for the truth that at least one human exists, only the individual human beings are minimal truthmakers. But are they necessitating it? Only, it seems, if they are essentially human beings, i.e. cannot exist as non-humans. But let this be assumed. In some sense, then, John is more minimal a truthmaker than John's being human.

Sometimes, however, the (non-mereological) inclusion relation goes in the other direction: while the mereological fusion of Venus and Mars makes it true that Venus is greater in size than Mars, it is not a minimal truthmaker:

“For this truth, it seems that we do not need all the properties of the two objects, or even all their non-relational properties. It is enough that Venus is a certain particular size, and that Mars is a certain particular size. These are states of affairs. The minimal truthmaker appears to be the mereological fusion of these two states of affairs. The other properties of Venus and Mars seem irrelevant.” (Armstrong 2004c: 50)

Here, the inclusion, goes the other way round: *Venus' being of size n* → *Mars' being of size n* is here said to be more minimal than Venus+Mars.

In response to the criticism of Devitt (1980: 98) that his account renders exemplification obscure, Armstrong (1980a: 109–110) claims that while we can distinguish the bare or 'thin' particular from its properties and the unexemplified universal from its exemplifications in 'thick' particulars, neither can exist without the other. The thin particular is the “thing taken in abstraction from all its properties” (Armstrong 1978a: 114). The particular “taken apart from its properties” (Armstrong 1989b: 95), it is “the particularity of a particular, abstracted from its properties” (Armstrong 2004c: 105). It is the thin particular with the fusion of its ultimate constituents because they could exist even if nothing had a rest-mass of one kilo. The fusion is not necessitating the truth of the existence claim.

16 Armstrong (2004c: 11) restricts the entailment principle to 'purely contingent truths', i.e. truths that do not contain any necessary conjunct on any level of analysis. If “John is human” entails John's existence, then it is clearly contingent.


18 Armstrong extends this account to merely possible entities. He says that the minimal truthmaker for the truth that there are no arctic penguins is the totality state of affairs that some fusion comprises all the arctic animals (Armstrong 2004c: 75–76). He then continues: “In the same way, if we work with the totality of all birds, we eliminate the phoenix” (Armstrong 2004c: 76). This presupposes that the phoenix, if it existed, would essentially be a bird. In the same spirit, the minimal truthmaker for “there are no unicorns” is said to be the totality state of affairs that all 'horse-like creatures' lack 'unicorn-making characteristics' (Armstrong 2004c: 16, 76) – but for this to exclude unicorns, it has to be assumed that unicorns are essentially horse-like and essentially have their 'unicorn-making characteristics'. But if the possibility of unicorns is conceded, then why not also the possibility of unicorns that lost their horn or some other of their 'unicorn-making characteristics'?

19 In the same vein, Armstrong (2002a: 34) says that O itself is a truthmaker of “O has a mass of five kilograms”, albeit not a minimal one.

20 Armstrong (1978a: 118) identifies the thin particular with its total spatio-temporal position, though he seems to have retracted this claim.

21 Armstrong (1997: 109) says it is “the particular abstracted in thought from its non-relational properties”, but then makes it clear later that he means all properties (Armstrong 1997: 123). Sometimes, eg. in Armstrong (1989b: 91) and Armstrong
thin particular John that is contained, as a proper but non-mereological part, within the state of affairs of (thin) John's being human.

The thick particular, on the other hand, is the "particular taken along with all and only the particular's non-relational properties" (Armstrong 1997: 124). It is the state of affairs of the (thin) particular's having all its nonrelational properties (Armstrong 1989b: 95), the particular "with all its (non-relational) properties upon it" (Armstrong 1997: 176). These properties are said to be "contained within it" (the scare quotes are Armstrong's) and if "enfolds" these properties "within itself" (Armstrong 1989b: 95). It is in the fusion of the thick particulars that Venus's being of size $n$ and Mars's being of size $n$ are contained.

Here we have a third violation of combinatorialism: the thick particular depends on the thin and the thin on the thick. They are 'wholly distinct' in the sense that they do not overlap in a mereological part. The thick particular could not exist without a 'hook'; it is not a mere bundle of properties. The thin particular, however, is a mere abstraction, which does not enjoy independent existence: though there is no thick particular of which it is must be a component, it must be a component of at least one (Armstrong 1989a: 52).

It is an equivocation between thin and thick particulars, I think, that made Armstrong infer necessitarianism and not just internalism from the sufficiency argument. If truthmakers are to be sufficient for the truthmaking they do, this just means that their standing in the truthmaking relation to certain truthbearers cannot depend on anything external to them, i.e. that it supervenes on their intrinsic properties. Only if these intrinsic properties are 'enfolded' within thick particulars is the truthmaking relation itself necessitated by the mere existence of the truthmaker. Thin particulars, or more generally particulars having not all their intrinsic properties essentially, can be 'sufficient' for their truthmaking job without being so of necessity.

This is most apparent in the case of singular existentials: if John is to make "John exists" true (Armstrong 2004c: 23), then the thick particular John cannot be its only possible truthmaker. For thick John could fail to exist (i.e. John could have different intrinsic properties) and it still be true that John exists. A transworldily permanent truthmaker would have to be thin John. But thin particulars are mere abstractions in Armstrong's ontology. The "cross-categorial unity" of thin particulars and universals indeed comes to appear as "the most puzzling unity of all" (Armstrong 2004c: 267).

Armstrong says that the thin particular has some properties: though it is thin, it is still clothed and not bare. It is not clear, however, which properties these might be. They are not the essential properties, for the thin particular together with its essential properties is intermediate between the thin and the thick particular (Armstrong 1997: 124). Presumably, the thin particular has just its formal properties, like being a particular (cf. Hochberg 1999: 68). If we arrive at our concept of thin particulars by 'partial consideration' (Armstrong 1997: 109), then their properties would be those we cannot subtract even in thought. These properties are almost certainly not individualising: one wonders, therefore, with Pouivet (2004: 397) what the particularity of states of affairs is founded upon.

That thick particulars are states of affairs (cf. Armstrong 1978: 113, 1997: 125) is overlooked in Rissler's discussion of the need for states of affairs in Armstrong's later theory (2006: 200, fn. 4). Armstrong seems to confound nonrelational properties (or rather: predicates) with intrinsic properties, a confusion criticised by Humberstone (1996: 209–227). We will come back to these tricky questions in sects. 8 and 9.2.1, especially sect. 8.1.

It is even doubtful whether thin particulars can make true the statement that there are thin particulars. For if the world is a world of states of affairs and truthmaker theory is our guide to ontology, then, as Armstrong repeatedly argues, all truthmakers are states of affairs, i.e. what thin particulars precisely are not. This reflects a general problem for all necessary relations: whenever two things are 'internally' (essentially) related, Armstrong says repeatedly, any statement to this effect is made true just by the two things themselves (cf. eg. Armstrong (1997: 2–3, 89) and Armstrong (2004c: 50,121)). Because the things could not both exist without standing in that relation, their joint existence itself makes it true that they do so. But if there are internal relations between universals, like resemblance, parthood and identity, then at least some truthmakers are not states of affairs.

As Armstrong recognises, the puzzlement is not avoided by speaking of a non-relational tie. This is just to label the problem: 'One's first response to this is naturally extremely negative: are there two constituents involved or not? If so, how can they fail to be distinct terms? If they are distinct terms, how can they be 'tied' together except by a relation? It is no good
it is not just puzzling what it is, but even how it can be possible at all. Exemplification between a ‘thin’ particular and some properties, it seems, is an external relation, connecting the particular with something outside itself. The sufficiency argument then requires us to bring this external relation into the truthmaker – ontological explosion through Bradley’s regress is the dire consequence.

Exemplification, however, is no less mysterious when considered a relation between the thick particular and its properties (Aune 1984: 165). The ‘thick’ particular “is conceived as already possessing its properties” (Armstrong 1978a: 114) and thus does not need to exemplify them. Armstrong (1989a: 52) and Armstrong (1997: 123) say that the ‘thick’ particular has its properties necessarily. But not only contingent properties are problematic: strictly speaking, the ‘thick’ particular does not exemplify any of its (first-order) properties (except perhaps its relational properties). It is, so to say, already ‘saturated’ (the terminology is from Armstrong (1980b: 109)).

Properties exemplified by it are second-degree properties. Second-degree properties, however, would give us second-degree states of affairs, which are different from first-degree ones.

If we avoid this confusion, however, and say that a thick particular exemplifies the properties it ‘enfolds’, it becomes very doubtful whether the thick/thin distinction cuts any ice:

“Thick and thin particulars would have identical locations, and anything we want to say about particulars can be said just as easily whether they are thick or thin. For example, we can speak of the relation of ‘thin instantiation’ which holds between thin particulars and universals; but we can speak just as easily about the relation of ‘thick instantiation’, which holds between a thick particular and the universals the corresponding thin particular thinly instantiates.” (Sider 1995: 368)

He construes them as mereological sums and differences respectively of particulars and the fusion of the monadic universals they exemplify (Sider 1995: 367). But both these relations are importantly different from exemplification, and it is no way clear how they could shed any light on the dubious distinction in the first place.

It seems mysterious, then, how either the thin or the thick particular could have any properties. But even if they can, they do not exemplify them in a way that helps us in our quest for truthmakers for contingent predications. The thin particular, even in conjunction with its properties, does not necessitate any contingent truths about it. The thick particular does necessitate these truths, but only because it necessarily has the property attributed to it. Factualism thus is incompatible with necessitarian truthmaking of contingent predications by ordinary particulars.

simply talking about non-relational ties: or, to put it another way, one philosopher’s solution is another philosopher’s problem.”

(Parsons 1999: 13) A non-relational tie between different things is pretty mysterious. Seemingly, if the things are distinct then the tie is a relation. If the tie is not a relation then they are not distinct. So a non-relational tie could hold between distinct things only if they are not distinct. That’s how it seems at first. Still, we need the tie if we want universals and particulars.”

(Baxter 2001a: 449)

25^Numbering relations, e.g., would be external if they held between properties and thin particulars (Armstrong 1997: 176).

26^In reply to Aune (1984), who presses him on this point, Armstrong (1984: 254) seems to agree: “The particularity of a first-order particular, in abstraction from all properties and relations, the mere thinness of a thing as a Scottist would put it, can have no properties. It is a bare principle of numerical difference.”

27^In contrast, Parsons (1999: 331) has criticised the distinction for being non-exhaustive: “For Armstrong, there seems to be no middle road between taking a particular to have a property essentially, and taking it to have that property, at best, by proxy, by being related to the thick particular that has the property essentially.” This reading commits Armstrong to the claim that every property is exemplified essentially by some thing. Because this turns him into a trope theorist, it cannot be right.

28^This means that states of affairs do not explain, the relation of exemplification, contra, e.g., Linsky: “The notion of a fact is introduced precisely to provide an explanation where others just provide truth conditions. Facts are deemed necessary in order to show what it is for an object to have a property.” (Linsky 1994: 193) Armstrong is much more cautious: Armstrong
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But perhaps the very project of rescuing a notion of particulars from factualism was ill-conceived. Perhaps adopting factualism is a one-way street: we just have to accept states of affairs as primitive particulars; while they are, in some sense, ‘composed’ out of (ordinary) particulars and universals, these are not retrievable from them other than as bloodless abstractions. So let us take this leap of faith and pretend we understand what states of affairs are. Let us suppose that the world is a world only of states of affairs and that they are the only truthmakers there are.

Will the first-order states of affairs give us truthmakers for all the truths? No, says Armstrong: to make it true that it is a law of nature that all F’s are Gs, for example, we need a further, non-supervenient and higher-order truthmaker, i.e. the state of affairs that F-ness necessitates G'-ness (Armstrong 1983: ch. 6). If it is a nomically contingent fact that a certain number of states of affairs are all there are, then we need also another type of higher-order state of affairs:

“There is only true because there are no more of them. [...] That there are no more of them must then somehow be brought into the truthmaker. [...] The truthmaker must be the fact or state of affairs that the great conjunction is all the states of affairs.” (Armstrong 1997: 198)

Before pointing out the several intricate problems presented by totality states of affairs, let us first note that this argument in their favour is not quite compelling: it is not true in general that any necessary condition for a truth must somehow be “brought into” its truthmaker. It is, e.g., a necessary condition for it’s being true that 2+2=4 that at least one truthbearer exists, but no truthbearer has to be brought into the truthmaker of this arithmetical fact. Armstrong’s real motivation for totality states of affairs, I presume, is not that truthmakers must include all necessary conditions for some truthbearer’s being true, but his construal of truthmaking as an internal relation – it is because it is an extrinsic property of the big conjunction that it is all there that there must be something else to make it true, something that intrinsically is all there is. This is some totality state of affairs: every fusion of states of affairs which are of the same ‘sort’ F is an object which may stand in a contingent and external relation T to some ‘unit-property’ G that calls Armstrong calls “alling” or “totaling” and which he takes to be a universal. The sort of the states of affairs F and the ‘unit-property’ G normally are non-basic, ‘second-’ or even ‘third-degree’ properties. The mereological fusion of the black swans on the lake now (the thick swans, including their properties), for example, totals the “distinctively second-rate property” black swan on the lake. Also (Armstrong 2004c: 72).

Totality states of affairs violate combinatorialism in yet another, fourth way. The all-inclusive totality state of affairs makes it true that there are no unicorns by ruling out the existence of unicorns. The absence of unicorns entails the existence of some unicorn-free totality state of affairs.footnoteLewis

(1997: 114–115) says that we need states of affairs because something “is needed to weld [universals and particulars] together” and Armstrong (2002a: 33) holds that the acceptance of states of affairs helps us avoiding the problem of explaining exemplification. States of affairs rather presuppose that we can already make sense of particulars and universals combining into entities that exist if and only if a corresponding proposition is true. They do not, contra Armstrong (2004c: 24) provide the “ontological connection between subjects and predicates” but presuppose that such a connection has already been made.

Footnote Lewis: The qualification is important: if it is a law of nature that some totality of states of affairs exhausts all there is, then this truth is made true by the laws of nature themselves, without any help from any other higher-order states of affairs.

Footnote Lewis: The argument is easily generalised: every necessary truth is a necessary condition for everything else, but there are, I hope, at least some truths the truthmakers of which do not contain all (truthmakers of) necessary truths.


Footnote Lewis: The other three were the connections between truthmakers and truthbearers, truthmakers and what their truthbearers are about and between thick and thin particulars.
Armstrong takes the damage done to combinatorialism to be quite limited. For he thinks that there is just one totality state of affairs that suffices as truthmaker for all negative and general truths:

“This states of affairs [i.e. the fusion of all states of affairs totalling both being a state of affairs and its totalling being any existent at all, which Armstrong takes to be the same state of affairs] are the biggest states of affairs of all. Given these huge states of affairs, each positive, all the lesser totality or limit states of affairs are also given. In the great catalogue of being, as it were, you need neither have any of the lesser allings nor, I have claimed, any other negative state of affairs.” (Armstrong 2004c: 74)\(^3\)

The biggest totality state of affairs, the one Armstrong calls “limit state of affairs”, “fixes” all the negative facts (Armstrong 1989a: 96), all negative facts supervene on it (Armstrong 1997: 200) and it is a truthmaker for all the lesser totalities (Armstrong 2004c: 59): “Once you have set the limits, the absences will take care of themselves” (Armstrong 2004d).\(^4\) It is not a minimal truthmaker, however, for the totality of the properties of some swan’s plumage will do as truthmaker for it’s not being white and the totality of the arctic animals makes it true that there are no arctic penguins (Armstrong 2004c: 75–76).

But in what sense does Porky ‘include’ these more minimal truthmakers? We already met three ways in which truthmakers can be 'more minimal' than or included in others. They can involve only the thin, in contrast to the thick particular, only mereo logically proper parts of either the particular or the universal component of the other, or they can be predications of more or less properties (where the ‘inclusion’ of \(F\) within the conjunctive universal \(F \& Q\) is non-mereo logical (Armstrong 1989a: xi)). But in none of these senses are lesser allnesses included in the limit state of affairs. Take some lesser allness, e.g. the state of affairs of some fusion of properties comprising all of Theaetetus’ properties – what Armstrong proposes as truthmaker for “Theaetetus is not flying”. In what sense can Theo, as we may call this state of affairs, be said to be “given by” or “contained in” Porky? Only the positive states of affairs about Theaetetus are totalled in Porky. Porky, however, makes Theo redundant: for the totality of properties \(F, G\) etc. of Theaetetus, Porky entails that Theaetetus is \(F\), that he is \(G\) etc. and that he has no other property. Porky is a truthmaker for the truth that Theaetetus is not flying, and it will also be a minimal truthmaker if, as Armstrong says, the limit state of affairs contains only positive states of affairs. Porky contains, by definition, all the states of affairs there are, and therefore

\(^3\)Even within this passage, it is not clear whether Armstrong really claims that they are positive. In response to Molnar’s worry (2000: 80) that they are negative after all, because “The \(G\) are the only \(F\)” is equivalent to “\(\neg \exists x (F x \land \neg G x )\)”, Armstrong (2004c: 70) agrees that “[t]here is no getting away from negativity altogether”. He goes on, as cited above, to invoke a dubious principle of economy, which concerns the need for only some, but not all, of the (epistemically possible) negative facts (cf. also Armstrong 1997: 200). It is this concern about theoretical economy in the “gross tonnage sense”, a phrase Armstrong (2006c: 229) takes from Keith Campbell (or from Williams (1966: 160)), that I address in the following.

\(^4\)The same ontological economy is allegedly achieved both at the level of states of affairs involving one and the same individual, say Theaetetus: “We get rid of the ontological nightmare of either a huge number of negative properties or a huge number of negative states of affairs, and substitute for them a single all state of affairs. It is a state of affairs (admittedly, a pretty large state of affairs, subsuming innumerable lesser allnesses), one that will serve as a truthmaker for the huge number of negative truths about Theaetetus among other particulars.” (Armstrong 2004c: 57)
6.1 Factalist truthmaking

excludes, rather than ‘includes’, the lesser allnesses—a fifth violation of combinatorialism.

But perhaps Theo nevertheless exists, and is part of the fusion totalling being any existent at all. Even then, however, Theo would only in a trivial sense be included in Porky, in the same way in which it is ‘contained in’ the truthmaker of ‘Theo and Porky are Armstrong’s favourite states of affairs’. If this truthbearer is true, it has a truthmaker, part of which is a state of affairs ascribing to Theo the property being one of Armstrong’s favourite states of affairs. Theo is ‘contained in’ this higher-order state of affairs in the same way it is ‘contained in’ Porky. It must exist if either of them does, but it does not exist because they do. We have a Eutyphro dilemma here: Theo does not exist because Porky does, but rather it is because Theaetetus has only these properties that Theo is an available candidate for being Armstrong’s favourite and included in Porky: we must acknowledge its existence prior to encapsulating it in further higher-order states of affairs.

6.1.2 Spinozism

This is fortunate, for totality states of affairs suffer from a serious problem: they are impossible, and demonstrably so.33 If there were any, some truthbearer of the form “These are all the totality states of affairs there are” would be true. If some such truthbearer were true, it would be made true by some totality state of affairs. This totality state of affairs, however, cannot be one of the totality states of affairs in the totalling fusion. So it would have to be some other totality state of affairs. But then the truthmaker of “These are all the totality states of affairs” would not total all the totality states of affairs; hence it would not total any.

Assume, again, for reductio that there are totality states of affairs and that totalling is a universal, which occurs as predicative component in each and every totality state of affairs. If there are totality states of affairs, there is a totality of them: “The Tot relation is to be found even where there is just one object of a certain sort.” (Armstrong 2004c: 73). Call “Total” the totalling relation’s holding between the fusion of all totality states of affairs and the (second- or third-grade) property being a totality state of affairs. Total is impossible: if the totalling relation holds, then the fusion has to be the fusion of all states of affairs. The fusion, however, cannot contain Total itself, because it is a proper part of Total (Armstrong 2004c: 56–71).34 Could some other property than being a totality state of affairs be totalled in Total? No, it seems, if Total really is the totality of all totality states of affairs. Could the totalling relation fail to hold? Only, it seems, if the fusion were not the totality of all totality states of affairs. But then there would be some other totality state of affairs not contained in it, and Total would not be the totality of totality states of affairs, contrary to what we assumed.

There are other paradoxes in the vicinity.37 We have seen that a totality state of affairs is the obtaining

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33The paradox to be discussed is not the one raised by Cox (1997: 96) and anticipated by Armstrong (1997: 198–199) concerning a regress of higher- and higher-order states of affairs. Cox’s ‘paradox’ can, but I think mine cannot, be met by turning the tables on the regress and suggesting that the very fact that the higher-order states of affairs are necessitated by their predecessors in the regress means that all we have is a regress of truths sharing as their truthmaker the totality state of affairs of the lowest order (cf. Armstrong 1989a: 94), Armstrong (1997: 198) and Armstrong (2004c: 78), but cf. also Armstrong (2006b: 246)). Even if this answer is generally acceptable (and we will return to this on p. ??), however, it needs some fine-tuning: there are, Armstrong (2004c: 74) says, at least two most inclusive second-order states of affairs, the totalling of being a state of affairs (or rather: being a first-order state of affairs) and the totalling of being any existent at all. If naturalism is true, then there is also a third one, the totalling of being in space-time. Naturalism, i.e. the doctrine that the world of space and time is all there is, is a contingent thesis (Armstrong 1997: 31), Armstrong (2004c: 112). Hence the state of affairs that there are three most-inclusive second-order states of affairs is itself contingent, i.e. not necessitated by the second-order states of affairs. The regress therefore stops at the second stage at the earliest.

34That totality states of affairs are ‘ampliative’ follows from, but does not imply, Armstrong’s earlier assertion that the totalling relation is external (Armstrong 1997: 199).

37The following Russell-type paradox has independently been noted by Greg O’Hair.
of the totalling relation between some fusion of states of affairs and some ‘unit-property’. There is an important distinction between two types of totality states of affairs. In cases like the one of the black swans on the lake, the totalled property, though second-rate, occurs as a ‘predicative component’ in the states of affairs (thick particulars) fused into the aggregate totalling it.\footnote{This is also the case for the (many?) numbering relations (cf. Armstrong 2004c: 116).} In some other cases, however, this is not the case: the property of being a first-order state of affairs, for example, is not itself a predicative component of the first-order states of affairs (all states of affairs of which it is are at least second-order). It is a state-of-affairs type that cannot be obtained by abstraction from the states of affairs of which it is the type: let us call such states of affairs “non-predicative”. Some such states of affairs exist, for example Theo (for being a property of Theaetetus is not a property of Theaetetus). This means that there is a totality, call it “Russell”, of all and only the non-predicative totality states of affairs. With respect to Russell, we may now ask whether the property that is totalled in it, the property of being a non-self-predicative state of affairs, is a component of any of the states of affairs totalling it. We may ask, in other words, of Russell, whether it is self-predicative. If it is self-predicative, then the property of being a non-self-predicative state of affairs occurs in some state of affairs in the totalling fusion. So it is the property totalled by at least one of the state of affairs in this fusion. But what fusion is totalling it? It cannot be the fusion of all the non-self-predicative states of affairs, for otherwise Russell would contain itself as a proper part. But it cannot be any other fusion: the fusion totalling the property of being a non-self-predicative state of affairs must be the fusion of all the non-self-predicative states of affairs. If Russell is not self-predicative, on the other hand, then it belongs to the fusion totalling the property, so the property of being a non-self-predicative state of affairs is a component of a state of affairs in the fusion. So it is self-predicative after all. Hence Russell is neither self-predicative nor non-self-predicative. Faced with these paradoxes, none of the familiar options seems plausible. Given unrestricted composition, we cannot deny that there is a fusion of all totality states of affairs or of all non-self-predicative totality states of affairs, as long as at least one of them exists. We could, perhaps, replace the totalling universal with an infinite family of totalling relations, each indexed to one order in the hierarchy. But this would leave us with no index for the totalling of the fusion of all totality states of affairs. We could adopt a limitation of size principle, but this would break the connection between generality and negation. For any totality state of any order has countless negative properties (for example, not being a black swan), and to account for these, we need another totality state of affairs one order higher up. Could we say that the totality of all totality states of affairs supervenes on them? Suppose, the earlier arguments notwithstanding, that there is just one totality state of affairs. Would it not necessitate the state of affairs of its being the only one? The problem with this reply is that it undermines the motivation to introduce totality states of affairs in the first place.\footnote{Thanks to Frank Jackson for drawing this passage to my attention.}
6.1 Factualist truthmaking

What holds for states of affairs holds for totality states of affairs. Suppose there is just one state of affairs, a’s being F. Why add the totality state of affairs of a’s totalling F? No world can differ just with respect to it. The reason it is necessary, Armstrong says, is to distinguish the first world not from a ‘complete’ world (where completeness is ‘written into the description of the case’), but from an (a-centred) ‘sub-world’ of a world where a is F and another thing b is also F. An exactly parallel argument shows the non-supervenience of totality states of affairs: Suppose there is a world with just one totality state of affairs, a’s totalling F. How can a world differ from it just with respect to this totality of one totality state of affairs? This does seem impossible only if we forget about sub-worlds, e.g. the F-sub-world of a’s being F, a’s totalling F, and a’s being G. The only difference between them is that without a’s being G, there is just one totality. To suppose otherwise is to ‘write [completeness] into the description of the case’.

If, as Armstrong says (1989a: 88, 1997: 196, 2004c: 73), totality states of affairs are not supervenient, his only option at this point, I think, is to withdraw his claim that totalling is a universal and may be a component of states of affairs. What makes it true that some totality is all there is just this totality itself – all there is, even if there might be something more. Giving up necessitarianism for general truths seems a viable option then.

It still leaves us, however, with states of affairs, and hence with their fusion, which Armstrong (2004c: 122–123) calls “W, the whole world, the whole that contains absolutely every thing that exists”, that “greater than which nothing exists”. It cannot be part of any state of affairs:

“States of affairs are ampliative, that is, they embed their subjects in something further. But if W really is everything, then there is nothing further, not just no further particulars, but no further properties or relations or anything else.” (Armstrong 2004c: 123)

But if W cannot be put into any state of affairs, then it cannot have any property and cannot stand in any relation. So, in particular, it cannot stand in the totalling relation to the property being a state of affairs. If it were everything, it would need to do so, and also to stand in the totalling relation to being an existent and, perhaps, also to being in space-time, hence be a proper part of (at least) one other thing, namely Porky. Even if Porky is (somehow) not an ‘ontological addition’ to W, it certainly exists: it is required as the actual truthmaker of all truths asserting the possibility of something non-actual and it may also occur in merely possible states of affairs, e.g. its singleton.

40This is problematic for the reasons mentioned on p. ??: it would have to be a totality state of affairs and hence contain itself as a proper part. Another argument for this does not rely on (totality) states of affairs being ‘ampliative’: If there is a totality state of affairs, some property is totalled ‘in’ it. This property must be exemplified, and it must be exemplified by something else than the totality state of affairs in question; for it to be ‘available’ as a constituent of the totality state of affairs, it must exist prior to and independently of the latter. If the property is being something positive, as Armstrong (2004d) proposes, it clearly cannot be exemplified by the limit totality state of affairs.

41Could Armstrong give up the ampliative of states of affairs? He cannot, if he wants to stay realist about them and does not want to accept, as parts of the natural world of space-time, things that may contain themselves as proper parts.

42Armstrong gives two conflicting accounts of the situation: he says, on the one hand, that “W is the totality of being” is a contingent truth, having W as its truthmaker. By the Possibility Principle, W is also the truthmaker for “it is possible that W is not the totality of being” (2004c: 167, 2004c: 123, but cf. fn. above). The latter truth, on the other hand, is equivalent to “it is possible that there are alien particulars or properties” and this truth, Armstrong (2000: 166, 2002b: 36, 2003b: 17, 2004c: 88) says, is made true not by W but by Porky, the totality state of affairs that W is all there is.

43There is some doubt, however, that W is possible. Armstrong (1997: 192) distinguishes between empirical (existing) and non-empirical (merely possible) singletons and holds that (W) is merely possible (1997: 194 and 2004c: 123). But all the things exemplifying unit-properties have empirical singletons and it seems that all these singletons will themselves exemplify unit-properties: for take a, and some unit-property being an. F. Hence a exemplifies having some first-order unit-determining property.
\( W \), this thickest of all particulars, ‘enfolds’ all properties and particulars there are and makes true every truth, including that Theaetetus is not flying. How it accomplishes this difficult task, however, must be left unexplained: no property can be (truly) attributed to it and it cannot (truly) be said to stand in any relation. We cannot even truly say of it that it is all there is. If there is no totalling universal, moreover, there is no relation holding between Theaetetus’ positive properties and being a property of Theaetetus \(- W \) is then the unique minimal truthmaker for the truth that Theaetetus is not flying! If it is true that “the candidates for unique minimal truthmakers that a particular philosopher upholds take us into the heart of that thinker’s metaphysical position” (Armstrong 2004c: 22), then this Spinozist One should give us pause.

It is fortunate, therefore, that Armstrong has another, and different, theory of truthmaking to offer.

### 6.1.3 Leibnizianism

According to the factualist account of truthmakers for contingent intrinsic predications, the truthmakers of “\( Fa \)” are required to necessitate that \( a \) is \( F \). We discussed some difficulties for this account: the minimal truthmaker cannot be the thin particular \( a \), which does not necessitate “\( Fa \)”, nor can it be the thick particular, which necessarily exemplifies all properties ‘contained’ within it. Because the thin particular is not a truthmaker and the thick is not a minimal one, the minimal truthmaker must be an ‘intermediate’ entity, \( a \)’s being \( F \), which ‘enfolds’ just \( F \). This ‘intermediate’ entity is itself a particular and depends on \( F \): it could not be the entity it is without having \( F \) as its predicative component. But it also contains \( a \) and it also does so essentially, creating a necessary connection between \( a \) and \( F \). This connection is not symmetrical, however: while the thick particular necessitates the universal, the universal only generically depends upon it. The thick particular could not be what it is without enfolding \( F \), but \( F \) could be what it is without being enfolded in this thick particular.

On this account the “identities [that] run across the states of affairs” are “somehow mysterious” (Armstrong 1997: 265). \( a \)’s being \( F \) and \( b \)’s being \( F \), while sharing their predicative component, are non-identical, mero- logically disjoint and capable of independent existence. Contra Armstrong (1997: 265), the same does not seem to be true of the states of affairs of \( a \)’s being \( F \) and \( a \)’s being \( G \) – these literally share a component, namely the thin particular \( a \), that in turn depends on the thick particular which enfolds both \( F \) and \( G \). The same asymmetry shows up in other places as well: While Armstrong always rejected the identity of indiscernible particulars (cf. eg. Armstrong 1978a: 93), he held indiscernible universals to be identical.\(^4\) Particulars, on this conception, are something over and above the states of affairs in which they occur: they can differ by ‘bare numerical difference’ (Armstrong 1997: 109). Universals, on the other hand, can be reconstructed as “state-of-affairs types”.\(^5\) The identities running through the states of affairs, then, are indeed mysterious:

\[ \text{and this state of affairs is } \{ a \}. \text{ But then it seems that } \{ a \} \text{ cannot fail to exemplify being the exemplification of some unit-property by } a. \text{ There will normally be more than just one state of affairs exemplifying this property, and they are countable: hence, being the exemplification of some unit-property by } a \text{ is a unit-property and its exemplification by } \{ a \} \text{ is the state of affairs } \{ \{ a \} \}. \text{ Given that unit-properties may be second-class (Armstrong 1997: 190), disjunctions and universal quantifications of unit-properties are unit-properties. Hence the procedure may be applied to arbitrary sets: the unit-property of } \{ 0, 0 \}, \text{ for example, is being either the exemplification of some unit-property by } a \text{ or the exemplification of some unit-property by } k. \text{ But this means that a union of sets having empirical singletons will have itself an empirical singleton. If } \{ W \} \text{ is possible, it would be the union of all empirical singletons, hence itself empirical (this also follows directly from Lewis’ (2000d) analysis of union as fusion which Armstrong accepts). Armstrong (1997: 199) says that the fusion of all empirical singletons “would seem to be } W, \text{ and certainly cannot be anything more”. So if } \{ W \} \text{ is empirical, then it is a (proper or improper) part of } W, \text{ which violates, again, the ampliative nature of states of affairs.} \]

\(^4\) Armstrong expresses this by saying that universals are wholly ‘qualitative’: there is nothing that could distinguish two universals sharing all the qualitative features they bestow (cf. Armstrong 1978b: 110 and Armstrong 1980b: 106). For his later change of mind, cf. p. 72 below.

\(^5\) Cf. “The universal is a gutted state of affairs; it is everything that is left in the state of affairs after the particular par-
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universals, but not particulars, depend on them.

This is an unstable position: being a a posteriori realist about universals, it is unclear what resources Armstrong can draw on to a priori exclude the possibility of a universal $F$ that, by necessity, is had by at most one particular, say $a$. In such a case, however, generic dependence becomes specific: whether or not $a$ exists determines whether such an $F$ exists (cf. Armstrong 2005: 274). Another source of instability is the ampliative nature of states of affairs: if both particulars and universals are components of states of affairs, why is it, we may ask, that only the latter can be retrieved from them as 'states-of-affairs types'? Would not a similar process of abstraction yield the particulars?

If the link between $a$ and $F$ were itself necessary, the necessary connection would be symmetrical: not only would the particulars and universals be fixed given the states of affairs, but the states of affairs would be fixed given the particulars and universals (Armstrong 2004c: 84). No need then to postulate them as truthmakers: they come for free as a supervenient lunch. While Armstrong (1997: 267) thought this would go against "the contingency of states of affairs [which] cannot be abandoned", he "now [has] sympathy with the view that predications are necessary truths" (Armstrong 2004c: 51, cf. also 126). I will call this view 'Leibnizianism' in the following (cf. also Armstrong 2004a: 142).

"What is contingent might not have existed. Suppose $a$ to be $F$, with $F$ a universal. If this state of affairs is contingent, then it might not have existed. Suppose it had not existed. The particular $a$, the particular with all its non-relational properties, what I have in the past called the 'thick particular', would not then have existed. Something quite like it could have existed instead: a particular with all of $a$'s properties except $F$. But that would have been only a close counterpart of $a$, because the intersection with $F$, the partial identity with $F$, would be lacking. Equally, it now seems to me, the universal $F$ would not have existed. A universal very like $F$ could have existed: a universal that had the same instantiations as $F$ except for instantiating $a$. But that would have only been a close counterpart of $F$, because the intersection with $a$, the partial identity with $a$, would not have existed. So, strictly, if $a$ and $F$ exist, then they must 'intersect'. They themselves can be, and I think are, contingent beings. But if $a$ exists and $F$ exists, then $a$ must be $F$: a necessary connection between contingent beings." (Armstrong 2004c: 47)

Here we have another, and even more radical, abandon of combinatorialism: both particulars and universals are now conceived of as 'thick' – they overlap in states of affairs (Armstrong 2004c: 47, fn. 6), they necessitate them because they have the states of affairs 'built into them':

"Given $a$ and given $F$, as opposed to mere counterparts of this particular and this universal, then the state of affairs of $a$ being $F$ is automatically there. It is built into the two constituents of the state of affairs." (Armstrong 2004c: 49)

Particulars involved in the state of affairs have been abstracted away in thought." (Armstrong 1997: 29) I am not sure how this abstractionist conception allows Armstrong to maintain his realism about universals. Would universals still exist if no one ever had 'abstracted' them from their states of affairs? If universals are states-of-affairs types, they are rather like functions from particulars (individuals) to particulars (states of affairs). Why should we not then identify them with sets of pairs of such particulars? And even if we grant an independent ontological status to functions, they seem to be particulars.

46In the meantime, Armstrong has given up Leibnizianism: "Partial identity, I now think, is a somewhat misleading phrase. Particulars enfold their universals – and that is a sort of partial identity – but universals do not enfold their particulars. In the envisaged 'deleting' [of the a that is $F$], the universal continues to exist identically in other particulars, unless, indeed, $a$ is the only particular to instantiate the universal." (Armstrong 2000: 274) I will argue in the following that he did so for the wrong reasons – giving up on 'thick universals', while retaining the 'thick particulars'.

47In other passages, Armstrong does not draw this radical conclusion, claiming e.g. that even on the 'predication is necessary' view, external relations can be distinguished from internal ones by 'demand[ing] states of affairs' (2004c: 52). He does not say
The way in which the a’s being F is built into both a and F is not mereological, however. Even though Armstrong (2004c: 103) characterises partial identity as a relation “where one entity contains another with something to spare, or else where entities overlap each other”, partial identity is not identity of a part:

“...what is involved in a particular instantiating a property-universal is a partial identity of the particular and universal involved. It is not a mere mereological overlap, as when two streets intersect, but it is a partial identity.” (Armstrong 2004c: 47)

How are we to understand this ‘partial identity’ of particulars and universals? Armstrong (2004c: 47) refers to Donald Baxter’s “Instantiation as Partial Identity” (Baxter 2001a), so perhaps this is where elucidation can be found.

Baxter (2001a) has provided a new answer to the empiricist worry about universals having multiple locations, saying that even if it begs the question by assuming that if something is at one location, it is at no separate location, we are left with the task of explaining its attractiveness. According to Baxter, it resides in its having a close and true variant, namely:

“...a universal insofar as it is in one location, is not in another. Insofar as it is in one location, it is separate from (spatially discontinuous from) itself insofar as it is in the other.” (Baxter 2001a: 45)

The explication of “insofar as” leads Baxter to an ‘aspect’ theory of universals, according to which universals are aspects of particulars and only formally or ‘loosely’ distinct from them:

“...to take many things to be a single thing is to take them to be aspects of a single thing, in my sense of “aspect”” (Baxter 2001b: 600, fn. 14)

The universal insofar as it is there and the universal insofar as it is here are ‘loosely’ identical with just one universal, of which they are aspects. Baxter’s aspect-theory is therefore rather different from Armstrong’s ‘loose identity’: whereas the latter is a matter of equivalence classes, the first is a conceptualist substitute for real identity (numerical identity of aspects).

Baxter explains the difference between strict and loose identity in terms of different ways of counting. His ‘partial’ identity (what he calls “many-one identity” in 1988a: 577 and 1988b: 193) is identity across different counts:

that Leibnizianism entails that there are no external relations, though it entails, e.g., that causation is a necessary connection in re (2004c: 120) and hence internal (2004c: 52).

48The relation discussed under the label of ‘partial identity’ by Armstrong (1997: §2.3.2) should not be confused with the partial identity involved in Leibnizianism, for the first, but not the latter is strictly mereological: “These cases [like the identity of the morning and the evening star] tempt us to overlook such a case as that of Australia and its state of New South Wales and also that of two adjoining terrace or town houses that have a wall in common. These are partial identities. One is whole/part, the other is overlap. Mereology which deals with these notions, may be thought of as an extended logic of identity, extended to deal with such cases of partial identity” (Armstrong 1997: 18) It is therefore highly misleading for Armstrong to provide mereological models, even only ‘rough’ ones: “The particular and the universal intersect. Consider a cross that has been cut out of a single piece of wood. The intersection of the vertical position of the cross (which models the particular) and the horizontal portion (which models the universal) gives a rough, but perhaps helpful, model for a’s being F.” (Armstrong 2004a: 141)


50Baxter’s theory can be formulated as a reinterpretation of the attribution of properties: A predication is contradictory only if it ascribes some property to something under some aspect and denies it from it under the same aspect; and this holds even though the aspects of a property are numerically identical with it (Baxter 2001a: 449). The universal is located here under some aspect (insofar as it is exemplified by one particular), but located there under some other aspect (insofar as it is exemplified by a different particular). even if a and b are identical, there might be an aspect x of a and an aspect y of b such that a as x is discernible from b as y (Baxter 1989: 130).
Partial identity is not overlap (in neither a mereological nor a non-mereological sense), because each of the – strictly counted – many things (and not only the fusion of all of them) is not numerically distinct from the – loosely counted – one thing, as a proper part or a state-of-affairs component would be (Baxter 1988a: 578–579). Aspects are not proper parts of the things of which they are aspects, but numerically identical with it.51

This may explain the appeal of the multiple location objection, but does it explain exemplification? It does, Baxter thinks, if we “think of a particular as like a universal in having aspects” (Baxter 2001b: 453). Baxter gives rather enigmatic advice on how to accomplish this:

“Here is the proposal in brief: the non-relational tie is the identity of an aspect of a universal with an aspect of a particular. If you think of aspects as parts, then the non-relational tie is the ‘partial identity’ of particular and universals. That’s putting it Armstrong’s suggestive way [making reference to (Armstrong 1997: 17)]. The aspect is the part they have in common.” (Baxter 2001a: 453)

Mentioning ‘partial identity’ in this respect is very misleading, even if Baxter immediately goes on to stress that it means “think[ing] of aspects in the count in which the whole counts as one” and that his notion of partial identity is like the one of Bradley and unlike the one of Brentano, which, he says, is closer to Armstrong’s.

The loosely identical particulars are the exemplifications of one universal of which they are aspects. The loosely identical universals, however, are not, as they were in Armstrong’s reconstruction of the empiricist worry (Armstrong 1997: 15), a strictly identical universal ‘wholly present’ in different locations, but the strictly different universals exemplified by the one particular of which they are aspects. We count the similar particulars strictly as many and loosely as one. When we count them loosely as one, we have the universal. We count the properties of one and the same particular strictly as many and loosely as one – when we count them loosely, we have the particular. If a particular exemplifies a universal, it is an aspect of it. The universal exemplified by the particular is then an aspect of the particular. The aspect of the universal is numerically identical with the universal, the aspect of the particular numerically identical with the particular. If both aspects are identical, then so are the universal and the particular. This is why such “identity in difference” (Baxter 2001a: 453) has nothing to do with the mereological notion of partial identity discussed by Armstrong (1997: 17). It is also why it is understanding the radicalism of his proposal when Baxter gives the following example:

“Suppose Hume is a particular, Benevolence is a universal, and Hume is benevolent. Then Hume has an aspect, Hume insofar as he is benevolent. Also Benevolence has an aspect, Benevolence insofar as Hume has it. These are the same aspect – Hume’s benevolence.”
(Baxter 2001a: 454)

It is, of course, tempting to take the shared aspect, Hume’s benevolence, to be a state of affairs. According to Baxter, however, both Hume and Hume insofar as he is benevolent are numerically

51Even granted that composition is identity, I think it is hopeless to think of aspects as parts: “On standard conceptions, the [proper] parts are all numerically distinct from each other, and each is numerically distinct from the whole they compose. Aspects aren’t like this. They are numerically identical with each other and the whole. Think of parts likewise.” (Baxter 2001a: 453). I am sorry to say that I failed.
identical and so are Benevolence and Benevolence insofar as Hume has it. So Hume's benevolence is both numerically identical to Hume and to Benevolence! But Benevolence, if it is multiply exemplifiable, is not just numerically identical to Hume, but also, say, to Mill. If Mill and Hume are not numerically identical, then Benevolence is numerically distinct from itself. This, according to Baxter, is "Boethius problem[,] the deep problem [...] underlying the multiple location problem" (Baxter 2001a: 454). Baxter's solution is to bite the bullet: Hume and Mill are identical insofar as they are the same universal, Benevolence (Baxter 2001a: 455). There are two particulars in one count, one universal in another, where the counts compete but are equally strict.

Armstrong's Leibnizianism is different from Baxter's aspect theory. Rather than a theory of partial identity, it is one of entanglement: the natures and essences of both particulars and universals are tied up with each other. Rather than 'following' from partial identity, the doctrine that 'predication' is necessary is better taken as a substantive claim about the nature of universals and particulars: "The property F must have all its instances and it cannot have any others" (Armstrong 2004c: 80-81), "because the instantiations of any universal are part of what that universal is" (Armstrong 2004c: 136).

Leibnizianism restores the symmetry in Armstrong's theory. He already had thick particulars, enfolding their properties. But these properties were only generically dependent on particulars. So he needed states of affairs to provide necessitating truthmakers. Leibnizianism now gives him thick universals, enfolding their particulars. States of affairs are no longer needed — they are the intersections of thick particulars and thick universals and come in as a free lunch.

Leibnizianism is not a consequence of the adoption of thick universals alone. Baxter has a simple explanation why some predications are contingent: if the aspect of the particular exists, then it is numerically identical with the particular and necessarily so — but if it does not exist, then the particular might still exist and perhaps be necessarily numerically identical with other aspects (Baxter 2001a: 458). Aspects are contingent beings and their contingent existence makes the propositions they make true contingent. In this respect, aspects are rather like tropes.

Armstrong's universals are rather different: even if they depend on all their particulars, they are still 'ones over many', wholly present in numerically distinct particulars. If both $a$ and $F$ exist, $a$ is necessarily $F$. But the existence of $F$ is sufficient for the $F$ness of many other particulars beside $a$.

52Already Armstrong (1997: 268) said that if predication were necessary, "[t]hen we shall have to say that particulars and universals are not "distinct existences" but that their identities are in some way entangled with each other".

53This is how Armstrong puts it: "I find the partial identity very attractive, but it seems to me that partial identity, like any identity, brings necessity with it. If a universal is partially identical with a certain particular, then to try to consider that very universal without it being instantiated by that particular is to consider a mere counterpart of the universal in question." (Armstrong 2004c: 80) (cf. also Armstrong 2003a) This is thirdly misleading: first, because the 'partial identity' is not mereological overlap, second, because even if it were, we would need mereological essentialism as a further premise, and third, because the 'partial identity' among states of affairs having the same constituents does not add up to identity (in contrast to how Armstrong (1997: 18) characterises partial identity): as Lewis (1986a) pointed out, and Armstrong (1989b: 90) and Armstrong (1997: 120) acknowledge, $F$ & $G$ and $G$ & $F$ have the same constituents, but are not identical states of affairs, let alone necessarily so (Armstrong (1989a: 59) calls this position 'weak Haecceitism').

54This is also how Armstrong reports Baxter's claim: "Baxter's suggestion is that particulars really do participate in their universals (as the young Socrates suggests to Parmenides and Zeno in Plato's Parmenides)." (Armstrong 2004a: 140)

55Armstrong thinks that advocates of non-transferable tropes are equally committed to Leibnizianism about predication: "The idea is that the mass is held to be the mass of this stone by necessity. It is an identity condition for the property. Every property then becomes an essential property." (Armstrong 2004c: 46, cf. also Armstrong 2004a: 144) This is a misunderstanding of non-transferability, as Simons (2005: 259) points out: while being part of its subject is essential to the trope, it is not essential to the subject to have the trope among its parts. Even if the mass trope is non-transferable, it can still be held that it is only contingently the mass trope of this stone. While it could not have been the mass trope of another stone, it is itself a contingent being and could not have existed. If the stone has it, the trope exists and could not be the mass trope of any other stone. But just given the stone, the existence of the mass trope and hence the predication is not necessitated. The situation is asymmetrical: while the trope depends on the stone, the stone does not depend on the trope.
6.1 Factualist truthmaking

If \( a \) is \( F \), many other things are bound to be \( F \) too. Conversely, if \( a \) ceases to be \( F \), all these other particulars cease to be \( F \) too, for \( F \) then ceases to exist (Armstrong 2004a: 144). This is the fatal stab to combinatorialism. If \( a \) and \( b \) are wholly distinct existences and both \( F \) then if \( a \) ceases to be \( F \), \( b \) ceases to be \( F \) too: for both \( a \) and \( F \) will cease to exist, and hence so does \( b \) if only one thing changes, all things sharing a property with it pop out of existence.

Another crucial difference between Baxter and Armstrong is ontological. Even though Baxter (2001a: 455) calls his view “realism”, it is realism either about universals or about particulars, or rather realism about something else of which both universals and particulars are aspects. No need to have entities of both categories if you can just count differently the entities in one to get those in the other. Armstrong, however, needs both thick particulars and thick universals. Only if they both exist, their intersection is necessitated. Armstrong has necessary predications because he conditionalises them both on the existence of the particular and of the universal.

While he is an eliminativist about contingency, Armstrong says he can offer counterparts for it:

“I re-emphasize that such a theory can supply a substitute for contingency by offering counterparts. That \( a \) is \( F \) is necessary, but contingent \( a \) might not have existed and an \( a \)-like object that is not \( a \) might have existed that is not \( F \). The situation is much the same as David Lewis’s counterpart theory. For Lewis, an \( a \) that is an \( F \) strictly cannot exist in ‘another possible world’ without property \( F \). All that can exist in the other world is a more or less close counterpart of \( a \). He seems to be prepared to call this ‘contingency’, but it is contingency in only a loose sense. Strictly, I think, he is (or he should be) a necessitarian about predication.” (Armstrong 2004c: 48, cf. also Armstrong 2004a: 144–145)

But Lewis is not. If \( a \) is contingently \( F \), for him, this means that \( F \), the very same \( F \), can fail to be a property of some otherworldly counterpart of \( a \). While \( a \) does not exist in other worlds, \( F \) does. This is real contingency, not a counterpart for it: given just (world-bound) \( a \) and (trans-world) \( F \), it is still open whether all or only some of \( a \)’s counterparts are \( F \). Armstrong’s new picture is relevantly different: given just the truth that \( a \) is \( F \), we have the thick particular \( a \) and the thick universal \( F \). Given them, we have their intersection, hence the minimal truthmaker necessitating the truth. There is a ‘royal road’ to truthmakers after all.

If we have not only thick particulars, but also thick universals, no other states of affairs than their intersections are needed; in particular, no totality states of affairs are needed to make true general truths:

“...the conjunction of states of affairs \( a’s \ being \ F \ & b’s \ being \ F \) ... will serve as truthmaker for the truth <this conjunction is all the \( F \)’s>. Allness will supervene in this situation. A Russellian general fact or state of affairs will not be needed in addition. General facts seemed needed only because <this conjunction is all the \( F \)’s> was taken to be contingent.” (Armstrong 2004c: 81)

This conditional is also true if \( F \) is a non-transferable trope – the difference lies in the respective existence conditions of universals and tropes. Since 2004, Armstrong has possibly changed his view on this matter: “As I now see it, universals are to be thought of as a special sort of part of the particulars that instantiate them.” (Armstrong 2005: 274) This would, I think, make a rather big difference to the 2004 theory (cf. sect. 4 below). In particular, it may, but does not have to be, conjoined with mereological essentialism about these ‘universal’ parts.

It may still be true that both the totality of thick particulars and of thick universals singly constitute the whole of reality (Armstrong 2004c: 143). But only if both are given, states of affairs (minimal truthmakers) are yielded as their intersections.

This is how he characterises the eliminativist strategy: “Eliminativists usually provide what one might think of as ‘counterpart’ truth that correspond to a degree to the propositions that they hold to be false.” (Armstrong 2004c: 33) It is false, ‘strictly speaking’, to say that \( a \) might not be \( F \), but it is true that something quite like \( a \) (except for being \( F \)) might exemplify something quite like \( F \) (except for being a property of \( a \)).
Even if restricted to states of affairs where the property totalled is the common predicative component of the states of affairs fused together (‘self-predicative’ totality states of affairs in the terminology introduced earlier), this is misleading. We do not need the conjunction, every single state of affairs will serve as the truthmaker: given just a’s being \( F \), we have both \( a \) and \( F \) and the latter could not exist without being exemplified by the conjunction of all the particulars that (as we would say) happen to be \( F \).

This is important for the truthmaking of negative truths, where we now have a vast abundance of truthmakers. That Theaetetus is not flying, e.g., is made true just by Theaetetus: Theaetetus, the thick particular, could not exist and fly. It is also made true by the property of flying, for it could not exist and be exemplified by Theaetetus. It is also made true by the second-order property being a property of Theaetetus, which could not be exemplified by flying. In a similar way, every single black raven makes it true that there are no white ravens, and so will being a raven, being black, being white, being a property of a raven, being co-exemplified with blackness and so on: an indefinite multiplicity of truthmakers and no way of singling out one of them as the ‘minimal’ one.

Surprisingly, Armstrong thinks Leibnizians still need at least one totality state of affairs:

"...there seems to be need for at least one totality state of affairs. For even if it is extensionally correct to say, for instance, that reality is exhausted by states of affairs having particulars and universals as their constituents, it seems not to be a necessary truth that this is so. If this is correct, then the further truth that <and this is all> will require a further truthmaker, a totality state of affairs as I have argued." (Armstrong 2004c: 81)

This seems, however, to underestimate the power of thick universals. If being an existent, being a state of affairs and being in space-time are properties, then they too have their particulars essentially. Instead of a super-thick particular, the totalisation of the fusion of all states of affairs to which no other particular or universal may be added, we now have a super-thick universal, exemplified by everything there is. Given just this property, everything else is fixed. There never was a richer free lunch, if only we could stomach it.

This is a very Leibnizian picture indeed: Suppose there exists some thing, say \( a \). Then the truth that \( a \) exists will be necessitated by some state of affairs. This state of affairs is or contains the intersection of the thick particular \( a \) with the super-thick universal exemplified by everything there is. The existence of every single thing, then, gives us the state of affairs making it true that it exists, containing the super-thick universal, which, in turn, gives us everything else. Anything makes true everything; the whole world is mirrored in every single monad.

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55Armstrong (2004a: 148) calls this a "notable ontological economy".

60The solution will not work, for example, for the truth that such-and-such a collection comprises all the first-order states of affairs. For the states of affairs in the fusion totalling the property being a first-order state of affairs do not contain the property of being a first-order state of affairs (else they would be second-order). We can still say, of course, that being a first-order state of affairs, like any other property, has all its particulars essentially — given the property, the first-order states of affairs are fixed. But this shows that what is doing the work is the thick second-order universal, not the first-order necessary states of affairs.

61Simons (2004: 299-300) says that if there are enough external relations, then on Armstrong’s Leibnizian theory, the falsity of any simple predication entails the non-existence of large parts or even of the whole of the universe. I think that external relations are not needed to derive this undesirable result.

62I am not assuming what Armstrong (2003b: 29) and Armstrong (2004c: 6) deny, namely that \( a \)’s existing is a state of affairs, but only that it is made true by some state of affairs. Armstrong (1989a: 95) says that being a state of affairs "could perhaps be taken to be a universal", but this is not a premise of the argument either. The state of affairs in question could just be \( a \)’s being in space-time. In short, whatever the property that is totalled in Porky, the putative limit totality state of affairs, this property is also the ‘universal component’ in the state of affairs making it true that \( a \) exists.
6.2 Truthmaking is not necessitation

I take both positions reached to be somewhat uncomfortable. The classical, states-of-affairs theory forces us into the infelicitous dichotomy of thin and thick particulars and gives us paradoxical totality states of affairs. The new theory eliminates contingency and leads to truthmaker monism. In this section, I argue that we should step back and return to the 1978 theory.

6.2.1 Necessitation is not sufficient for truthmaking

Let me start with the non-sufficiency claim. This is the easier part of the argument, as many of the relevant points have already been made in the literature. Following Smith (1999: 278), I will call entities that necessitate truths that they do not make true ‘malignant necessitators’. There are at least three areas where malignant necessitators may be found: truthmakers for necessary truths, extrinsic essential properties and necessary but non-essential properties.

If necessary truths are necessitated by every truth and necessitation is transitive, every truthmaker necessitates every necessary truth, which “gives logic a certain grandeur” (Restall 1996: 333, n. 3). If we think some of these necessitators are malignant, we may follow Restall (1996) in adopting a relevantist account. Revisions of our logic, however, are costly, and should be adopted only as a last resort. They also would solve only part of the problem: if we accept that necessitators of conjunctions necessitate the conjuncts and that contingent truths have only contingent truthmakers (Rodríguez-Pereyra 2002: 33), then all necessary truths will have contingent truthmakers (Read 2000b: 70). But even if we learn to live with necessary truths being made true by anything at all, we have to restrict the disjunction thesis, i.e. that the necessitators of disjunctions make true one of the disjuncts. For otherwise it follows, for any p, that any s necessitating that $p \lor \neg p$ makes either one of them true. Any true proposition is thus made true by every truthmaker “truthmaker monism” (Read 2000b).

If some truthmaker necessitates a disjunction without making true either one of the disjuncts, there is some further circumstance that settles in virtue of which disjunct the disjunction is true: if a necessitates that $p \lor q$, what makes it true that $p$ (say) may well be different from a: in a horse race, the local conditions may make it necessary that one of two horses wins, without making it true that either one wins (Read 2000a: 74). Read concludes that a truthmaker of a disjunction does not have to make either of the disjuncts true, but I think he underdescribes his example: the necessitator of “$p \lor q$” does indeed not make it true that $p$ nor make it true that $q$ – but precisely for this reason it is a malignant necessitator for “$p \lor q$”. Even if the conditions necessitate the victory of either Valentine or Epitaph, the truth of the counterfactual “if Valentine did not win, Epitaph would” must be grounded in something about either of them – the local conditions, if they make the disjunction true, must not let the counterfactual ‘hang in the air’, which is “the ultimate sin in metaphysics” (Armstrong 2002a: 29). The necessitator of the disjunction is also a truthmaker for it only if it grounds its truth in the truth of one of its disjuncts. Because this is not always the case, it is sometimes malignant.

I think it is independently plausible that different necessary truths and different necessarily equivalent truths may have different truthmakers. Aside from theoretical prejudice, few will claim that all three of Goldbach’s conjecture, “water = H2O” and modal realism have, if they are true at all, the same truthmaker. As all three of them are necessary if true, however, it is difficult to see how a difference in what is necessitating them could account for the different ways in which they or their negations

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6 Armstrong (2000: 15), Armstrong (2002a: 32), Armstrong (2002b: 494–496), Armstrong (2003b: 13) and Armstrong (2004c: 10–11) restrict the transitivity of necessitation to truths no conjunct of which is necessary, but gives no independent motivation for this. Moreover, such a restriction is in tension with Armstrong’s view that supervenient entities are an ontological free lunch (cf. Lewis 1992: 203).
are grounded in being. The same holds for pairs of different, but necessarily equivalent, truths, like “Socrates is wise” and “Wisdom is a characteristic of Socrates” – intuitively, it seems that the truthmaker of the latter involves wisdom in a way the truthmaker of the former does not (but cf. Ramsey 1929).

Within the second category of malignant necessitators fall the truths allegedly decreed by God. According to Smith (1999: 278), a Malebranchian God could will, and thereby necessitate, that John kiss Mary now. According to Forrest & Khlentzos (2000: 9), God’s knowledge that \( p \) entails that \( p \) but is no truthmaker for it. Other examples in this category are extrinsic essential properties (cf. Yablo 1999: 486). Smith (1999: 280), e.g., argues that it is an essential and extrinsic property of John’s funeral to occur after John’s death. If John’s funeral takes place, his death must have happened. We do not want to say, however, that his funeral makes it true that John is dead. The same holds for many familiar essentialist theses: while I could not exist without some particular zygote having existed, it seems implausible to say that I (or made?) it true that some particular sperm and some particular egg cell got together.\(^{64}\)

Let us call ‘accidental necessities’ properties that \( a \) has necessarily if it exists, but not in virtue of its essence. In his critique of modal accounts of essence, Kit Fine (1994: 4) has argued that there are accidental necessities: while every thing necessarily exists iff its singleton does (or any other set containing it), the singleton is essentially the singleton of its member but the member not essentially a member of its singleton. If we identify the essence of \( x \) with exactly those propositions that are true in virtue of the nature (or: the identity) of \( x \) – which is plausible whether or not the latter notion is taken as “an unanalyzed relation between an object and a proposition” (Fine 1995: 273) –, then (the exemplifications of) all accidental necessities are malignantly necessitated: while \( a \) necessitates the truth that it is a member of \( \{a\} \), it does not make it true.

I think these three types of examples suffice to make it plausible that necessitation is not discriminating enough to suffice for truthmaking. Like truth-in-virtue-of-essence, it “performs a similar function [than necessity] but with a finer mesh” (Fine 1994: 3). But is necessitation at least necessary for truthmaking? In the next section, I will argue that maximalists should think it is not. In the last section, I then explore how we can make sense of contingent truthmaking independently of maximalism.

### 6.2.2 Necessitation is not necessary for truthmaking

Are these difficulties peculiar to totality states of affairs? I do not think so: the essential difficulty, it seems to me, is that truthmaker internalists have to provide intrinsic truthmakers for extrinsic predications. To solve this problem, necessitarianism has to be sacrificed.

If \( F \) is an extrinsic property of \( a \) and \( a \) makes it true that \( a \) is \( F \), then the truthmaking relation between \( a \) and the proposition that \( a \) is \( F \) is not internal – it does not supervene on intrinsic properties of its relata. For \( a \) could be intrinsically just as it is and fail to be \( F \), hence fail to make it true that \( a \) is \( F \). So if \( a \) is extrinsically for \( F \), the truthmaker for this truth is \( b \), where \( b \) is not identical with \( a \). Now \( b \) is either in some, not necessarily mereological, sense composed out of \( a \) or it is not. If it is then \( a \) is a proper part of \( b \), hence \( b = a + c \). Let \( w \) be some possible world where \( a’ \) is an intrinsic duplicate of \( a \) but lacks \( F \). If \( a = a’ \), then \( b = a’ + c \) makes it true that \( a \) is \( F \) in \( w \) even if \( a \) is not \( F \). Hence \( a \neq a’ \). Consider \( b’ = a’ + c \). It does not make it true that \( a’ \) is \( F \). If it were an intrinsic duplicate of \( b \), however, it would have to make it true that \( a \) is \( F \). How could this be explained? If \( c \) was what we

\(^{64}\)For necessitarians, truthmaker theory itself provides other examples of necessary extrinsics: if the truthmaking relation between some truthmaker and some truthbearer holds by necessity and necessitation is sufficient for truthmaking, everything that makes anything true at all makes it also true that at least one truthbearer exists.
had to add to ground the truth that \( a \) has some extrinsic property, why does it matter whether we add it to \( a \) or an intrinsic duplicate of it? But if \( b' \) does not make it true that \( a = F \), then we may ask what makes this true? This brings us on an infinite regress: what makes it true that \( b' \) does not make it true that \( a = F \) is something that distinguishes it from an intrinsic duplicate, hence an extrinsic property of \( b' \). By truthmaker internalism, it has to be brought into the truthmaker. If \( b \) is not composed out of \( a \), the same problems arise. For then \( c = a + b \) is different from \( b \) and also a truthmaker for “\( a = F \)”. Let \( a' \) be an intrinsic duplicate of \( a \) lacking \( F \). Then \( c' = a' + b \) makes it true that \( a = F \), but does not make it true that \( a' \) is \( F \). If \( c' \) is an intrinsic duplicate of \( c \), then we again get a regress. And it is hard to see how \( c' \) could fail to be an intrinsic duplicate.

Internalists must allow for an extrinsic mode of composition, i.e. a mode of composition such that the composition of intrinsic duplicates does not yield compounds that are intrinsic duplicates. While this is already hard to swallow, necessitarianism makes it much worse. Necessitarianism have to claim that composition of intrinsic duplicates does not even make for counterparthood. If \( a \) is extrinsically \( F \), \( b \) is the truthmaker of this truth and \( a' \) is an intrinsic duplicate lacking \( F \), then \( a + b \) and \( a' + b \) can not even be counterparts. The extrinsic difference between \( a \) and \( a' \) must rule out the existence of \( b \). This is problematic because \( b \)'s intrinsic nature, by the preceding argument, is independent of the intrinsic nature of \( a \).

To illustrate this difficulty, consider maximal properties. The property of being a table, for example, is maximal if no proper part of a table can be a table. Maximal properties are extrinsic, but often essential. Suppose \( a \) is essentially a statue and being a statue is a maximal property. Let \( \alpha \) be what makes it true that \( a \) is a statue. By internalism, there can be intrinsic variation in \( \alpha \) even though there is none in \( a \). This seems mysterious enough. Necessitarianists, however, have to claim much more: that \( \alpha \) can cease to exist even though there is no intrinsic change in \( a \).

Or consider negative existentials. Following Lewis (2001d: 610), I will call such truthmakers ‘unicorn replacements’ in the following. For unicorn replacements have their truthmaking properties not only extrinsically, but also essentially. Unicorn replacements not only have extrinsic identity conditions, but even “maximally extrinsic” ones, as it were. Let \( \alpha \) be the unicorn replacement and \( \beta \) be the centaur replacement and \( W \) the rest of what there is. If \( \alpha \) and \( \beta \) were different things, then our world would be heavily overpopulated with strange entities. Thus suppose \( \alpha = \beta \).Because lacking centaurs is an extrinsic property of our world, it is possible that an intrinsic duplicate of \( W \) exists plus some centaurs. In such a world, however, \( \alpha \) cannot exist – even though it also lacks unicorns, \( \alpha \) would also exclude the centaurs if it existed. This means that unicorn replacements are maximally specific: they can only exist in the world where they actually do. They necessitate everything that is the case. If truthmaking is necessitation, they not only replace unicorns, but also make true everything else.

### 6.2.3 Truthmaker internalism

It therefore seems that extrinsic truthmaking is problematic for necessitarians. But I think there are also considerations that speak against necessitarianism with respect to intrinsic truthmaking.

Consider Max Black’s two indiscernible spheres. Do they make true the same truths? This is the question whether the truthmaking relation is haecceistic in the sense of distinguishing between non-identical indiscernibles. I will try to show that neither answer is available to the necessitarian.

Let us call one of the spheres \( a \) and the other \( b \). Because there are two of them, either one could exist without the other. The truth that \( a \) exists must therefore be different from the truth that \( b \) exists. It is also true that they have the same size, and that there are two things of exactly the same size in that world. Hence the truth that \( a \) is of size \( m \) is different from the truth that \( b \) is of size \( m \). But do they...
have the same truthmaker?

Suppose, first, that they have, i.e. that the truthmaking relation is not haecceistic. If the truthmaker of “a is of size m” also makes it true that b is of size m and if it does so necessarily, it must cease to exist if b becomes slightly smaller than a. But we can suppose that a would still be of the same size. If truthmaking is internal, nothing except an intrinsic change in the truthmaker or the proposition may affect their truthmaking link. So the truthmaker must involve both a and b. But this means that neither a nor b could be of size m in the absence of the other, which is clearly absurd.

Internalists have a way out: they can say that in the world in which only a, but not a’, exists, the truthbearer that a’ exists is not there to be made true. It is a singular truthbearer, and depends for its existence on a’. The truthmaking relation can fail to hold because one of its relata is missing. Necessitarians, however, do not have this option: if both of a and a’ exist, then a makes it true that a’ exists. So it makes it true in every world: if two indiscernibles can exist without each other, they could not exist without each other. But we clearly do not want to say that just because I could have an indiscernible twin, this twin actually exists (and that I make it true that he exists)! This not only concerns existence statements, but all truths that imply the existence of their truthmaker. If indiscernible truthmakers make the same truths true, then they cannot exist in isolation. But they clearly can. So necessitarianism, together with weak and plausible assumptions about modality, commits us to haecceistic truthmaking, which is incompatible with internalism. So we have to choose between the two.

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But even apart from the considerations in favour of truthmaker internalism, it seems very hard to defend the view that the truthmaking relation is haecceistic. How could two indiscernible objects differ in what they make true? If a makes it true that p, it seems, it does so in virtue of having the properties it has and standing in the relations it stands in. If something sharing all these qualitative aspects with a can fail to make it true that p, it seems, this must be in virtue of another feature of the ontology of the situation? But what could that be? Take the case of the two spheres again. There are two different truthmakers, α and β, for the truths that a and b have all and only their properties. What, however, makes it true that they are indiscernible? Nothing more than α and β is required. But are really both needed? It seems hard to believe that there is some intrinsic property that α has and β lacks.

To see why this problem is particularly vivid for necesitarians, recall that on their account, truthmaking of p by a does not involve a’s contingent properties. It is possible that a lacks all its contingent properties (or some subset thereof) and still makes true the same truths. Necessitarians therefore have to count the purely haecceistic respects that make for differences in truthmaking as necessary properties: not only make indiscernible objects different truths true, but they also do so by necessity.

This is an unwelcome result. If a contingently has the intrinsic property F, then a is numerically distinct from the merely possible a’ that lacks F. But we would still like to say that what makes it true that a has some other property, say G, is the same thing than what makes it true that a’ has that property. If truthmaking is haecceistic, however, and a and a’ differ in bare numerical identity, then we cannot do this. Each and every truthmaker, by necessity, can just be what it is. No wonder, then, that every truthmaker makes the same truths true in all worlds where it exists. It exists in only one
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6.3.1 Exemplification: the real tie

I do not think Leibnizianism is to blame for our difficulties — it has, even apart from guaranteeing truthmaker necessitarianism, obvious advantages. Shedding some light on the relation of exemplification, it removes the need for a non-mereological mode of composition of states of affairs: the argument that $a$’s being $F$ cannot be the fusion of $a$ and $F$ (because they could both coexist with $a$’s being $\neg F$) no longer goes through. The existence of the fusion gives us its parts; the parts, in turn, necessitate the truth. Leibnizianism also fits well with the one-over-many argument for universals: universals, after all, were introduced to account for the Moorean fact that different particulars were “identical in nature” (Armstrong 1978a: xiii). Partial identity is an obvious explanation and, I think, a plausible one.

The symmetry introduced by “thinking of a particular as like a universal in having aspects” (Baxter 2001a: 453) and identifying the aspects of particulars with universals, presupposes that a prior distinction can be made between particulars and universals. The problem with Leibnizianism is not its introduction of thick universals, but rather that they are added to thick particulars. The thick particulars, in my view, are responsible for the rationalist flavour of the resulting ontologies.

Once we dismiss thick particulars, we may accept thick universals without turning everything into a Leibnizian monad mirroring the whole world. Particulars are just what they are, neither thick nor thin. They exemplify properties, some essentially, others intrinsically and they stand in internal and external relations to other particulars. The universals to which the exemplification relation connects them are importantly different: these are generically dependent entities, nothing but the qualitative features they bestow on their exemplifications. Universals are ways things are and their nature is exhausted by how they make things to be. Indiscernible universals, universals bestowing the same qualitative features, are just identical — there is nothing by which they could differ.

The aspects of a universal are indeed the particulars exemplifying it, loosely counted as one. The aspects of a particular, however, are not the universals it exemplifies. What we get if we loosely count as one the (strictly) different universals exemplified by one particular is not the particular, but its nature or ‘type’, the most inclusive property it exemplifies (Armstrong 1997: 123). Different particulars could exemplify this property, because indiscernible particulars need not be identical. We should combine Baxter’s insight into the nature of universals not with Factualism — thick particulars, ampliative states

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65This is acknowledged by Armstrong (1999: fn.2) and Armstrong (2004a: 146). Armstrong (1989a: 44) draws the distinction in terms of universals’ having a definite adicity. This criterion becomes inapplicable, as Fraser MacBride (2003) has observed, if we admit multi-grade universals (which Armstrong (1978a: 94), 1989b: 40, 1997: 85, 2004a: 147 rejects). Baxter (2001a: 453) draws the distinction in the following terms: universals can be instantiated by many particulars while particulars cannot; a particular cannot merely be an aspect of something with other aspects. Armstrong seems to concur: “It is of the essence of particulars to be collectors (though they might collect one property only) and it is of the essence of universals to be instantiated (though they might have one instantiation only)” (Armstrong 2006e: 211). But this presupposes a prior understanding of how exemplification can be asymmetric.

66Armstrong (1997: 18) characterizes rationalism as “providing necessities in re. and a faculty of Reason to know these necessities”.

67Armstrong (2004a: 188) suggests that in addition to ‘thick’ universals, which ‘enfold’ their properties, there are also thin universals that can differ by mere numerical difference. This is foreshadowed in Armstrong (1997: 168), where he plays with the idea of postulating quiddities for universals, letting the difference between universals of the same adicity only be identified, though not constituted by, the different causal powers they bestow. This notion of thin universals that can differ in “bare numerical identity” only (Armstrong 2004a: 146) has to be rejected on the conception I am advocating here.
of affairs—but with Armstrong’s 1978 realism about particulars and universals, connected by a contingent relation of exemplification. But did Armstrong not produce arguments aiming to show that exemplification cannot be a relation? We now have to consider these.

Armstrong’s main argument is based on Bradley’s regress (which he also calls “relation regress”): If exemplification were a relation between, say, a particular a and a property F, and hence a universal, a further relation would be needed to connect a, F and the exemplification relation (Armstrong 1978a: 20, 41, 54, 70). An ontologically and epistemologically vicious regress would follow.

This argument, however, assumes that if exemplification were a relation, it would be an external one. If exemplification is an internal relation, supervenience on intrinsic properties of the exemplifying particular and the exemplified universal, then the regress, I think, is as harmless as the truth-regress (if p is true, it is true that p is true etc.) of which Hochberg says:

“The subsequent facts in the chain are not involved in the specification of the truth conditions for the initial statements, which is what would make the chain a vicious regress.”

(Hochberg 1988: 193)

While exemplification is exemplified by the particular, the universal and the exemplification relation, this fact supervenes on the particular exemplifying the universal: “the predicates may ascend, but not the reality in virtue of which they apply” (Armstrong 2004c: 106).

Armstrong, even in his non-Leibnizian period, had arguments against exemplification being an internal relation. If it were, would it not then hold necessarily? This testifies to the same confusion of internal and essential relations we noted earlier. A relation is internal if it is necessitated by the intrinsic properties of the relata. In this sense, exemplification of intrinsic properties is an internal relation: given a particular has the properties it in fact has, it exemplifies exactly the universals it in fact exemplifies. This does not, as Armstrong seems to think, imply that it does so necessarily. There is an important distinction to be drawn between intrinsic and essential properties of particulars. How

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68 Armstrong (2004c: 142) says of Baxter’s theory that its great attraction is “that it involves nothing but the particulars and universals.” Because the suggested link between the two is partial identity, any need for a fundamental tie, a copula, or what have you, seems to be eliminated. All the trouble that this tie has caused to those of us who accept universals alongside particulars, the tie that so many others use as a major reproach against the postulation of universals, is at a stroke removed. I agree that this is the main attraction of the theory that exemplification is partial identity and try to make it compatible with the contingency of predication.

69 It appears, then, that the Relation regress holds against all Relational analyses of what it is for an object to have a property or relation. If a’s being F is analyzed as a’s having R to a θ, then Rαθ is one of the situations of the sort that the theory undertakes to analyze. So it must be a matter of the ordered pair (a, θ) having R’ to a new θ-like entity: θR. If R and R’ are different, the same problem arises with R’ and so ad infinitum. If R and R’ are identical, then the projected analysis of Rαθ has appealed to R itself; which is circular: (Armstrong 1978a: 70–71)

70 But in general at least and perhaps in every case, the fact that an object instantiates a certain property does not flow from the nature of the object and the nature of the universe that are involved. (Armstrong 1989b: 109) Armstrong (1997: 101) says that the “connection between things and their properties” is an external relation.

71 The truth-regress is taken to be harmless on all sides (Armstrong 1978a: 56), 1997: 119, 2004c: 78–79, Hochberg (1999: 196). One could even consider it a special case of the exemplification regress (starting at its second stage): if a is F, then a exemplifies F (it is true that a is F), then exemplification, is exemplified by a and F (it is true that it is true that a is F).

72 It is difficult to find Armstrong explicitly advocating this doctrine. The argument for exemplification being external quoted in fn. 70 continues with “The connection is contingent.” (Armstrong 1989b: 109). The argument by Armstrong (1997: 117–118) proceeds by the following passage: “The assumption here is that the truthmaker for a truth must necessitate that truth. […] Using the distinction between internal and external relations […], the truthmaking relation is an internal one. This seems evident enough if we consider for a moment the idea that the relation should be external, contingent.” (Armstrong 2004c: 9, 50) says that the truthmaking relation is internal because it is necessitating and that internal relations are those that are had necessarily (cf. Armstrong 2004c: 109). The clearest endorsement is recent: “Will not the relation between truthmaker and truth-bearer be an internal one? It will depend on the nature of the terms involved and on them alone. If so, it will be necessary, I think.” (Armstrong 2005: 279)
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‘external’ vs. ‘internal’, when used in Armstrong’s sense, becomes a false dichotomy, is particularly clear in Baxter’s presentation of Armstrong’s argument that exemplification, if it were a relation, could be neither internal nor external:

“If you believe in universals and particulars, and you believe that neither are simply bundles of the other, then you need to make sense of instantiation…[...] It needs to be a ‘non-relational tie’ […] That is, it can be neither an internal nor an external relation, as Armstrong construes them […]. Internal relations are always necessary – the relata can’t exist without them …[…] External relations are or involve additional entities…” (Baxter 2001a: 449)

It can – and should – be accepted that exemplification is neither internal nor external in these senses, but it still can – and should – be held that exemplification is internal in the sense defined earlier (cf. def.), i.e. supervening on intrinsic properties of its relata. Exemplification is a relation that holds only if exemplified, but the exemplification of which does not require a further and ontologically substantial relation of exemplification, but just the two relata, together with their properties, including their relational properties of standing in the exemplification relation with respect to each other. If a exemplifies F, there is a relation holding between them – which is to say that exemplification E is exemplified by them. But we do not have to introduce a second exemplification relation E’ to account for the fact that E(F, a), for “E(F, a)” is made true by what a is and by what F is. The truth conditions for “E(F, a)” do not involve further exemplification relations, but only a and F.

If exemplification is a relation, what kind of relation is it? My answer is simple, but perhaps surprising: it is partial identity – partial identity not in the rather special sense Armstrong takes from Baxter, but ordinary mereological overlap: the universal is literally part of the particular that exemplifies it, two resembling particulars literally share a universal as their common part. If you think that only material or concrete objects can literally have parts, think of the particular as extended in more than three (or four) dimensions, as a location in quality space as it were: add a dimension for every degree of independent qualitative variation, in which it either is or is not extended (or extended to some degree in the case of quantities). Its extension in these dimensions are the universals it exemplifies.

Even if some sense can be made of properties being parts of particulars that intrinsically exemplify them, they will be contingent parts – so how could they be truthmakers? I agree that if a contingently has the intrinsic property F, it is a contingent and accidental property of a that it has an F-part – a could have lacked it and still be what it is. Even though a has its properties as parts, it does not ‘enfold’ them; it is not a thick particular having its ‘property parts’ essentially. But may a contingent part of a be a truthmaker for the intrinsic predication that a is F?

Surprisingly, Armstrong accepts this for some lesser alllinesses, claiming with respect to the ‘ordinary general proposition’ “All ravens are black”:

“There are, prima facie, two totalities: the mereological whole of the black ravens and the mereological whole of the ravens. […] It then becomes clear that if and only if the two totalities are identical, then the proposition is true, and this one totality is its (minimal) truthmaker. If there are two distinct totalities, with the totality of the black ravens no more than a proper part of the totality of ravens, then the proposition is made false…” (Armstrong 2004c: 74)

Suppose the proposition “All ravens are black” is true. Then there is some fusion, which is the fusion of all the ravens and also the fusion of all the black ravens. It is the truthmaker of the proposition that

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73 A similar point is made by Forrest (1993: 56).
all ravens are black. But is it necessitating this truth? It does not seem so. The fusion of the black ravens could very well exist, and be the very same fusion, without making it true that all ravens are black (if there were, say, another white raven). It would not be, to be sure, the fusion of all the ravens — but this is not a fact of existence, but a fact about the fusion having this or that property. Armstrong might reply that the real truthmaker is not the fusion of the black ravens, but the state of affairs that the fusion of the black ravens is (identical to) the fusion of the ravens. But this, it seems, is just the fusion itself, for the truthmaker of “∗a = b∗” is just a (Armstrong 2004c: 39). Necessitarianism goes by the board then. But internalism does not: the fusion of the ravens is a truthmaker not just because it exists but in virtue of its internal relation of being identical with the fusion of the black ravens.74

Generalising from strict to merely partial identity, we may say: It is in virtue of its standing in the internal, mereological relation of having an F-part that a makes it true that it is (intrinsically) F; it is in virtue of F + a being the very same fusion than a that it makes it true that a is F. What makes it true that a is F (for intrinsic F), is just a (= a + F) — but it does so in virtue of how it is.75 While this view has obvious problems with which I cannot deal here,76 it at least shows that there is room in logical space for accepting truthmaker internalism and rejecting truthmaker necessitarianism.

### 6.3.2 Truthmakers and thick universals

But still, we may have wished to do better. I think that Baxter’s insight into the nature of universals — that they have their exemplifying particulars essentially — may help us here. We do not quite get truthmaker necessitarianism, but we may perhaps get something that many consider as good as it: truthmaker essentialism. Given a more plausible view of essence, however, truthmaker essentialism is weaker than truthmaker necessitarianism.77 The account of essential properties I find plausible takes the characterisation of a property as essential to be independent of an account of its modal behaviour. For F to be an essential property of a, it is neither necessary nor sufficient that, necessarily, a is F if a exists.78 I will also assume that the two de-relativisations of a binary relation may differ with respect

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74 This is not the only place where Armstrong claims that totality states of affairs involve an internal relation. Cf. e.g.: “Thus, it is true Theaetus is not flying, but the truthmaker for this, I hold, is the totality of Theaetus’s properties, and the difference of each of these properties from the property of flying.” (Armstrong 2006c: 230) For “Theaetus is not a centaur”, he gives Theaetus himself as truthmaker, and for “No men are horses” the sums of all men and of all horses (Armstrong 2006c: 231).

75 Truthmaking of general truths by internal relations (and hence their terms) meshes nicely with what seems to be Armstrong’s new view: “a might have had property F∗” is made true by the mereological sum of a and F (Armstrong 2006c: 282).

76 A first and obvious worry concerns the question whether it can be extended to extrinsic predications. I think it can. Whenever a is extrinsically F, a could cease to be F through variation in the outside world. Because truthmaking is internal, the circumstances on which the exemplification of F by a depends must be brought into the truthmaker. What makes it true that a is extrinsically F will hence be something that is intrinsically such that it makes it true that a is F.

77 Another obvious problems arise with asymmetric relations. What distinguishes, for an asymmetric relation R, the truthmaker for a’s being R-related to b from the truthmaker for b’s being R-related to a? A first reply here is ‘tu quoque’: these problems equally arise with states of affairs. Discussing his principle that the same ultimate constituents constitute different states of affairs only if they are differently organised, Armstrong (1997: 121–122) claims that (at least asymmetric) relations have a “direction”, which he represents by indexing the blanks in the corresponding state-of-affairs type. It is not clear to me, however, what this ‘direction’ is supposed to be. It cannot be a second-degree property of the relation, for we would still not be able to explain the difference between Rab and Rba and at the same time maintain that they ‘contain’ the same relation. Rather, it has to be an additional, negative, state of affairs (cf. Armstrong 2006a: 193), or an ontological feature of the relation itself (an idea discussed by Armstrong 2004c: 151) that Fine (2000) calls ‘positionalism’. Another problem that has its parallel in the states-of-affairs case concerns the structure of complex truthmakers. The truthmaker for “F&G”, I hold, is a + b (= a + b + F + G) — unfortunately, this is also the truthmaker for “Fb&Gb”. Hence, some coexemplification requirement is needed (Armstrong 1997: 36): the conjunction of F and G has to be structural. (Thanks to David Armstrong for pointing this last problem out to me.)

78 I call “truthmaker essentialism” the view that if a makes it true that y, then it is essential to a to make it true. Parsons (1999: 328) uses it for truthmaking internalism.

79 This is how Armstrong (1983: 166) defines “essence” in terms of ‘weak necessity’. I do not have space to defend my unorthodox account here. One direction of the independence claim has forcefully been argued for by Fine (1994): Necessarily,
to whether or not they are exemplified essentially.\textsuperscript{79}

Baxter’s insight that a universal would not be the universal it is if it had different exemplifications is best brought out in terms of possible worlds: framed in this language, the claim becomes that properties do not stand in non-trivial counterpart relations: they are strictly identical across possible worlds (Lewis 1986d: 204).\textsuperscript{80} And it is the strictly transworld-identical properties that are most aptly called “universals”. To say what they are, we have to say how the particulars are like that exemplify are. But this means that, given what the property is, it could not have been exemplified by (qualitatively) different particulars: the property has a nature, a quiddity, it bestows on its particulars. By contrast, we may very well specify what a particular is without mentioning all its properties. This is the metaphysical asymmetry between universals and particulars.\textsuperscript{81}

Whenever a exemplifies F, two relational properties are exemplified by a and F respectively, namely having F as a property and being a property of a. The first of these just mimics F: it is essential to a iff F is. The latter, however, differs from F in at least one important respect, or so I want to claim: whenever it is had by a property G, it is an essential property of G. We have thick universals, but slender particulars.

Why should we believe this? Suppose we are modal realists and convinced by the argument from accidental intrinsics that anything having a property contingently can exist only in worlds where it has that property. This commits us to counterparts for ordinary particulars: what makes it true that a could have lacked its intrinsic property F is some \(\neg F\)-counterpart \(a'\) of a in another world. But is it really \(F\) that \(a'\) lacks, not just a counterpart of it? If there were no literal identity of type among things in different possible worlds, there would be no way of saying why \(a'\) counts as a counterpart of a.\textsuperscript{82} There must be something unifying the counterparts, and this must be a ‘one over many’ –

\textsuperscript{79}Again, I cannot argue for this claim here in full, but just give some arguments from authority: Aquinas thought (I have been told) that it is essential to the world to have been created by God, but not essential to God to have created the world. Kripke thought that it is essential to me that I have my actual parents, while it is presumably not essential to my parents to have begotten me. Fine thinks it is essential to the set \(\{a,b\}\) to have a as a member, while it is not essential to a to be a member of this set.

\textsuperscript{80}Based on counterpart relations between particulars, we may of course introduce ‘counterpart’ relations for at least some extrinsic properties, e.g. one in which the property of being the biggest pig in \(v\) counts as a counterpart of being the biggest pig in \(v\), and we may say that the first, but not the second, is exemplified by the oldest pig in \(w\) and \(v\) respectively. However, these property nominalisations do not designate the property of being the biggest pig (whereas both “\(I\)” and “my counterpart in \(w\)” do designate me, albeit in possibly different worlds). They designate, respectively, being the biggest pig in \(w\) and being the biggest pig in \(v\). This ‘counterpart’ relation does not play the role counterpart relations among particulars play in the regimentation of our modal talk. When we say that Sam, actually the oldest pig, is the biggest pig but might not have been, we do not say that Sam and his counterpart in \(v\) differ in that Sam has the first property, but his counterpart lacks the latter: rather we say of one and the same property that they differ with respect to it.

Mark Heller (1998) defines the similarity relation making for counterparthood of properties as similarity between the roles they play in their respective worlds:

“To describe a property \(P\)’s role completely, we say ‘it is such that \(\ldots\)’, where the ellipsis is filled in with the rest of the description of the entire world: \(P\) is such that it has such-and-such a distribution among other properties \(P_1, P_2\), and so on, that have so-and-so distributions. Where a world is a Ramsey sentence \(\ldots\), a property’s role in that world would be the open sentence that results from dropping the existential quantifier that binds that property.” (Heller 1998: 301–302)

If ‘roles’ are taken to be open sentences, I do not see how properties can have similar roles that are not identical: either they satisfy the sentence, i.e. have the role, or not. If by similarity of role he means similarity in the patterns of property distributions (Heller 1998: 302), then he has not done away with cross-world property identity: for to be so-and-so distributed is a property that is identical across the respective patterns.

\textsuperscript{81}I hold, \textit{contra} Armstrong (2004a: 146) and Armstrong (2004b: 188), that two indiscernible universals (universals exemplified by the same possible particulars) are identical (cf. fn. 73).

\textsuperscript{82}John Hawthorne has pointed this out in personal communication quoted in Armstrong (2004a: 145, fn. 7): “…what would ground the counterpart relation of similarity? We now see that the world without the particular named ‘\(w\)’ would, strictly speaking, be a world in which none of the universals and particulars in the original grid world would exist. So what would make
genuine, not surrogate unity.

Baxter’s insight gives us a more direct route to the same conclusion: if $a$ is $F$, $F$ has the property of being exemplified by $a$. If Baxter is right, then this property (or ‘aspect’ as Baxter would call it) is part of what $F$ is. $F$ being what it is, it must have the property of being exemplified by $a$, though it lacks — if $F$ is a contingent property of $a$ — the property of being exemplified by $x$, for at least some counterpart $x$ of $a$.

Here is another, somewhat less conclusive, argument that does not rely on modal realism: whether or not something could lack a property it actually has depends on whether it could exist without having that property. If we are to determine this, we hold some things constant while varying others. If the thing in question is a particular, this is a fairly simple task: we ask of this thing, concrete and determinate as it is, whether it would persist if stripped from some feature — we hold constant the thing and vary its properties. If the thing in question is a property, however, our task is more difficult: could the property being red fail to be a colour property, monadic or more similar to orange than to green? When wondering about these questions, we hold constant the property, but thereby also hold constant its particulars: if the colour in question really is being red, no other than red things can exemplify it. It could fail to be exemplified by the things that are in fact red only if these things were different, it seems. But this is a possibility for the things, not for the property.

In this respect, properties are rather like sets. Sets have their members essentially — does it follow that the set of all and only the green things contains essentially some contingently green thing $a$? It depends: if we are talking rigidly about the set $S$, which we, in this world, pick out by $S = \{x \mid x$ is green\}, the answer is yes; if we are talking about $\{x \mid x$ is green\} tout court, however, the right answer seems no: we are not talking about one set in particular, but rather using a singular term whose referent varies from world to world. In the case of universals, I submit, only the first reading is available: If “being red” would pick out different properties $P_1$, $P_2$ etc. in different possible worlds $w_1$, $w_2$, etc., we should rather say that it (rigidly) stands for the disjunctive property: being $P_1$ in $w_1$ or being $P_2$ in $w_2$ or ...

Properties are best characterised by what they bestow on their particulars. They are what they are because these (i.e. such-and-such), and not others (i.e. different), particulars exemplify them. They do not only owe their existence, but their nature to these particulars: with other particulars, the universal would not be what it is. Given that the universal is these particulars, counted loosely as identical, it could not fail to be exemplified by them.\(^8\)

\(^8\)Fine (1981: 170) has called this feature of sets “rigidity of membership”.

\(^8\)A related phenomenon has been argued for by Fine a long time ago: Think of propositions as sets of possible worlds and consider the set of all possible worlds. Viewed as a proposition, Fine (1977: 141) says, this set exists necessarily: whatever our possible worlds, they necessarily form a set (or a proper class for that matter). Viewed as a set, however, its existence depends on the existence of each possible world. If their existence was contingent, the existence of their set would be contingent too. While the universal proposition is what it is independently of what possible worlds there are, sets depend for their existence on their members. Armstrong (1982a: 95) made the same distinction between the maximal ‘fact of totality’ “as a determinable” and “as a determinate”: only the former supervenes on the existence of the world.

\(^8\)It might be worried that this argument, if sound, rules out contingent properties of universals: it seems possible, e.g., that the property of being the most popular property among philosophers is now exemplified by being a bachelor, but will be exemplified by being a six on in the future. But this clearly does not show that being a bachelor will cease to exist in the future. "The most popular property among philosophers", however, does not rigidly designate a universal, identical across possible
6.3 Aspectival truthmaking

Thick universals give us more than just truthmaker internalism: what makes it true that \( a \) is \( F \) is just \( a \) and \( F \), i.e. \( a \), because \( F \) is a mereological part of it. If \( F \) is a thick universal, there is more to be said: there is something, i.e. \( F \), that is essentially such that \( a \) is \( F \); \( F \) could not be what it is without making it true that \( a \) is \( F \). Do thick universals bring back Leibnizianism? Suppose \( a \) is \( F \), hence \( a \) and \( F \) both exist. Even if \( F \) essentially has the property being exemplified by \( b \) (for \( a \neq b \)), this does not mean that \( b \) has to be \( F \): for \( b \) to be \( F \), \( b \) also has to exist — and because the property being exemplified by \( b \) is ‘world-specific’ (i.e. is a different property than being exemplified by \( b' \), where \( b' \) is a counterpart of \( b \) not identical to it), just the existence of \( b \) is not enough: \( b \) has to exist just as it is, i.e. including \( F \). Contingency is thus salvaged, but necessitarianism is lost: it is only given that \( a \) has an \( F \) part, that it makes true that \( a \) is \( F \). If \( a \) and \( F \) both exist, but the latter is not a part of the former, no truthmaking relation holds.

What about negative and general truths? The truth that Theaetetus is not flying is not made true by Theaetetus nor by any of its parts. It is made true by the property of flying which would not be what it is if it were a property of Theaetetus. This allows for negative truths about alien particulars — Pegasus is not yellow in virtue of being yellow being what it is.\(^{86} \) What about general truths? That all ravens are black is made true by the fusion of the ravens, including the blackness and raven parts they have in common. Given that the black ravens are all and only the ravens there are, nothing else, and a fortiori nothing non-black could have been a raven. What about the all-inclusive totality, the world? The world could, of course, have contained more or less things. But existence would not have been the same.

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\(^{86}\) Does it allow for alien properties? It does on some relaxation of Aristotelianism. Properties may then be characterised not just by their actual, but by all their possible particulars. Hence, if they exist, provided they have possible exemplifications, they are here to make it true that they have no actual exemplifications.
Part III

Properties and their Kind(s)
Chapter 7

Predicative entities

The truthmaker principle gives us reason to accept the existence of more than just the things we talk about. In this chapter, I will argue that it has wider application than as an argument for the existence of particulars. Not just what things there are, but also how these things are, has to be accounted for in our ontology. In this chapter, several candidates for this job are examined.

The first section (7.1) discusses universals, arguing that their acceptance answers to a real theoretical requirement (against “Ostrich Nominalism” in sct. 7.1.1) and that our need for truthmakers gives us a good reason to accept full-blown universals (rather than just instances of a resemblance relation taken as primitive), which are immanent (Aristotelian) and purely qualitative, i.e. satisfy a suitable version of the identity of indiscernibles (sct. 7.1.2).

The second section (7.2) defends the distinction between particulars and their properties against the fundamental and often misunderstood charge of Frank Ramsey, already introduced in sct. 4.2.2: against one reading of this challenge, a genuinely metaphysical solution in terms of the essences of universals is proposed in sct. 7.2.1. Universals are then compared to and contrasted with other types of (putative) entities, kinds (sct. 7.2.2), tropes, events and states of affairs.

Thus salvaged, universals are further investigated and characterised in the third section (7.3). It is, first, argued that higher-order ‘properties’ are not properties but kinds (sct. 7.3.1). Perhaps surprisingly, a different diagnosis is offered of the determinable/determinate contrast: in sct. 7.3.2, I argue that we should give an account of the metaphysical possibility that there are no ‘lowest determinates’ and that we should therefore not deny the robust existence of determinable properties. I argue that a world of determinables ‘all the way down’ gives us a plausible account of metaphysical vagueness.

The next two chapters investigate two special cases. Ch. (8) discusses the thorny issue of how to define intrinsic properties and relations, and proposes a new solution in terms of internality. Ch. (9) discusses relations and argues that they are ultimately reducible.

7.1 Resemblances

“Even if we grant that ways to be are entities – universals, or properties in some other sense – still the predication is true not in virtue of the mere existence of the thing and the property. It’s true because the thing instantiates the property. So says the Ostrich; why isn’t he right?”

(Lewis 1992: 204)

Properties, as I use the word in the following, are ways things are. Therefore, they must sharply
be distinguished from concepts. Whatever \textit{concepts} are, they are grasped, entertained, analysed and expressed. Grasping, entertaining, analysing and expressing are relations in which we stand \textit{to things}, not properties.\footnote{In this distinction between concepts and properties, I follow mostly Strawson (1987: 40.4). Many philosophers do not thus distinguish between concepts and properties, either by giving intentional criteria of property identity (eg. Chisholm 1996: 14) or by holding that properties are grasped (eg. Rosenkrantz 1993: 21) or expressed (eg. Jubien 1997: 37).} Properties, if there are any, are part of the furniture of the world. Though they cannot be identified by fiat with the semantic values of predicates (such an identification would be rather a strong metaphysical thesis), they are also supposed to play an explanatory role: they are supposed to provide a solution to the problem of universals (cf. below p. 147). Some accounts of properties are too permissive to solve this problem. Whatever properties are, they are not sets of possible individuals (as in Lewis 1986d: ch. 1.5) nor functions from possible worlds to extensions (as in Carnap 1947; Kanger 1957; Kripke 1959; Montague 1974). Sets and functions, at best, \textit{represent} or \textit{model} properties. I do not intend to beg any questions by this regimentation, nor to falsify the stakes against set-theoretical reconstructions – but reconstructions are just this: \textit{re}constructions of (talk about) properties in terms of (talk about) something else, namely sets. I therefore follow Armstrong (1978a: 28 et seq.) in classifying these philosophers as Ersatzists.

I think it is useful to distinguish between nominalists who think that the problem of universals is real and those who do not. I will discuss the latter under Armstrong’s label ‘ostrich nominalists’ and discuss one species of the former, resemblance nominalism. I do not consider other ‘Ersatzist’ construals of properties because I think that Armstrong’s arguments against these are sufficient to rule them out as solutions to the problem of universals (cf. Armstrong 1978ab). I do not think, however, that the truthmaker argument for the existence of properties is effective only against ostrich nominalists – I think it does rule out some Ersatzist construals as well, resemblance nominalism in particular.

I intend “property” to be true of parts of the furniture of the world. Properties are not primarily semantic values of predicates, nor of adjectives, not even of so-called modifying adjectives; they are not reflections of our linguistic practice. They are sparse not just because, on pain of contradiction, not every predicate can stand for a property\footnote{Humberstone (1996: 259) draws a useful distinction between three senses of “property”: Properties, are individuated by conceptual equivalence of the predicates (standardly) used to express them: \textit{being} $F$ and \textit{being} $G$ are the same property, iff the predicates “$F$” and “$G$” are conceptually equivalent. They correspond, roughly, to the “predicates” of Putnam (1969) and the “concepts” of Bealer (1982). Properties, on the other hand, are individuated by necessary coextensiveness of their predicates: \textit{being} $F$ and \textit{being} $G$ are the same property, iff the predicates $F$ and $G$ are necessarily coextensive. Properties, are individuated by a priori necessary coextensiveness: \textit{being} $F$ and \textit{being} $G$ are the same property, iff it is a priori and necessary that the predicates $F$ and $G$ are coextensive. The properties I want to talk about in this section are neither properties, nor properties, nor properties, nor properties. I want to leave open at this stage whether they are properties, (cf. sect. 7.1.1 for my account of their essences).} It is because, properties being real existents, our ontology should not comprise more of them than necessary. Lewis (1986d: 59) calls those properties “sparse” that are part of the minimal supervenience base of everything there is: “there are only just enough of them to characterise things completely and without redundancy” (Lewis 1986d: 60). I do not think that only sparse properties exist: what is ontologically less than fundamental is still something; it exists, even if perhaps not fundamentally so.

\section{Ostracising the ostrich}

The “problem of universals” properties are called upon to solve is the problem of explaining unity across diversity:

\footnote{\textit{\textit{If there is a property not exemplifying itself}, we may ask whether or not it exemplifies itself and are quickly landed in a contradiction. It does not help, contra Rodriguez-Pereyra (2002: 28), to say that the property \textit{not exemplifying itself} is abundant – it cannot exist. Properties cannot therefore be identified with \textit{X}-abstracts.}}
7.1 Resemblances

“The problem of universals is the problem of how numerically different particulars can nevertheless be identical in nature, all be of the same 'type'.” (Armstrong 1978a: 41) (cf. also Rodríguez-Pereyra 2000: 257)

The basic argument for the existence of properties is that we have to assume their existence if we want to solve the problem of universals. The argument, as I — and, I think, Armstrong¹ — understand it, proceeds as follows:

(i) It is a Moorean fact that different particulars are ‘identical in nature’⁵
(ii) By the truthmaker intuition, this ‘identity of nature’ has to be grounded in reality.⁶
(iii) Properties are what grounds such ‘identity in nature’ (Armstrong 1978a: 41).

But what does ‘identity in nature’ consist in? We have to be extremely careful here, as there are at least three interpretations of such sameness, which give rise to different arguments:

1. Two different particulars, a and b, may be both F.
2. Two different particulars, a and b, may share a property.
3. Two particulars, a and b, may exhibit ‘qualitative’, but not ‘numerical’ identity.

I take all these three explications of (i) as somehow preliminary: the fundamental explanandum is the ‘unity’ we observe among the things in the world – “resemblance” is just a name for this pre-theoretical phenomenon:

“...resemblance is always identity of nature. This identity is partial in partial resemblance, and complete in complete resemblance.” (Armstrong 1978a: 95)

The three explications of (i), and the three versions of the argument from the problem of universals they give us, are all somehow defective. The first argument is rightly taken by Ostrich nominalists as a demand to explain the unexplainable; the second argument is too close to the argument from logical form (to be discussed below, cf. p. 146) to be an argument for the robust kind of properties Armstrong wants it to be; only the third one deserves the honorific title “argument from the problem of universals”, even though it is question-begging? It may quite explicitly be found in Armstrong:

“...if the notion of non-numerical identity turns out to be unanalyzable, then presumably we ought to accept it with natural piety as an irreducible feature of the world. And to accept irreducible non-numerical identity is to accept universals.” (Armstrong 1984: 251)

The third argument has, in my view, a number of important advantages:


⁴Of what Oliver (1996: 46) calls “the argument from the problem of universals”, Armstrong (1978a: xiii) says: “Its premiss is that many different particulars can all have what appears to be the same nature ... The conclusion of the argument is simply that in general this appearance cannot be explained away, but must be accepted. There is such a thing as identity of nature.”


⁶Armstrong did not always emphasise the argument's dependence on the truthmaker intuition as much as he should have: Armstrong (1989a: 39, fn. 1), e.g., says that the argument for properties is an inference to the best explanation of “the facts about resemblance, talk of sameness of sort and kind, the application of one predicate to an indefinite and unforeseen multitude of individuals, etc.” As an inference to the best explanation, however, the argument lacks motivation.

⁷I will argue for the first claim on p. 147 et seq., and for the second on p. 146. At present, I am concerned only with the third claim.
2. It is equivalent to what Rodríguez-Pereyra (2002: 45) calls the 'Many-over-One' argument: “what makes a F must be something different from what makes it G, if F and G are different properties”. The ‘Many Over One’ problem is then to provide ontological grounds for the different properties one and the same particular may exemplify.

3. It is effective not only against Ostrich, but also against Resemblance Nominalism, as Rodríguez-Pereyra (2002: 21) acknowledges.

I aim to show, contra e.g. Devitt & Sterelny (1987: 228), that the One-over-Many, so conceived, is not a “pseudo-problem” and does not generate “pseudo-explanations”. I concede, however, the point made by Fraser MacBride (2002b: 31), namely that the argument begs the question. But let us first examine in a bit more detail the position it is directed against.

A certain brand of nominalism got its name from a large African bird Pliny the Elder wrongly accused of hiding its head in the sand at the first sight of danger:

“Besides the five versions of Nominalism already outlined, we should perhaps include a sixth: Ostrich or Cloak-and-dagger Nominalism. I have in mind those philosophers who refuse to countenance universals but who at the same time see no need for any reductive analyses of the sorts just outlined. There are no universals but the proposition that a is F is perfectly all right as it is. [...] What such a Nominalist is doing is simply refusing to give any account of the type/token distinction, and, in particular, any account of types. But, like anybody else, such a Nominalist will make continual use of the distinction. Prima facie, it is incompatible with Nominalism. He therefore owes us an account of the distinction. It is a compulsory question in the examination paper.” (Armstrong 1978a: 16-17)

Armstrong’s argument here is far from clear: it is very doubtful, first, that the distinction between types and their tokens matches the particular/universal distinction. Prima facie at least, it seems perfectly possible that two tokens are of the same type without there being a property they both exemplify. Third, it is not even clear that the ‘use’ of a distinction commits one to an account that interprets it as marking an ontological division. Most importantly, Armstrong’s description makes the Ostrich nominalist position stronger than it is: “the proposition that a is F is perfectly all right as it is” is true — even on Armstrong’s view!

It is therefore not surprising that philosophers disagreed on what examination questions were compulsory: So-called ‘Ostrich nominalists’ like Quine (1953b 1980) Haack (cf. also 1978: 43 et seq.), Devitt (1980), Aune (1984) and van Cleve (1994) continued their resistance, despite vigourous attempts to convince them otherwise (Armstrong 1980a; Rodríguez-Pereyra 2000). Different lines of criticism have to be distinguished:

1. Some critics, like Davidson (1969: 49), argue that Armstrong has mislocated the problem and that a Tarskian theory of truth answers all questions that may reasonably asked about these matters;

2. Some critics, like (Quine 1953b; Devitt 1980; Quine 1980), deny the alleged need for an ‘ontological’ analysis of predication;

3. Some others take Armstrong to demand that we “do away with unanalysed predication” and either think that he himself failed to do so (Aune 1984) or that the attempt is futile anyway (Lewis 1983b).

4. Still others have taken Armstrong to claim that “intrinsic predication requires a further relatum” (van Cleve 1994: 582) and that there is a relation of exemplification (van Cleve 1994: 583) and have dismissed both these claims as unreasonable.
Historically, one of the most influential arguments for the need to postulate universals was the need to quantify over them while giving natural language an adequate semantics. D. W. Baxter (2001a) has recently argued that abstract reference to universals is impossible if we conceive of the latter as being unsaturated rather than thing-like. He proposed to fix this deficiency by introducing *kinds*, which are something like classes, but membership in which is construed non-extensionally in terms of the universal that corresponds to any kind and that has to be exemplified by all its members. Even if such a notion of kind is intelligible, it will not solve all problems, for Jackson (1977) has shown that *any* first-order translation of “Orange resembles red more than it resembles blue” is inadequate.

Fortunately for the realist, there is another argument for the existence of properties, of a distinctively ontological sort. While there is some unclarity about the exact form of this *truthmaker* argument, it allows for a pretty straightforward formulation. We start from the observation of Moorean facts of ‘sameness of types’ or objective resemblance and invoke the general principle that such truths about how things are must be ‘ontologically grounded’, i.e. rooted in facts about what things there are. While it is true that some realists put this question misleadingly in terms of the grounding of our applying general terms or predicates, more careful advocates have from the beginning put the question in terms of ontological explanation. Armstrong (1980b: 443) argued against Ostrich nominalists that they give the predicate “what has been said to be the privilege of the harlot: power without responsibility. The predicate is informative, it makes a vital contribution to telling us what is the case, the world is different if it is different, yet ontologically it is supposed not to commit us.” and others have joined him in this accusation:

> “Recognizing that there are properties in an unproblematic sense, we must take the relevant ontological question to involve a request about the nature or status of properties. By doing what [the Ostrich nominalists do], they bypass the problem of universals by a sort of semantical detour. Once such a problem is raised, rather than avoided, we can obviously not be content with the claim that “W1(a)” holds because a is white or with the assertion that “W1(a)” corresponds to or plays the same role as “white” as solutions to the problem of universals.” (Hochberg 1979: 335)

> “The craving to satisfy Truthmaker thus urges us towards a recognition of the existence of universals. Universals are the sort of things whose existence is required to plug the gap between individual things and accidental truths about those things.” (Bigelow 1988b: 133)

If the truthmaker question forces us to “do[...] ontological justice to the predicate” (Armstrong 2002a: 33) and if “continually to raise the truthmaker question about properties makes for ontological honesty” (Armstrong 2004c: 43), then this is because it enables us to give an ontological explanation of objective resemblance. Oliver (1996: 75) finds this idea of ‘metaphysical explanation’ ‘elusive’ and tries to

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8I doubt even that. To give an account of “Wisdom is a virtue”, e.g., Baxter (2001a: 10) introduces the (purely extensional) notion of a subkind (x is a subkind of y if any member of x is a member of y). This has as a consequence that two kinds can be subkinds of each other without being identical. Again, we seem to have a kind of non-mereological parthood. I will discuss kinds further in ch. 7.2.2.

9Another problem relates to Baxter’s translation of “Alcibiades aspires to wisdom” as “Alcibiades aspires to inclusion in the kind wise thing”. For *inclusion in the kind x* does not seem to be a kind, but rather a universal. What Alcibiades aspires to is after all not just a bundle of things he does not belong to.

10Cf. “In virtue of what do these general terms apply to the things which they apply for?” (Armstrong 1978a: 12) “Accepting the truth-maker principle will lead one to reject Quine’s view (1960) that *predicates* do not have to be taken seriously in considering the ontological implications of statements one takes to be true. Consider the difference between asserting that a certain surface is red and asserting that it is green. An upholder of the truth-maker principle will think that there has to be an ontological ground, a difference in the world, to account for the difference between the predicate ‘red’ applying to the surface and the predicate ‘green’ so applying.” (Armstrong 1989b: 89)

11“Take two white things again. They deserve a common description, namely, ‘white’. What is the link between them which underlies this linguistic fact?” (Campbell 1976: 206). Cf also Campbell (1981: 48) and Rodriguez-Pereyra (2002: 18).
reconceptualise it as either a type of conceptual analysis, a specification of the ontological commitment or of the truthmakers of certain sentences.

It is not just analysis, however, that motivates realism, but analysis conceived of as quest for truthmakers, i.e. analysis of a distinctively ontological kind. This genuinely ontological focus, however, was present already in Armstrong’s earlier work: his arguments against the existence of disjunctive (Armstrong 1978b: 21) or negative properties (Armstrong 1978b: 27) explicitly relied on the fact that they are not needed as truthmakers for disjunctive and negative truths respectively.

Consider the following two inferences:

\[
\begin{align*}
& \frac{F_a}{(F \land G) a (\exists x (F x \land G x) \land x = a)} \\
& \frac{F_a}{F (a \land b) (\exists \phi (\phi a \land \phi b) \land \phi = F)}
\end{align*}
\]

While (1) is clearly universally valid, we feel some hesitation to grant (2) for any \( F \): it does not follow from the facts that some elephant, Susi, is small and that some mouse, Tom, is small that there is one property Susi and Tom both have. In some cases, however, the inference is legitimate — in these cases, there has to be an explanation for this and the explanation of the validity of valid identity inferences, as I argued in sect. (4.1.3), is that the preservation of truth is underwritten by the identity and hence the existence of some entity: There must be something in virtue of which the two particulars \( a \) and \( b \) resemble each other.

One might think, with Campbell (1990: 33), that the Goodman problems arise only because we chose the wrong particulars for our resemblance classes: if, instead of complex particulars that can resemble each other in various respects, we had chosen tropes, could we not easily have identified coextensive resemblance classes and imperfect communities? Unfortunately, the answer is no: first, tropes can resemble each other in various ways by themselves having (exactly resembling) higher-order tropes; second, they can resemble in ways that are not accounted for by further tropes, by inhering in the same substance, for example; third, we can only claim that, say, the bamboo-eater tropes and the panda-tropes are different if the two properties are different; but if the properties in turn are identified with classes of exactly resembling tropes, then we end up saying that the two classes of tropes are different because they are different, which does not solve the coextension problem but just declares ex cathedra that it does not arise.

### 7.1.2 How things are

We postulate universals in order to have a sparse theory of properties. We want such a theory to be sparse in order to demarcate ‘unified’ particulars from gerrymandered ones, rabbits and the fusion of my nose and the Eiffel tower from all these indefinitely many parts and fusions of our ‘elite’ objects we have never taken care to think about. Essentialist Realists deny that the latter are particulars and claim that all particulars are (Aristotelian) substances. Even if Essentialist Realism denies unrestricted

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11 Lewis (1983b: 20) and Lewis (1992: 203) have emphasised this in particular.

12 Armstrong (1978b: 62) argues against a doctrine he calls “Essentialist Realist” that it seems superfluous and gratuitous to require that a particular, in order to be, e.g., an electron, not only has to exemplify all properties making up the (complex) property of being an electron but also a ‘super-universal’ being an electron. All Armstrong accepts is the following principle of particularisation: For each particular, there exists at least one monadic universal which makes that particular just one, and not more than one, instance of a certain sort. Each particular exemplifies at least one “particularising universal”, as he calls such monadic properties (Armstrong 1978b: 64). He tentatively identifies the required property with having a certain spatio-temporal
composition, there is something right about it. What is right can be stated in terms of natures: Some particulars are by (their) nature(s) more eligible referents than others; some co-exemplifications of properties give better demarcated, more ‘substantial’ particulars than others. We can thus now explain why many people have found it difficult to accept arbitrary fusions). What seems dubious to them is precisely the existence of wholes (almost) all of whose properties can be ascribed to proper parts of them.

It is perhaps useful to speak of ‘thick’ and ‘thin’ natures. The nature of a particular rabbit, e.g., is thick: it is in virtue of being that particular rabbit (having its nature) that a certain entity stands in a huge amount of causal and spatio-temporal relations. The nature of the fusion of my nose and the Eiffel tower, on the other hand, is comparatively thin (though thicker than many other natures): the causal powers bestowed by it dissipate into those bestowed by being my nose on my nose and those bestowed by being the Eiffel tower on the Eiffel tower. By the sole fact that that there is a fusion of their natures, the fusion of my nose and the Eiffel tower does not gain any causal power not attributable to one of its two components. This example gives us a way to deal with gerrymandered objects in general: by having parts that have ‘thick’ natures, mereologically composite objects have (mereologically) composite natures. What accounts for the thinness of gerrymandered fusions is the fact that little is lost in accounting for them by properties of the form having an F part. Whether a mereological fusion is more or less ‘unified’, depends on that fusion’s capacity for joint action and thereby on those of its properties that cannot be ascribed to proper parts of it.

Recall our definitions of upward and downward specific properties. Like sensitivity to rearrangement of parts, anomoecomerosity is an objective, substantial second-order property which is independent of our ways of counting things and the available stock of predicates. There is, however, a strong connection between natures and particularising properties: the former are the ontological basis for the latter. By the above mentioned relational ‘totality’ property, natures are structural: they yield an unambiguous answer to the question whether a particular (as compared to its parts or to a whole containing it) is one instance of it. If F is the nature of a, it could not have been a property of any proper part of a. F could neither have been the nature of a ⊕ b, for the latter will have properties (e.g., being composed of an a and a b part) a lacks. It not even could have been a property of a ⊕ b, as it includes a ‘totality’ property with respect to a which a ⊕ b lacks. Natures are maximally specific.

We can now explain why some properties are particularising while others are not. Being a rabbit, e.g., is (strongly) particularising because it is specific and because there are laws (of physics, biology etc.) entailing that it can only be part of ‘thick’ natures that contain a bunch of other specific properties. Being a litre of water is (weakly) particularising because it is (relatively) specific (and it is only weakly particularising because there are no such laws). Being watery, however, is not particularising simply because it is unspecific. Natures thus provide all the unity we need to explain the fact that some but not other properties are particularising and thus do the work of Aristotle’s ‘substantial forms’.

pattern. This will not do, however. We have already seen that things in certain respects (qua-objects) can differ from each other. Armstrong (1978a: 120-121) calls such things “abstract particulars” and admits that two wholly distinct (and therefore dissimilar) (abstract) particulars can occupy the same spatio-temporal position. Natures, however, can do the job if really “it is probable that every object in the universe differs in its properties from everything else.” (Armstrong 1983: 14) and it is therefore contingently true that indiscernibles are identical.

It could, speculatively, be argued that this comparative notion of compositeness depends on the causal powers of the totality property: that a rabbit is not, e.g., a carnivore, seems to explain more about the particular rabbit than its not being a carnivore about the fusion of that rabbit and my nose.

Armstrong (1978a: 138) calls a property strongly particularising if it divides its exemplifications, yielding nothing but discrete, non-overlapping particulars. It is weakly particularising if it is particularising but not particularising strongly.

As it has been explicated by Scaltsas (1990: 588) as follows: “The difference between substantial forms and relations is that a substantial form unites elements into a whole by tying their identity to the identity of the whole, while a relation leaves the identity of the relata intact.”
7.2 Universals and their kind(s)

“Wir werden die bei den Logikern beliebten Ausdrücke “Subject” und “Prädikat” ganz vermeiden, zumal dadurch nicht nur Wiedererkennungen erschwert, sondern auch vorhandene Unterschiede verdeckt werden. Statt der Grammatik blindlings zu folgen, sollte der Logiker vielmehr seine Aufgabe darin sehen, uns von den Fesseln der Sprache zu befreien.”

(Frege 1897: 153)

7.2.1 What universals essentially are

Ramsey’s question — how can it be that all of \((\lambda x(x Rb))a\), \((\lambda y(y Rx))b\) and \((\lambda x, y(x Ry))(a, b)\) are the same proposition, given that they have different components? (Ramsey 1925: 14,406) — may now be given an ontological answer: the three sentences express indeed the same proposition in the sense that they have the same truth-conditions; they differ, however, in being about different things, the first one being about \(a\), the second about \(b\) and the third about their pair. “Wisdom-characterises(Socrates)” is about Socrates, but not about wisdom, while “characterises(Socrates,Wisdom)” is about wisdom, but not Socrates, while “characterises(Socrates,wisdom)” is about both. If the sentences are understood purely classificatory, this difference does not show up: all three of them classify \((a, b)\) as being \(R\)-interrelated (in this order). Interpreted as property-ascriptions, however, the sentences differ radically: what it takes to \(R\) \(b\) may be very different from what it takes to be \(R\) \(d\) by \(a\). If this does not show up in the respective formalisations, so much the worse for them.\(^{17}\)

The exemplification relation by itself, then, does not seem to hold much prospect for a non-circular demarcation of universals and particulars: we understand it as the relation that holds between a particular \(a\) and a universal \(F\) which holds iff \(a\) is \(F\) — it seems that not much more can be said at this point. Another road is still open to us, however: Apart from taking recourse to the exemplification relation, universals and particulars might also be distinguished by their overall metaphysical properties.

A first idea, what MacBride (1999: 489) calls the “spatial conception”, would be to characterise properties by their recurrence, i.e. to say that something is a particular iff it cannot wholly exist at two distinct places at the same time.\(^{18}\) This view, as Lowe (2002: 348–350) has noted, faces several grave difficulties. If time-travel is possible, then a particular may exist at different places at the same time — and we should not rule out time-travel just because it would turn particulars into universals. The criterion proposed is not sufficient neither, for there may well be universals which cannot be said to exist in space and time at all (or are at least not necessarily spatio-temporally located) or which are necessarily exemplified just once.

A second attempt might be to argue that universals, but not particulars, are wholly qualitative, in the sense that the following principle of identity of indiscernibles holds of them: \(^{19}\)

21 (Identity of Indiscernibles). \(\not x\) and \(y\) are indiscernible, then they are identical.

With respect to particulars, (21) is a substantive metaphysical principle which may well fail to be

\(^{17}\)There is not yet to my knowledge, a satisfying way of formalising differences in relational properties stemming from the same relation (this is shown, e.g., by recent discussions of so-called “Cambridge changes”). Dunn (1987) has made some promising first steps, but on the whole the attitude of (Church 1958: 1011) still seems justified: “...common sense holds that a man who does not love at one time and does love at a later time has become or changed; but if somebody at one time does not love him and later does love him, he has not therefore necessarily changed. [...] But there is not presently available a sound and adequate logic which maintains this ordinary-language distinction between the subject and the object of a verb.”

\(^{18}\)This is one way of interpreting Aristotle (Int. 1739y 40).

\(^{19}\)This view has been explicitly endorsed by Sellars (1948: 301), Armstrong (1978b: 110) and Armstrong (1980b: 106) and seems implicit in many conceptions of universals.
necessarily true. For universals, however, (21) seems definitionally true, at least if resemblance among universals (as between, e.g., two colours) is analysed as partial identity, as Armstrong (1997: 50) would have it. Appearances, however, may mislead us: The problem with this second attempt is precisely that there is a plausible view taking identity of properties across possible worlds to be primitive and attributing to them individual essences or quiddities. Such quiddities would play the role haecceities play for particulars and we would again have a symmetrical situation.

A third approach would point out that universals, unlike to particulars, are ontologically dependent entities. This would follow if they were construed along an Aristotelian, de re, model which makes the following true:

22 (Exemplification requirement). All universals are exemplified.

David Armstrong, the prime defender of realism about universals, has taken (22) to legitimate the acceptance of universals. Universals, on this conception, are one-sidedly and generically dependent for their existence (ontologically dependent) on the particulars exemplifying them: to exist for them (at some time in some world) is for them to be exemplified by some particular (at this time in that world). Particulars, on a traditional conception of them, enjoy a greater degree of independence: they do not depend on (the existence of) their properties but rather anchor them in reality. The problem with this view, again, is that it may be plausibly contested: if bare particulars are metaphysically impossible, symmetry is restored again.

Let us take stock. We seem to have arrived at a negative conclusion: as soon as we have accepted universals in our ontology as ontological underpinnings of the semantic role of predicates, we seem to have lost particulars. There does not seem to be a non-question-begging way of drawing the distinction between universals and particulars.

It is instructive, however, to review the reasons for our subsequent failure to draw the distinction. They fall into three groups: a distinction based purely on logical grammar falls prey to canonical rephrasability; distinctions based on an asymmetry of the exemplification relation do not answer to our explanatory needs; distinctions based on general metaphysical characteristics presuppose substantive theories as to what universals are. Ramsey’s worry, it is to be recalled, was not that we do not know what universals are. It is the metaphysicists’ job to tell us that. It was rather, whether we are justified in presupposing that we know what we are wondering about when we wonder what universals are. What we need, then, is a basic metaphysical distinction, sufficiently independent from particular theories of what universals are, that constrains rephrasability and makes exemplification asymmetric.

Before embarking on our search for such a distinction, however, we have to get clearer about what we are looking for.

In sct. 4.2.2 (pp. 84 et seq.), we disambiguated Ramsey’s argument and proposed an answer to the version attacking the intelligibility of a metaphysical distinction between particulars and kinds. Let us now turn to the version of Ramsey’s argument where “...is wise” is converted into a singular term designating a property and not a kind. Does it undermine the distinction between particulars and

20 This is how Williams (1986), as reported by Campbell (1990: 44) drew the particular/universal distinction.

21 Cf.: “Different universals cannot resemble exactly, because if they did, then they would be the same universal.” (Armstrong 1997: 50)

22 Although Armstrong’s argument for (22) used to be naturalism, the conceptualist language in his more recent work suggests a more robust ontological rationale: “An unsaturated entity is naturally seen as a mere abstraction from actual states of affairs, saved from being a vicious abstraction only because there are always saturating particulars.” (Armstrong 1997: 38)

23 In the case of properties had essentially by some particulars, this needs to be qualified. But one might still hold that the dependence of a particular on one if its essential properties is not a dependence on its existence, but rather a dependence on the fact of exemplifying it. For more on this, cf. below 152.
properties? In this section, I want to argue that it does not, for there is a metaphysical asymmetry in the exemplification relation.

I want to provide such an argument for a metaphysical asymmetry between the property of exemplifying $F$ (which is the property of being $F$) and the second-level property of being exemplified by $a$ which consists in the fact that the second, but not the first, is always had essentially when it is had at all. We therefore have a straightforward metaphysical difference between the two sentences Ramsey claims to be equivalent: to say of Socrates that he is wise is to attribute to him a property he has (or had) accidentally, whereas to say of the property of being wise that it characterises Socrates (or, as Dummett would have it, that it is what Socrates is, where both occurrences of “is” occur predicatively), is to characterise what it is for something to be that very property, i.e. to specify it by its essence. This claim is plausible if Socrates’ wisdom is a non-repeatable unit property or trope, but I think it can be made plausible also for multiply exemplifiable universals.

This asymmetric existential dependence, if it existed, would explain the metaphysical findings above. First, it builds into the very notion of a universal the possibility of multiple occurrence, for it allows for a definition of universals as things that are part of more than one world. Second, it gives us a conceptual handle on the problem of quiddities. Contra Black (2000: 92), it just does not make any sense to talk of ‘taking cross-world identity of properties as primitive’: properties are already stretched out across different possible worlds. The quiddity of a property, its individual essence, lies in what qualitative character the property bestows on particulars exemplifying it: it is for this reason that there is a possible world with the same exemplification pattern than ours except that one of the quark colours has been swapped for one of the flavours (Lewis 1986d: 162). Third, it explains the exemplification requirement (22). Even if it is impossible that there are bare particulars, this does not follow from what it takes to be a particular. (22), on the other hand, holds only in virtue of what universals are.

The modal distinction between having $F$ as a property and being a property of $a$ and the distinction between kinds and properties allow us also to reinterpret Ramsey’s grammatical findings. We saw that, if “wisdom” in “wisdom characterises Socrates” (23 on p. 84) stands for a kind, then Ramsey’s argument does not undermine the predicable/non-predicable distinction for kinds are not themselves predicable. If “wisdom”, on the other hand, stands for the property being wise (23), it says indeed of it that it is a property of Socrates: we are partially specifying what it takes to be wise and saying that being Socrates is sufficient for it. This, however, is not a claim about Socrates, but about another property, that of being Socrates. The specification of what it is to be wise in (23) characterises the property by its exemplifications and hence predicates a property of it that it has essentially, contrary to (22) where we attribute to Socrates a property he has accidentally. In neither of both cases, then, do we have a sentence which “assert[s] the same fact and express[es] the same proposition” as “Socrates is wise”.

Ramsey tries to make us think symmetrically of particulars and universals. Instead of conceiving properties as ways of grouping individuals, as we normally do, he asks us to consider particulars as ways of grouping properties. If universals depend for what they are on the particulars that exemplify them, we are justified in declining the invitation: for we are then justified in holding that universals have what might be called ‘a qualitative character’, i.e. are more than just ways of grouping particulars.

Where does this proposal leave us with respect to the exemplification relation? Can we consistently claim that $a$’s exemplifying $F$ and $F$’s being exemplified by $a$, though made true by the same things

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24 This is also why the identity of universals implies at least necessary coextensiveness of the corresponding naming predicates. The mere possibility that a universal could fail to apply to a particular which is, in fact, red, suffices to show that the universal in question is not being red.
and necessarily co-occurring, radically differ in metaphysical status, the first ascribing a property to a, the latter (partially) specifying what it takes to be F? Luckily we can, for we are not obliged to construe exemplifying F and being exemplified by a as converses, i.e. as being both derived from the same basic relation by respective de-relativeisation. Instead, we would better take exemplification to be an asymmetrical "neutral relation", i.e. as a relation which, though it is asymmetric, does not hold of its arguments in any specifiable order (Fine 2000: 3).

The claim is not, as the remarks about kinds and properties should have made clear, that the grammatical form of the sentence decides a specific reading. We may thus happily agree with Ramsey that "which sentence ["Socrates is wise" or "Wisdom is a characteristic of Socrates"] we use is a matter either of literary style, or of the point of view from which we approach the fact." (Ramsey 1925: 12,404) and add that in both cases we may intend the classificatory or the 'what it takes' reading. What is metaphysically important is rather the fact that the two 'points of view' differ, or can made to differ under suitable regimentation. Given that we are able to distinguish two different metaphysical roles for singular and predicate terms to play, linking them with grammatical places leaves us with a merely epistemological problem, familiar from other cases.

Albert Casullo (1984: 535) has argued that Russell's argument in Logic and Knowledge that spatio-temporal relations cannot individuate at best establishes an epistemological thesis, namely that we cannot know that a relation is asymmetrical independently from knowing that the two connected items are non-identical. In order to show that such a relation might still individuate its terms, Casullo draws an instructive parallel to the identification of places and times. We identify objects by the places they occupy at times and these places and times in turn by the objects which occupy them. If object identification is not to be circular, therefore, there has to be some object which can be identified directly, without appealing to its spatio-temporal location. The typical choice is oneself or one's body.

In the same way, and with equal right, it seems to me, I may take it for granted that I am not a universal, thereby solving the epistemological problem by fiat, after the metaphysical obstacles have been put out of the way.

### 7.2 Kinds

Properties have to be sharply distinguished from kinds. Kinds classify things by what they are, while properties characterise how they are. In this section, we have to enquire further into the nature of kinds, distinguish them from properties and discuss their relations to tokens and tropes.

Many different types of sentences of natural language require kinds as semantic values. Some examples, given in sct. 1, include "Dogs are four-legged", "Red is a colour", "the Tiger moved from Africa to Asia" and "the Apple-Blossom is the state flower of Michigan". None of these is true of properties. Another type of irreducible reference to kinds is with predicates measuring the distribution of instances, such as "rare" and "extinct" in sentences like "Gold / This kind of material is rare" (cf. Moltmann 2003: 459). These show also that reference to kinds cannot be paraphrased away as plural reference to instances of kinds.

Kinds are related to properties, however: to say of John that he is of the kind man is to say that he is a man, i.e. exemplifies the property being a man. As it will be argued later (cf. sct. 7.3.1), however, kinds and properties differ markedly in higher semantic types. To see this, note that it is a different

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25If we take quantifiable variables as our paradigm singular terms for 'logical subjects', we can even go the Quinean way and claim that "when we schematize a sentence in the predicative way "F a," or "a is an F," our recognition of an "a" part and an "F" part turns strictly on our use of variables of quantification; the "a" represents a part of the sentence that stands where a quantifiable variable could stand, and the "F" represents the rest." Quine (1969a: 99)
thing to say of something that it is a colour than to say of something (different) that it is red. In the first case, we say *what* the thing in question is, namely a colour. In the second, we specify *how* the thing is, without necessarily attributing a type.

Kinds are Aristotle’s ‘secondary substances’ such as *humanity* or *man*. Following D.W. Baxter (2001a), I conceive of kinds as something like classes, though with a membership relation construed non-extensionally in terms of the accompanying property. Kinds and properties are therefore closely interrelated: as I said, to be a member of the kind *man*, something has to exemplify the property *being human*.

We may say that *being a colour* is a second-degree property, a property of properties, while *being red* is a first-degree property, a property of particulars. The thesis under consideration claims that second-degree properties do not exist, though there are kinds of second and any higher degree. *Being coloured* is a first-degree property, though one had in virtue of the kind of some properties had by particulars exemplifying it. Using a useful distinction from Bigelow (1993: 94), we will say that it is a second-order property of its exemplifications. The thesis to be defended in sect. 7.3.1 then claims that kinds may be of different semantic types and hence of different degrees while properties are always of first degree (but may be of higher orders, if they derive from kinds of higher types).

### 7.3 Determinable, higher-order and hypothetical properties

“It is, then, a hypothesis well worth examining, that what unifies the class of universals which constitute the class of lengths is a series of partial identities holding between the members of the class.”

(Armstrong 1978b: 121)

I have defended a truthmaker argument to the effect that there is more than just particulars and that objective facts of resemblance are in need of an ontological ground (7.1). I then argued that universals, distinguished by their essence from particulars, are up for this task, while facts, kinds, states of affairs and tropes are not (7.2). I now have to address the question what universals there are. My answer will be that all universals are of first degree (7.3.1) and categorial, but that some of them are determinable (7.3.2). In the next chapters, I will further argue that they are always exemplified intrinsically (ch. 8) and monadically (ch. 9).

#### 7.3.1 First- and higher-degree properties

Recall the following distinction from sect. 7.2.2: *Being a colour* is a second-degree property, a property of properties, while *being red* is a first-degree property, a property of particulars. The thesis I want to defend in this section claims that there are no second-degree properties, though there are kinds of second and any higher degree. *Being coloured* is a first-degree property, though one had in virtue of the kind instantiated by some properties had by particulars exemplifying it. We will say that it is a second-order property of its exemplifications. Second-order properties, of course, do exist, but they are not basic: they are exemplified in virtue of other properties, and the condition they impose on their exemplifying particulars is derived from the kinds these other properties instantiate. Second-order properties are not basic because they do not bestow anything on their particulars, over and above what is bestowed on them by the first-order properties they exemplify. The thesis I am going to defend, then, is that kinds may be of different semantic types and hence of different degrees while properties are always of first degree (but may be of higher orders, if they derive from kinds of higher types).
If properties have properties and properties are parts, properties have properties as parts. Is this plausible? Armstrong thinks it is:

“It is, then, a hypothesis well worth examining, that what unifies the class of universals which constitute the class of lengths is a series of partial identities holding between the members of the class.” (Armstrong 1978b: 121)

We have to distinguish carefully between two different cases: properties can entail other properties (whatever we mean by that) and properties may exemplify properties. Second-degree properties of the second kind give rise to entailment relations: Everything red is coloured, because being a colour is exemplified by being red and being coloured is the second-order reduct of being a colour. Properties of properties are, according to the proposal under examination, parts of them, but not any part of a property is a property of it. Following Chisholm (1982: 143), we can distinguish between three types of relations between properties: F implies G iff whenever F is exemplified, G is exemplified; F includes G iff whatever exemplifies F exemplifies G. F involves G iff whoever conceives F conceives G.

Chisholm (1982: 145) goes on to defend the claim that two properties are identical iff they mutually include and involve each other. Inclusion is plausibly identified with parthood: whenever it is the case that, for all possibilia x, if Fx then Gx, then G is part of F. Implication is a special case of inclusion: F implies G iff any world which exemplifies having an F part exemplifies having a G part, i.e. iff being a world with an F part includes having a G part. If F and G are the same property, they must at least be necessarily coextensive, that is they must include each other, i.e. have the same parts. Mutual inclusion alone is not enough, for we do not want to identify any pair of necessarily coextensive properties. What more is required? Their parts must be arranged in the same way. This becomes apparent if we remember that we are here using “inclusion” in the non-standard way defined by the fusion axiom: having the same parts may mean different things, if fusion is not associative. Property identity includes such structural features: the component properties of the fusions have to stand in the same relations to each other.

We may now generalise our account to second-degree properties. Although the definition of Lewis & Langton (1998) does not give us this result, it seems intuitively that all second-degree properties are intrinsic to the first-degree properties that exemplify them: how could two duplicate properties differ? Properties, after all, are purely qualitative. The exemplification requirement (22, cf. p. 151), however, seems to render properties of properties extrinsic. Given the immanence requirement, however, appearances mislead us. Although nothing can have the property being a colour without there being a particular exemplifying a particular colour property, the colour property and the particular will, given that properties are somehow ‘in’ their particulars (the Aristotelian conception), not be wholly distinct from the second-degree property. My contention that second-degree properties are intrinsic rests on the claim that being a property of a is intrinsic to any of a’s properties. If there were different duplicate properties, say F and F’, it seems plausible to suppose that duplicate particulars would differ with respect to them, i.e. that there are duplicates a and a’ differing only in that a is F and not F’ and

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26 Being one half meter in length is, if Armstrong (1978b: 122) is right, part of being less than one meter in length. Any property of a is part of a’s nature; there are, however, properties which are exemplified only by a, not by its nature.

27 This account allows for gradual distinctions between (mere) implication and inclusion, depending on how big we choose the entities mentioned in the specialisation of “F includes G”.

28 This is especially plausible in cases where the necessity in question is ‘weak’, e.g. physical or biological necessity, as it is in the case of Quine’s famous examples having a heart and having kidneys.

29 Lewis & Langton (1998: 127) claim that being a universal and being a state of affairs will come out extrinsic under their definition.
I have assumed that being a property of a is a property. This has to be justified. Obviously, being a property of a is a ‘one over many’, for it is shared by all of a’s properties. By being exemplified, it bestows ‘mediate’ causal power on the properties exemplifying it. Is it unduly “impure”, making reference to a? I do not think so. Being exemplified by a is to be part of a’s nature. a’s nature does not, ontologically speaking, depend specifically on a: it may persist even when a is destroyed (for its persistence conditions depend on those of its component which may still satisfy (22)). Any second-degree property is exemplified wherever its first-degree property is; if the first-degree property is not impure, then neither is its second-degree property.

Every second-degree property gives rise to a second-order property. Suppose G is a property of F, which is exemplified by a (GF ∧ Fa). Then a has the second-order property having a property which is G: (∀X (GX ∧ Xa)) a. It has it intrinsically iff the relevant property X is intrinsic. How do second-degree and corresponding second-order properties relate to each other? As in the case of F and having an, F part. I think they are, ontologically speaking, identical, even though ascribed to different things. Second-degree properties of a’s nature thus do not have to be treated separately: we can safely subsume them under a’s intrinsic nature, where the latter is understood as to include intrinsic second-order properties as well.32

7.3.2 Determine and determinable properties

Could the world be vague? Could at least some vagueness be neither epistemic nor linguistic, but genuinely metaphysical? Many have thought this absurd. In this section, I would like to defend the coherence of metaphysical vagueness in three parts: I first characterise vagueness as a subkind of a more general phenomenon, the determinate-determinable pattern of exemplification determination. I then argue for the conceivability of non-wellfounded determination, i.e. the gunkiness of property space in the absence of lowest determinates. Finally, I argue that infinite descending determination chains give us a plausible model for metaphysical vagueness if combined with plausible assumptions about ontology.

If full-haired Tom looses one hair after the other, he will become a borderline case of baldness before he becomes a clear one. Even before his hair loss, however, it is vague how many hairs are part of Tom — the person who has just one hair less has an equal, or almost equal, claim to be him. This appraisal of vagueness is usually combined with the acceptance of ‘penumbral connections’ or framework principles. Whether or not Tom is bald, he is at least either bald or not bald; whichever of the candidates is Tom, at most one of them is. It is equally combined with the postulation of a spectrum of degrees of precision: “roughly bald” is vaguer than “bald” which in turn is vaguer than “clearly bald”.

30Suppose not: then ¬F ∧ F’ (or, equivalently, F ∨ F’) is intrinsic. But how can it be a matter of how a thing is all by itself to exemplify only one but not the other of two duplicate properties?

31By this I mean the following: If F would not be a property of a, it would not bestow any causal powers on a. So it bestows those powers it bestows on a only by exemplifying being a property of a.

32What second-degree properties are there? Armstrong (1978b: 138) defends (tentatively) what he calls the “Formalist Principle” which denies the existence of any topic-specific or material second-degree property. His argument, in effect, is that it cannot, in principle, be experimentally tested whether a second-degree property bestows a unique and characteristic set of causal powers on particulars (Armstrong 1978b: 140). Such verificationist qualms, however, do not fit easily with Armstrong’s scientific realism.
7.3 Determinable, higher-order and hypothetical properties

These two additional features of the central explanandum are reflected differently in the two main theories of vagueness on the market, which characterise vagueness as arising from linguistic indecision and unknowability of sharp boundaries respectively. Linguistic indecision fits well with the spectrum of vagueness exhibited by “roughly bald”, “bald” and “clearly bald”, aligning them with increasingly strong restrictions on admissible precisifications. It fits less well with so-called infinite higher-order vagueness (the absence of completely precise precisifications) and with framework principles. To explain how the latter arise from our linguistic practices, linguists have to postulate some social mechanism that prevents people from being undecided in their use of logical vocabulary. The situation is reversed with epistemicism: it fits well with higher-order vagueness, postulating unknowable cut-off points out of reach for semantic precisifications, and penumbral connections: while we may never be able to know whether Tom is bald, at least we know that he’s either bald or not bald; it gives a less plausible – or, at least, an incomplete – account, however, of the variation of vagueness among “roughly bald”, “bald” and “clearly bald”: in the presence of “vagueifiers” like “roughly”, at least some vagueness clearly seems linguistic.

The third main contender, metaphysical conceptions of vagueness, fits well with both explananda: if vagueness is in the world, ‘precisification’ is a relative concept: no absolute precisification is ever to be achieved. We can hence easily explain higher-order vagueness and we can – once a workable notion of ‘blurry boundaries’ is at our disposal – explain how linguistic practice can contribute to the blurring of boundaries. Despite these advantages, metaphysical vagueness has not found many friends on the contemporary scene. Many think the very idea is incoherent, and most of the others think it is metaphysically impossible. In this section, I try to develop a somewhat more sympathetic account of it, focussing less on the thorny issues of vague objects or vague identity with which it is ordinarily associated, and more on the metaphysical possibility that there are no lowest determinates.

When is a predicate F vague? When there are borderline cases of Fs, i.e. things which are neither determinately F nor determinately ¬F. If there are borderline cases of Fs, there are – or, at least in principle, could be – precisifications of the predicate “F” which either determinately apply or determinately fail to apply to some of them. We find the same pattern with “red” and “light red”: “light red” determinately does not apply to some borderline cases of “red”. It determines “red” not just with respect to the core of its application, but also with respect to its penumbra. At least in this sense, vague predicates are thus a subkind of predicates standing for determinables.

Determinables and determinates are kinds (and their associated properties) that stand in some type of determination relation. The determinable colour, for example, is determined by the determinate red, which in turn is determined by the (lower) determinate light red, which is just to say that “light red” is a precisification of “red”. The co-exemplification of determinables makes for less resemblance than the co-exemplification of any particular of their determinates, and they qualify their exemplifications less determinately.

While we may stay relatively uncommitted with respect to the analysis of the nature of determinables, one of their characteristics will be of particular importance. The determinate/determinable structure exhibits what we may call, somewhat tendentiously, “penumbral connections”: each determinate, e.g., falls immediately under exactly one determinable (Johnson 1921: xxxv) and non-immediately under many more, and no two determinates of the same determinable can be exempli-

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33 Whether or not we want to call “red” a precisification of “coloured” is another matter, but of not much more than terminological interest.

34 Cf. “A determinable is a natural kind with a more relaxed resemblance standard than the determinates falling under it.” (Campbell 1990: 83)

35 In most of the current literature, they are identified with disjunctions of their determinates (cf. e.g. Rodríguez-Pereyra 2002: 49), but this has obvious problems pointed out e.g. by Prior (1949) (cf. also Sanford 2002).
fied by the same thing at the same time (Johnson 1921: 183). Determinates of different determinables may be linked, however. In this case, we distinguish different ‘dimensions’ in which determinables may be determined. Colors vary according to hue, saturation and brightness, and these variations are independent of one another. If hue, saturation, and brightness are determinables, they are not separate, since they depend on each other. There cannot be saturation without hue, for example, even though no determination of saturation requires any particular determination of hue. Johnson says that the determinable color is “single, though complex, in the sense that the several constituent characters upon whose variations its variability depends are inseparable” (Johnson 1921: 183).

Determinates are related to their determinables by a relation of determination. In cases of vagueness, it is neither definitely true nor definitely false that some determinate stands in this relation to a given determinable. With respect to a borderline case of redness, e.g., we may say that its colour (assuming it for the moment to be precise) is neither determinately a case of redness nor determinately is not. Linguists will say that we ordinarily do not care: we assign determinates to determinables only to a certain depth, so to say; and use predicates for determinable properties as applying to their clear cases, leaving their application conditions in the penumbra underspecified. Epistemicists, on the other hand, will maintain that there is a fact of the matter, unknown to us, whether or not the colour we are talking about is a shade of red or not. Familiar options in the theory of vagueness thus find easily their counterparts in the theory of determinables and determinates. But what about metaphysical vagueness?

It is an at least prima facie plausible option to give a robust construal of (some) determinables, i.e. let them do some truthmaking job. It is not altogether implausible to maintain, e.g., that the truthmaker of “Sam is red” is that Sam exemplifies the determinable property being red. This position is forced upon truthmaker maximalists (who thinks that every truth has a truthmaker) if there are no lowest determinates. The claim that there are lowest determinates (or infima species, as they used to be called) is a substantive metaphysical “postulate”, even if perhaps “universally adopted”:

“The practical impossibility of literally determinate characterization must be contrasted with the universally adopted postulate that the characters of things which we can only characterize more or less indeterminately, are, in actual fact, absolutely determinate” (Johnson 1921: 183).

The claim that the existence of lowest determinates is conceptually or metaphysically necessary has been made, but it remains very controversial. I claim that if there are predicates standing for properties plausibly interpreted as exhibiting a determinate/determinable structure and there are no lowest determinates (of these determinables), then we have a case of metaphysical vagueness. To the extent the antecedent is plausible, then, we have reason to think that metaphysical vagueness is at least not incoherent.

How are we to think of determinables without lowest determinates? Recent advances in the philosophy of space-time provide us with a model: if we think of the qualitative characteristics of (actual and possible) things as locations within a property-space with as many dimensions as they are respects of independent variation between properties, and think of the determination relation as topological inclusion with respect to that space, then the hypothesis that (for some determinable) there are no lowest determinates is modelled by the gunkiness of (some part of) property space. A (region of) space is gunky if every part of it has proper parts. The gunkiness of ordinary space-time is a respectable scientific (Bohm 1957: 139) and metaphysical hypothesis (Schaffer 2003). There is no antecedent reason to assume that property space is necessarily non-gunky.

36 Most notably by Armstrong (1961: 59), who already claimed in his refutations of phenomenalism that “it makes no sense to say that a physical object is light-blue in colour, but is no definite shade of light blue” (cf. also Armstrong 1997b: 118)
The mere possibility of gunky property space provides support for an ‘horizontal’ rather than ‘diagonal’ account of truthmaking. In the same way the possibility of gunky space-time forces us to reinterpret spatial and temporal notions on the basis of regions and intervals rather than points and instants, gunky property-space should lead the truthmaker maximalist to reproduce the determinate/determinable structure on the side of truthmakers: rather than saying that “this is red” is (uniquely, as it were) made true by (the exemplification of) some lowest-level determinate, the friend of truthmakers should say that it is made true by (the exemplification of) the determinable property being red, and then analyse this latter as ontologically complex, the components of which may also have some truthmaking rôle to play.

Gunky property space does not entail vagueness: the gunky parts might never span across some property divide. If they do, however, we will have an infinite descending chain of determinates right where the border between two determinable properties would lie. Suppose, for illustration, that the region between (clear cases of) red and (clear cases of blue) in property space is gunky. Regions clearly within the core of the red will then only have parts that clearly determine red; but things stand differently in the penumbra. Within the penumbra, the following situation may occur: every part (determinate of descending levels) neither is clearly determined by one of the higher-level determinables, neither clearly determined by the other. For each determinate lying in the penumbra between two determinables has itself determinates that lie within this penumbra. Even if we say that each determinate either is or is not determined by one of the two determinables, we do not get to any lowest level – we have a case of unsharpenable vagueness which seems to be of an ontological sort.

Penumbral connections are preserved, albeit as level-relative. It is true of each particular determinate and each particular determinable that the determination relation either holds between them or does not hold between them. No problem with excluded middle or bivalence here. The spectrum of vagueness among predicates is equally explained: while there is no cut-off line between the determinates of every level (in the sense that each determinate is in the penumbra), there are inclusion relations between determinates of different levels. Do we not have here an example of infinite higher-order (or rather lower-order) ontological vagueness?
Chapter 8

Intrinsicness

8.1 Intrinsicness as exemplification independence

“If we know what shape is, we know that it is a property, not a relation.”

(Lewis 1986d: 203)

An intrinsic property, intuitively, is a property that a thing has in virtue of the way it is in itself. Clear and simple as the notion seems at first blush, it has turned out to be surprisingly difficult to define an extensionally adequate and philosophically fruitful notion of intrinsicness. I will show how this intuition first became fleshed out in the work of Jaegwon Kim and how Kim’s account was criticised by David Lewis who subsequently proposed three different accounts of intrinsicness. In the following two sections, I will discuss some objections and test the predictive success of Lewis’ definition by showing how well it accommodates alleged counterexamples. Finally I will identify the main shortcoming of Lewis’ most recent redefinition and its predecessors: the existing definitions do not allow us to capture the intuitively basic and philosophically fundamental conceptual connection between intrinsicness and ordinary parthood. Properties had by a thing in virtue of the way it is in itself include properties it has in virtue of having such-and-such parts. Whenever conversely some thing is part of another thing, there is a region of intrinsic match shared by both. Building on ideas of Stephen Yablo, I will try to remedy this proposal.

Here are a number of intuitions: an intrinsic property is a property a thing $a$ has in virtue of the way it is in itself; the world outside $a$ cannot influence $a$’s having its intrinsic properties; the fact that $a$ either has or lacks the property in question is a fact just about $a$ alone; intrinsic properties are those that characterise things directly, not via their relations to other things: they are local and internal and do not depend on what is going on outside $a$. Helping ourselves to the notion of a duplicate, a perfect copy of some thing $a$ distinguishable from $a$ only by its relations to other things, we can characterise an intrinsic property of $a$ as a property had by all the duplicates of $a$. The duplicates of $a$, on the other hand, are just those particulars that share their intrinsic properties with $a$.

This, however, is just a start: we would like to have a criterion for intrinsicness which gives us these results. Jaegwon Kim (1982: 59–60, 184), building on Chisholm (1976: 127), qualifies a property as intrinsic iff it is compatible with loneliness, i.e. can be had by a something that is unaccompanied by any wholly distinct contingently existing thing. Lewis (1983a) remarked that this definition falsely classifies being lonely as intrinsic. Another problem has been pointed out by Dunn (1990a: 182): every logical truth $p$ will determine an intrinsic property being such that $p$. Lewis (1983b: 26) then defined intrinsic properties as those invariant among duplicates where duplication is the sharing of all natural
properties.¹ Here is Lewis’ first proposal:

Definition 23 (Lewis₁-intrinsicness). $F$ is intrinsic iff for all $x$ and $y$, $\nabla x$ and $y$ have the same natural properties, then $F^x$ iff $F^y$.²

Def. 23 classifies all and only those properties as intrinsic that supervene on the natural properties, whatever these are, thereby characterising all natural properties as intrinsic ex officio.

Lewis (1986d: 60) kept the account of duplication as the sharing of all natural properties and tentatively suggested that the natural properties could be characterised as a minimal supervenience base for any properties whatsoever. The definition of Lewis₁-intrinsicness therefore has the drawback that all natural properties come out intrinsic ex officio,³ whereas it seems up to total science to decide whether some extrinsic properties are natural (Yablo 1999: 480). Philip Bricker (1993: 288–289) has argued that general relativity commits us to extrinsic perfectly natural properties of points, namely their local metric. Armstrong (1978b: 78–79), for one, admits extrinsic universals. Another pack of problem pertains to the characterisation of natural properties as minimal supervenience base.⁴

The most important reason, however, to be dissatisfied with Lewis₁-intrinsicness is its appeal to natural properties to define duplication. Even if naturalness and intrinsicness are two different notions, the two are too closely related to shed much light on each other.

In 1998, David Lewis and Rae Langton made a fresh attempt to break into the interdefinability circle of intrinsic properties and duplication. Starting with a most liberal notion of properties (such that any class of possibilia is or defines a property),⁵ they define the basic intrinsic among the pure, i.e. qualitative properties as those that are independent of accompaniment and loneliness, i.e. can be had and lacked by an accompanied thing and had and lacked by a lonely thing, and which are neither disjunctive nor negations of a disjunctive property (Lewis & Langton 1998: 121). Something is accompanied if it does not coexist with a contingent wholly distinct thing and it is lonely if it coexists only with its proper parts (if it has any). A property is disjunctive iff it can be expressed by a disjunctive predicate but is not natural and much less natural than either of its disjuncts. It is co-disjunctive iff it can be expressed by the negation of such a disjunctive predicate. Two (actual or merely possible) things are duplicates iff they have the same basic intrinsic properties. This makes duplication an equivalence relation. A property is intrinsic iff it supervenes on the basic intrinsic properties. We have Lewis’ second proposal:

Definition 24 (Lewis₂-intrinsicness). A property $F$ is intrinsic iff for all $x$ and $y$, $\nabla x$ and $y$ have the same pure, non-disjunctive and non-co-disjunctive properties independent of accompaniment, then $F^x$ iff $F^y$.

If we assume that every accompanied thing has a lonely duplicate and every lonely thing has an

¹Lewis classifies them as “perfectly natural”. As we do not yet have any use for the comparative notion, we choose the shorter term for the moment.

²The quantifier used in def. 23 is, of course, possibilist. Sider (1996a: 8–10) sharply criticised Dunn (1990a) of having misinterpreted the account of Lewis (1986b) by formalising it with actualist quantifiers (Dunn in fact only proposed schemata). I think, however, that Sider interprets Dunn rather uncharitably, for being a duplicate of $b$ (where this is taken to be a relational property (cf. Dunn 1990a: 203, n. 7) – which Dunn accuses Lewis of classifying falsely as intrinsic, – would not, come out as intrinsic on the Lewis-interpretation Sider attributes to Dunn, where the duplicates are required to be world-mates. “Having the same natural properties” should be understood as abbreviating “having the same natural properties and standing in the same natural relations”.

³This is explicitly acknowledged by Lewis (1983b: 28) and Lewis & Langton (1998: 131).

⁴As Sider (1996a: 22–23) remarked, there is no reason to assume that there is a uniquely determined minimal supervenience base, for supervenience is preserved by automorphisms that negate some or all of the subvening properties or exchange them for their grue/bleen variants.

⁵In the following, I will understand “property” in this liberal sense. Whenever it matters, I will call them, following Humberstone (1996: 249), “properties.”
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accompanied duplicate, then every intrinsic property which is contingent, not disjunctive and not the

Lewis & Langton (1998) defined intrinsicness as a non-relational property of properties; intuitively,
however, an intrinsic property is a property which exclusively characterises the entities by which it
is exemplified. This feature may vary among the exemplifications of the property in question. It
therefore seems advisable to tentatively adopt the following local notion of intrinsicness, which takes
“intrinsic” not to be a second-order property, but a relation between properties and individuals:

Definition 25 (Local version of Lewis2-intrinsicness). A property is intrinsic to a i ff it does not differ
between duplicates of a.

Not any property intrinsic to some thing is intrinsic tout court. Being such that there is a cube, e.g., is
intrinsic to cubes, though certainly not intrinsic tout court. (Marshall & Parsons 2001: 349, n. 2). Prop-
erties intrinsic to a are closed under negation and conjunction (and hence disjunction).7 Properties
that are had by a and are intrinsic to a are had by a intrinsically. As Dunn (1990a: 18) urged, the class
of properties had by a intrinsically is closed under implication.8 Properties intrinsic to all particulars
or, equivalently, had intrinsically by all their exemplifications, are intrinsic tout court.9 We have the
following dual of our notion of local intrinsicness:

Definition 26 (Dual to Lewis2-intrinsicness). A property is extrinsic to a i ff it differs between duplicates
of a.

The class of properties extrinsic to a is closed under negation, but neither under disjunction nor
conjunction.10 The class of properties that a has extrinsically is closed under conjunction.11 A
(nonempty) property is extrinsic tout court, i f f it is extrinsic to (or, equivalently, had extrinsically by)
at least one particular.12 Purely extrinsic properties are properties extrinsic to all particulars.13

6It is not easy to come up with examples which do not prejudice some of the issues to be discussed later, e.g. whether
dispositional or impure properties may count as intrinsic. Some cube and a quantity of water of cubical shape, however, will
do, I think, for the roundness of the latter seems to be due to the recipient containing it and does not seem to me an intrinsic
property of the quantity of water. Dunn (1990a: 203, n. 6) mentions being such that Socrates is wise, as an intrinsic property
of Socrates, but not of Regan. Sider (1996a: 3) claims that being green or being 10 feet from some red thing is an intrinsic property
(only) of green objects.

7Proof: Let P be a property intrinsic to a. If ¬P would differ between duplicates of a, there were two duplicates of a, b
such that Pb and c such that ¬Pb. If two duplicates of a would differ in P ∨ Q (or in P ∧ Q), they had to differ in either P
or Q, which is impossible if P and Q are intrinsic to a.

8Proof: Let P a property that a has intrinsically. Assume ¬P → Q. Any duplicate of a has P and thus Q; so Q does not differ
between duplicates of a.

9Proof: A property P is intrinsic if it does not differ between duplicates, i.e. i f f ∃x, y(Dupl(x, y) → (Px → Py)). This
means that it is intrinsic to all particulars. Because duplication is symmetric, ∀x, y(Dupl(x, y) → (Px → Py)) is equivalent to
∀x, y(Dupl(x, y) → (P x ↔ P y)). By commuting antecedents, we get ∀x, y(P x → Dupl(x, y) → P y), which means that
P is had intrinsically by all its exemplifications (cf. Humberstone 1996: 228). If we imagine the realm of (actual and possible)
objects partitioned in duplication classes, an intrinsic property is one that does not divide any duplication class. Properties
intrinsic tout court are closed only under negation.

10Proof: If P differs between two duplicates of a, then clearly so does ¬P. Although P and Q differ between duplicates of
a, all duplicates could lack P ∧ Q and all duplicates could have P ∨ Q. Because the class of properties extrinsic to a is closed
under negation but not under disjunction, it cannot be closed under converse implication neither. Assume the contrary and let
P be extrinsic to a. Because ¬¬P ∧ ¬¬Q → ¬¬P and ¬¬P is extrinsic to a, so is ¬¬(¬P ∧ ¬Q) ≡ P ∨ Q.

11Proof: Let P and Q be properties had extrinsically by a. Then there is a duplicate, a′, of a that lacks P and hence also
lacks P ∧ Q.

12Proof: A property is extrinsic (%∃x, y(Dupl(x, y) → Px → Py)) i f f ∃x, y(Dupl(x, y) ∧ Px ∧ ¬Py), i.e. i f f it is extrinsic
to at least one particular.

13Such properties divide any duplication class (Lewis 1983b: 26, n. 16) and cannot be implied by a nonempty intrinsic property:
Suppose P is intrinsic and exemplified by a. If ⊨ P → Q, then Qa and there is a duplicate b of a such that ¬Qb (since Q is
extrinsic to a). But then ¬Pb, contradicting the assumption that P is intrinsic to a.
extrinsic properties are properties extrinsic to all their exemplifications.\footnote{They do not include any duplication class. Lewis (1983a: 113) calls them, rather unhappily, "unconditionally extrinsic". Positive extrinsic properties are conjunctions of purely extrinsic and intrinsic properties (Lewis 1983b: 26, n. 16). They are the properties that imply accompaniment.} Negative extrinsic properties are extrinsic to all their non-exemplifications.\footnote{They do not exclude any duplication class and are disjunctions of purely extrinsic and intrinsic properties (Lewis 1983b: 26, n. 16). They are all the properties implied by loneliness (Humberstone 1996: 230).} Properties that are both positive and negative extrinsic are purely extrinsic.

Basic intrinsicness of binary relations\footnote{For the purposes of this section, any class of tuples of possibilia will be called a "relation".} is defined in an entirely parallel way.\footnote{An ordered pair is accompanied iff it coexists with some contingent object wholly distinct from both relata. Otherwise, it is lonely. A relation is independent of accompaniment and loneliness iff it is possible that (1) an ordered pair is lonely and has it, (2) an ordered pair is accompanied and has it, (3) an ordered pair is lonely and has it, (4) an ordered pair is accompanied and has it. A pure relation is basic intrinsic iff it is independent of accompaniment and loneliness, not disjunctive and not a negation of disjunctive relation.} Two ordered pairs \((x, y)\) and \((x', y')\) are duplicate pairs iff \((x, y)\) and \((x', y')\) stand in the same basic intrinsic relations. A relation is intrinsic iff it does not differ between duplicate pairs. We can now distinguish further between internal and external relations.

**Definition 27** (Internal and external relations). A relation is internal iff it supervenes on the intrinsic (and hence the basic intrinsic) properties of its relata.\footnote{Lewis (1986d: 62) calls an internal relation "intrinsic to its relata" (cf also Lewis 1983b: 26, n. 16).} A relation is external iff it is intrinsic but not internal.\footnote{Lewis (1983b: 26, n. 16) calls such a property of relations "intrinsic to its pairs".} \footnote{Lewis & Langton (1998: 129) mention spatio-temporal distance relations as intrinsic relations which are not internal (supervening on the duplication of pairs but not on the duplication of the relata taken separately). Other examples of external relations arise if a fusion \(x \oplus y\) may have basic intrinsic properties \(F\) had by neither \(x\) nor \(y\). Any relation between the parts supervening on such properties of the whole (e.g., being such as to compose a fusion with property \(F\)) will be external.} \footnote{This presupposes that properties of the form having an \(F\) part are intrinsic for basic intrinsic properties \(F\), a claim I will defend below.} Lewis & Langton (1998: 130) prove that every internal relation is intrinsic and that it is possible that not every intrinsic relation is internal.\footnote{To have being the only round thing classified as extrinsic, e.g., they are committed to the claim that being accompanied by something round if round itself is "much less natural" than being accompanied by something round and round itself. This seems "uncomfortable" to Yablo (1999: 481). In order not to classify being such that there is a cube as intrinsic (as Marshall & Parsons (2001: 3) claim they do), they have to claim that being accompanied by a cube is less natural than being such that there is a cube.} An intrinsic relation \(R\) holding between \(a\) and \(b\) supervenes on the basic intrinsic properties of \(a\), \(b\) and \(a \oplus b\).\footnote{This does not presuppose any duplication class.} It is internal iff it supervenes on those of \(a\) and \(b\) alone. In the case of relations, we thus have a three-fold distinction between intrinsic internal, intrinsic external and extrinsic relations.

These definitions beautifully capture part of our pre-theoretic intuitions about things having some of their properties independently of what is going on around them and they have proved surprisingly resistant to a number of proposed counterexamples. In the following three sections, I will discuss some objections.

In order to apply disjunctiveness to properties (as opposed to predicates), Lewis and Langton help themselves to a primitive notion of naturalness: a property is disjunctive iff it can be expressed by a disjunction of natural properties but is not (or much less) a natural property than one of the properties expressed by a disjunct. In order to avoid classifying being either square and accompanied or red and lonely as intrinsic, e.g., we are invited to think it much less natural than either of its disjuncts. In other cases, their verdicts of comparative naturalness have seemed contrived to many.\footnote{This claim they do.}
Lewis (2001c: 387) proposes a less permissive criterion for ‘bad disjunctions’ (properties expressed by disjunctive predicates which are not intrinsic): a property is (badly) disjunctive iff it is equivalent to a disjunction such that each disjunct is more natural (not: much more natural) than the whole disjunction. He also makes a new attempt to characterise bad disjunctions directly, thereby cutting down his reliance on contentious judgements of comparative naturalness. The new definition runs as follows and Lewis’ third proposal:

**Definition 28** (Lewis³-intrinsicness). A property \( P \) is intrinsic iff (i) \( P \) is independent of accompaniment, (ii) \( P \) is at least as natural as \((P \land \text{being accompanied})\), (iii) \( P \) is at least as natural as \((P \land \text{being lonely})\), (iv) \( \neg P \) is at least as natural as \((\neg P \land \text{being accompanied})\), (v) \( \neg P \) is at least as natural as \((\neg P \land \text{being lonely})\).

As the new approach no longer defines intrinsicness via duplication, no straightforward local analogue of def. 28 comes to mind. The notion of naturalness not only restricts the scope of the definition, as it did in def. 24, but directly applies at the level of predicates. As we will see at the beginning of sct. 8.3, however, Lewis thinks of naturalness in terms of duplicate classes being more or less ‘unified’. This gives us a way out:

**Definition 29** (Local version of Lewis³-intrinsicness). A property \( P \) is intrinsic to \( a \) iff (i) \( P \) is bad and lacked both by lonely and accompanied counterparts of \( a \), (ii) the class of all \( a \)-counterparts which have \( P \) is at least as unified as its subclass of accompanied \( a \)-counterparts which have \( P \), (iii) the class of all \( a \)-counterparts which have \( P \) is at least as unified as its subclass of lonely \( a \)-counterparts which lack \( P \), (iv) the class of all \( a \)-counterparts which lack \( P \) is at least as unified as its subclass of accompanied \( \neg P \)-counterparts of \( a \), (v) the class of all \( a \)-counterparts which lack \( P \) is at least as unified as its subclass of accompanied \( \neg P \)-counterparts of \( a \).

Given that there are enough counterparts, condition (i) means that neither the conjunction of all the essential properties of \( a \) with being lonely nor their conjunction with being accompanied implies either \( P \) or \( \neg P \).

Def. 28 is a specialisation of the “general independence principle” defended by Weatherson (2001: 371): if \( F \) and \( G \) are intrinsic, then they are not only independent of accompaniment, but equally independent of \( F \)- and \( G \)-accompaniment respectively. If we take, following Lewis (2001c: 383), the general independence principle to be a necessary condition on intrinsicness, being such that there is a cube, can be excluded from the class of intrinsic properties by imposing closure under negation (Weatherson 2001: 373): not being such that there is a cube, or, equivalently, being neither a cube nor accompanied by a cube, cannot be exemplified by something accompanied by another thing exemplifying being such that there is a cube.

Lewis (2001c), however, points out two problems with the generalisation which are avoided in the special case of def. 28. One is that the application of the independence principle presupposes that we already know that some properties are intrinsic; the other one is that it will depend on our starting basis whether or not we will capture all intrinsic properties. Weatherson's general independence principle thus plays a role analogous to the recombination principle in Lewis' modal realism: it does

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And indeed they do: "...it seems to us (i) that being accompanied by a cube is less natural than being a cube, and (ii) that being either a cube or accompanied by a cube is less natural still by a disjunction." (Lewis & Langton 2000: 354).

23As before, this means that it is possible to be lonely (coexisting only with its proper parts) and have it, to be lonely and lack it, to be accompanied and have it and to be accompanied and lack it.

24For the sake of simplicity, I will here in this chapter call “essential” a property of \( a \) that is shared by all its counterparts. The requirement that there be “enough” counterparts means that whenever \( P \) is had or lacked by some possible thing \( b \) having \( a \)'s essential properties, \( a \) has a counterpart which also has or lacks \( P \) and shares its degree of accompaniment with \( b \).

25\( F \) is independent of \( G \)-accompaniment iff all of the following are possible: (i) some \( F \) is lonely, (ii) some \( \neg F \) is lonely, (iii) some \( F \) is accompanied by a \( G \), (iv) some \( \neg F \) is accompanied by a \( G \), (v) some \( F \) is accompanied but not by a \( G \), (vi) some \( \neg F \) is accompanied but not by a \( G \).
not tell us what the entities in question are, nor does it pick out paradigms, but instead it imposes a closure condition on the class of entities in question.

Two further consequences of the Lewis\textsubscript{3}’-definition may be noted. Presupposing Lewis’ doctrine of temporal parts, it classifies all properties as extrinsic that imply the existence of some thing at some other time than the one at which they are exemplified. It therefore supplants the original definitions of “\textit{t-intrinsicness}” by Chisholm (1976: 127) and Kim (1982: 59–60,184), which were the target of Lewis (1983a):

**Definition 30** (Chisholm-\textit{t-intrinsicness}). $F$ is \textit{t-intrinsic} iff possibly, there is an object, $x$ and a time, $t$ such that, $F$ of $x$ at $t$ though $x$ only exists at $t$.$^{26}$

\textit{t-intrinsic} properties, in short, are properties which can be exemplified by instantaneous objects.$^{27}$ Kim’s definition is a straightforward transposition from the temporal to the spatial case:

**Definition 31** (Kim-\textit{intrinsicness}). $F$ is intrinsic iff it is \textit{t-intrinsic} and, possibly, there is an object, $x$ such that, $F$ of $x$ though $x$ exists without there being any other contingent object wholly distinct from $x$.

Plugging in Lewis’ doctrine of temporal parts, we get the account of intrinsicness as compatibility with loneliness criticised by Lewis (1983a) for counting \textit{being lonely} as intrinsic: the condition that the property in question is \textit{t-intrinsic} (“not rooted outside times at which it is had”), however, is with us from the start. In cases where we consider some temporal parts essential, this may give us counterintuitive results.$^{28}$ Suppose, e.g., that a certain football match essentially lasts 90 minutes. If the first half therefore essentially belongs to the match and if the second has some intrinsic properties (e.g. \textit{being played by only 10 players of team A}), then this cannot be (or give rise to) an intrinsic of the whole match.$^{29}$

This is not much of a problem for Lewis: We may either think that the objects in question overlap (which seems a very natural way to go) or deny the subtraction principle for essential temporal parts, i.e. not accept all parts of an essentially temporally interconnected whole as entities. So we have a very natural trade-off between intrinsicness and ontological independence, which will be further exploited in sect. 8.3.

Another consequence is that both the Lewis\textsubscript{2} and the Lewis\textsubscript{3} definitions deal inadequately with parthood properties.

If we accept the subtraction principle, i.e. that, if $a$ is a proper part of $b$, then they have a mereological difference (the common part of all things overlapping $b$ but not overlapping $a$ exists), properties only had by proper parts of something (as, e.g., is a proper part of an $F$) are not compatible with loneliness and hence extrinsic, independently of where $F$ falls on the intrinsic/extrinsic divide. This is a result we may well wish to avoid.

It is interesting to note in this respect that Vallentyne’s diagnosis of the problem cases, extrinsic disjunctive properties independent of accompaniment, differs from that of Lewis and Langton:

“The problem […] is that [the definition of Kim-intrinsicness] is formulated in terms of logical independence (compatibility), and this fails to capture the relevant notion of

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\textsuperscript{26}I am substituting “\textit{t-intrinsic}” for “is not rooted outside times at which it is had”.

\textsuperscript{27}Haslanger (1989: ?!) defines a related notion for intrinsicness for properties of the form $\textit{being F at t}$ which she takes to be relational: $\textit{being F at t}$ is intrinsic to $a$ iff whether or not $a$ has it depends only on $a$ at $t$.

\textsuperscript{28}We will have to come back to these questions in our discussion of Yablo’s essential extrinsics in sect. 8.2.

\textsuperscript{29}By “giving rise to”, I want to draw attention to the fact that $\textit{being played by only 10 players of team A in its second half}$ differs from $\textit{being played by only 10 players of team A}$ only by a “purely grammatical” transformation as it were, though they are had by different things.
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independence. [...] It fails to capture the idea that an object can cease to be the only red object in the world by the “mere addition” of a red object to the world.” (Vallentyne 1997: 211)

Vallentyne (1997: 212) thus proposes to classify those properties as intrinsic that are such that neither they nor their negations would be lost if their exemplifications were inhabitants of a maximally contracted world (a world as small as possible while still containing the exemplifying particular):

**Definition 32** (Vallentyne—intrinsicness). \( F \) is intrinsic iff for any world \( w \), time \( t \) and object \( x \), iff \( Fx \) (\( \neg Fx \)) at \( t \) in \( w \), then \( Fx (\neg Fx) \) in each \( x - t \) contraction of \( w \), where \( an.x - t \) contraction of \( w \) is a world intrinsically identical to \( w \) but with all times other than \( t \), all places not occupied by \( x \), all things other than \( a x \) and all laws of nature removed.

Taking “contraction” seriously, Vallentyne in effect identifies intrinsic properties as those that are shared between a thing and the (mereologically) smallest intrinsic duplicate of that thing. Lewis & Langton (1998: 132) have shown that what they take to be the essence of Vallentyne’s definition, that a property is intrinsic iff it never differs between a thing and a lonely duplicate of that thing, is equivalent to their own definition, provided that we assume that every thing has a lonely duplicate.\(^{30}\) In interpreting “smallest” as “lonely”, however, they classify, on behalf of Vallentyne, every cross-border relational properties (properties relating things to space–time regions not occupied by them) as extrinsic.

Impure properties, i.e. properties making essential reference to particulars, were excluded from candidates to Lewis—intrinsicness from the start: As Sider (1996a: 20) has remarked, only purely qualitative properties have a chance of supervening on the natural ones. In the two later definitions, Lewis & Langton (1998: 118) and Lewis (2001c: 382, n. 6) make it clear that they restrict intrinsicness to purely qualitative properties, on account of the fact that impure properties cannot be shared between counterparts nor (perhaps a fortiori) between duplicates. All of Lewis, Langton and Lewis/Langton acknowledge, however, that there seem to be intrinsic impure properties like having Howard’s nose as a part. (Lewis & Langton 1998: 118), being shaped like the Eiffel tower (Langton 1998: 39) or structural properties of the form having an \( F \) part. (Lewis 1986d: 62) or being such that my legs are longer than my nose. (Wasserman 2003: 4).

On what grounds, then, is the restriction to be justified? At first sight, the notion of impurity in play here seems to be the following:

**Definition 33.** A property \( P \) is impure iff for all \( a \), it differs between counterparts of \( a \).

Unfortunately, def. 33 will not do, for any property that is had non-essentially by some thing will differ between counterparts of that thing. The characterisation of pure or “wholly qualitative” properties as those that “can be shared between counterparts” seems to involve us with intricate problems concerning iterated modalities. We could try to avoid these by settling for a stronger criterion:

**Definition 34.** A property \( P \) of \( a \) is impure iff no counterpart of \( a \) has it.

The problem with def. 34 is that it only works properly in combination with the doctrine of world-bound individuals, the claim that no two counterparts of one thing are world-mates, and also with a (modally) strictly referential reading of the proper names contained in the predicates which should come out, according to def. 34, as expressing impure properties. The normal, counterpart-theoretic analysis of a sentence like “it is possible that Lewis does not live in Princeton” is that there is a possible

\(^{30}\)This assumption is of some importance for the definition of supervenience, as we have seen in footnote 10 on p. 48.
world in which there exist a counterpart of Lewis and a counterpart of the city of Princeton such that the first does not live in the second (Lewis 1968). If the properties living in Princeton, living in the same city than Lewis and living in a house belonging to the same owner than the one in which Lewis lived in Princeton. are to come out impure under def. 34, however, the properties counterparts are said to lack are not the properties living in a counterpart of the city of Princeton. etc. The properties in question, in other words, come out impure only if they are construed “haecceistically” from the outset, i.e. as distinguishing between counterparts. The problem is that not all intuitively impure properties admit of such a construal: being a duplicate of a is falsely classified as pure by (34), as is having the same intrinsic nature than a.

The problem, then, is that a notion of impurity along the lines of def. 34 applies to properties we may wish to classify as intrinsic. This brings us to another advantage of Vallentyne-intrinsicness over Lewis, namely that of evading the objection of Dunn (1990a: 184) already mentioned above, that being such that Socrates is wise and being such that Socrates is wise or not wise come out Lewis\textsuperscript{1}-intrinsic, if they are not disqualified for impurity\textsuperscript{33}

Let us note the most important consequence of the restriction to pure properties: the definitions considered so far rest silent on what Humberstone (1996: 241) calls “part-directed relations”:

**Definition 35.** A relation, R is part-directed iff it can hold between an object and a part of that object.

The criterion of invariance among intrinsic duplicates gives results which are hardly justifiable when applied to relational properties which involve part-directed relations: having a part with intrinsic property F, e.g., comes out intrinsic if (but only if) duplication requires duplication of parts, though having a as a part, does not come out intrinsic on any account of duplication.

Another unfortunate consequence of the restriction to pure properties has been noted by Dunn (1990a: 186), Sider (1996: 4), Humberstone (1996: 240) and Yablo (1999: 487): the theory is unable to account for intrinsic identity properties of the form being a. While such properties are neither intrinsic nor extrinsic according to the Lewis\textsuperscript{2} and Lewis\textsuperscript{3} definitions, they are Lewis\textsuperscript{1}-extrinsic, for a will have duplicates not sharing it. On Vallentyne’s account, however, all identity properties come out intrinsic, as well as all locational properties on an absolutist conception of time and space (Vallentyne 1997: 215).\textsuperscript{33} Weatherson has argued that such properties are correctly classified as extrinsic:

“One reason for this restriction [to pure properties] is that if there are any impure intrinsic properties, such as being John Malkovich, they will not have the combinatorial features distinctive of pure intrinsic properties. If F is a pure intrinsic property then there can be two wholly distinct things in a world that are F. [...] However, it is impossible to have wholly distinct things in the same world such that each is John Malkovich.” (Weatherson 2001: 367)

Weatherson’s example is not particularly well chosen: for is not the world portrayed in the film, where John Malkovichs abound, a possible world (and if not, where is the hidden contradiction)? Weath-

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\textsuperscript{31}This problem is not solved by a definition of intrinsicness as purity, where relations to proper parts are allowed, as it has been proposed by Francescotti (1999). We will discuss later, in sect. 9.2.1, how a notion of impurity might be defined for properties.

\textsuperscript{32}The former is only compatible with loneliness if it is construed rigidly, as depending on the wisdom of the actually existing Socrates. Contrary to Sider (1996a: 24, n. 20), I think that this problem is different from the problem of avoiding its being the case that properties such as being such that, p (for necessary p) come out intrinsic. Sider (1996a: 10–11), without much argument, claims that the necessary and the impossible property come out intrinsic under at least one acceptable notion of intrinsicness.

\textsuperscript{33}Yablo’s solution to the latter problem is to claim that, on an absolutist or substantivalist conception of space-time, space-time points are entities which therefore can be either added or removed from worlds (Yablo 1999: 503, n. 19).
ersson's contentious claim does not, all by itself, follow from the “independence platitude” he characterizes as follows (Weatherson 2001: 370) and of which Lewis’ and Langton’s notion of independence from accompaniment is a precisification:

**Definition 36** (Weatherson-intrinsicness). *A property $F$ is intrinsic iff for all $a$, whether $a$ is $F$ is independent of whether the rest of the world is $H$, i.e. whether $a$ is $F$ is entirely determined by the way $a$ itself, and nothing else, is, and whether the rest of the world is $H$ is determined by how it, and not $a$, is.*

If follows from this that whether or not an intrinsic property is exemplified should not depend on how many other things in that world have some other intrinsic property:

"...if $F$ and $G$ are intrinsic properties that are somewhere instantiated [exemplified] then, for any $n$ such that there is a world with $n + 1$ things, there is a world constituted by exactly $n + 1$ pairwise distinct things, one of which is $F$, and the other $n$ of which are all $G.$" (Weatherson 2001: 371)

It is clear from this formulation how closely Weatherson-intrinsicness is tied up with combinatorialism about possible worlds. We will discuss, in sct. 8.3, another way of making this connection fruitful.

### 8.2 Intrinsicness as containment

We saw that parthood properties are misclassified by the Lewis$_2$-definition, but come out as Vallentyne-intrinsic. There is a refinement of Vallentyne’s definition by Stephen Yablo which is not equivalent to the Lewis/Langton definition. Yablo (1999: 482) proposes the following definition:

**Definition 37** (Yablo$_2$-intrinsicness). *A property $F$ is intrinsic to $a$ iff it cannot be lost or gained by adding a part to the world containing $a$.*

Assuming the left-to-right direction to be uncontroversial, Yablo argues for the converse from the assumption that every part of a world can exist independently and that worlds may overlap if they do not differ intrinsically. Yablo’s def. 37 improves on Vallentyne’s def. 32 by not making appeal to intrinsic identity between worlds. It presupposes instead that different possible worlds overlap — without, however, running into Lewis’ notorious arguments against overlap (Lewis 1986d: sct. 4.2), for there is no intrinsic variation in the overlapping part.

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34"Constituted by exactly $n + 1$ pairwise distinct things" means that every contingent thing existing in the world in question is a fusion of parts of some of these $n + 1$ things (Weatherson 2001: 371).

35More precisely, his argument runs as follows:
1. Suppose $F$ is extrinsic.
2. $F$ can be lost through intrinsic variation in the outside world.
3. There are worlds $w$ and $w'$ such that $a$ is $F$ in $w$, $a$ is not $F$ in $w'$ and $w'$ differs from $w$ only outside $a$.
4. There is a world $w''$ which is the part that $w$ and $w'$ have in common.
5. If $a$ is $F$ in $w''$, then itlooses $F$ by adding $w' \setminus w''$.
6. If $a$ is not $F$ in $w''$, then it gains $F$ by adding $w' \setminus w''$.

It is clear that the crucial step is from (3) to (4).

36Vallentyne does not say that the worlds have to be intrinsic duplicates but he has to and indeed comes close to say it in so many words: "...one world is a contraction of a second world just in case it is *exactly like* it, except that the first has some objects in it that the second doesn’t." (Vallentyne 1997: 211) "Exactly alike" here has to mean "alike in all intrinsic respects".
Properties of a which a cannot loose come out intrinsic to a under def. 37 (Yablo 1999: 486). If we are, as Vallentyne is, interested in a global classification of properties (as opposed to properties as exemplified by some given particular), this problem arises only for properties which cannot be lost by any of their exemplifications (absolutely essential properties, in Yablo’s terminology). For def. 32 claims that a property is intrinsic iff it is invariant under every contraction. If a essentially has the extrinsic property F but some other entity b has F non-essentially, then F comes out extrinsic on account of its being lost under a contraction with respect to b (Vallentyne 1997: 216). Obviously, this only works for properties which are not such that every object either has or lacks them essentially. With respect to these remaining cases, Vallentyne is prepared to bite the bullet:

“...a universally essential property is such that either it, or its negation is “metaphysically glued” to every single object. If there are past-directed, or future-directed, universally essential properties, then times are not as independent as we intuitively think. For in that case, an object’s existence at one time metaphysically requires that the object have certain features at another time.” (Vallentyne 1997: 217)

Yablo, on the other hand, wants to be able to incorporate the alleged “Kripkean data” that there are absolutely essential, but extrinsic properties like being descended from a particular zygote, z, being human, or (because it implies the other two on a Kripkean essentialist theory) being a. Such properties are classified as intrinsic by his def. 37.

They are also classified as Lewis$_1$-intrinsic: if we take essential properties, as seems plausible in a Ludivician framework, to be properties invariant among counterparts, and assume that every duplicate of a is also a counterpart, there are no essential Lewis$_1$-extrinsics. Perhaps we could weaken that assumption, claiming only that everything has a duplicate which has a lonely counterpart. We will have to come back to the question whether there are any essential extrinsic properties in

As Yablo notes, if we accept uniqueness of composition and assume that every thing is the unique sum of “intrinsically natured atoms”, i.e. mereologically atomic entities $x_i$ which have their natures being $x_i$ intrinsically, there will not be any essential extrinsic properties. If, on the other hand, there are any, then some identity property being identical to a will come out extrinsic. The problem then is that, for an extrinsic property F as essential to a and had by it in w, the entity lacking F in another world differing from w by intrinsic variation outside a will not be a and thus not be available as witness of F’s extrinsiness. This is why Yablo undertakes the difficult project of providing us with a substitute: his candidate is basically the aggregate of all atoms which are parts of a:

**Definition 38 (Yablo$_2$-intrinsicness).** A property F is intrinsic to a iff, for every expansion, w’ of the very world w of a, F a in w iff F a’ in w’, where a’ is whatever is constituted in w’ by the a-portion of w.

More specifically, the a-portion of w is the compound of atoms of w that constitutes a, i.e. that coincides with a (has the same parts than a) and is such that all its essential parts have parts which are not essential to a and such that every part essential to a has parts that are essential to it.

If a’, which is constituted by this compound, fails to have the property F, F is extrinsic but may still be essential. A further complication arises from the fact that Yablo allows for different composition operations, differing in their modal existence conditions. If we require in def. 38 that every a’ which is constituted in w’ by the a-portion of w be G, we get a notion of intrinsicness which implies invariance among coincidents in the same world: for F to be intrinsic, it has to be impossible that F distinguishes coincidents in the same world. If we assume, with Yablo, that hypothetical properties do exactly that and that there are enough coincidents to witness the hypotheticality of hypothetical properties, all intrinsic properties have to be categorical. On a weaker construal of “whatever” in def. 37 or on
different assumptions about the number of individuals or the nature of hypothetical properties, this conclusion does not follow and we can allow for intrinsic and hypothetical properties.

Though I share with Yablo the belief that intrinsicallyness is intimately tied up with part/whole, I do not think that his account in terms of constitution and coincidence captures that link. Constitution and coincidence, however construed, are relations between material objects, while part/whole and intrinsicallyness have a far larger realm of application. This can also be brought out by considering a further objection, which applies to all accounts of intrinsicallyness available in the literature.

The problem arises from the fact that we are able to understand and to make sense of a non-spatio-temporal sense of ‘containment’. Imagine the following account of the familiar puzzle of material constitution: the statue and the lump of matter both exist, are different and do not share any parts. The statue, David, essentially has a certain form: nothing could be David without being, say, David-shaped. The lump of matter, on the other hand, also has this form, but it does not have it essentially. In addition, the lump of matter’s having this particular form is all it takes for David to exist. Clearly, such a position is possible; the problem is that all accounts of intrinsicallyness discussed so far will classify the lump’s property being David-shaped as extrinsic on such an account.

As the lump’s property being David-shaped is not independent of accompaniment (whenever the lump has it, David exists), it is classified as Lewis_{2}^{2}, Lewis_{3}^{3}, Kim- and Weatherson-extrinsic, as well as as Valentyne-extrinsic. Whether or not it counts as Yablo-intrinsic, depends on what we understand by a “adding a part to the world containing a” in def. 37. If we interpret it, as seems natural and is entailed by def. 38, as implying “adding things that do not overlap with a”, then being David-shaped will be extrinsic as well on this account.

But, plainly, this is the wrong result. The problem, then, is that the adequacy of our explications of intrinsicallyness depends on ruling out an a priori not too implausible position in the philosophy of material constitution. So we have to dig deeper.

Theodore Sider (2001b) has criticised the Lewis/Langton 1998 definition from yet another angle, namely for falsely classifying maximal properties as intrinsic. A property \( F \) is maximal if, roughly, large parts of an \( F \) are not themselves \( F \). More generally, a property \( F \) is border-sensitive if whether it is exemplified by \( a \) depends on what is going on, intrinsically outside \( a \) at its borders (Sider 2001b: 358). Sider claims that many familiar properties, such as being a house, or being a rock, are maximal.\(^{37}\)

If being a rock is maximal it has intrinsic duplicates which fail to be rocks because they are parts of rocks. So being a rock is extrinsic. As it is independent of accompaniment, however, Lewis has to claim that it is disjunctive, which does not seem very plausible. He is, however, prepared to bite the bullet (Lewis 2001c: 382), even though this rules out one of the construals of naturalness of Taylor (1993) (the one which equates naturality with familiarity) among whose Lewis & Langton (1998: 119–120) wanted to stay neutral. The Lewis_{3}^{3}-definition fares a little better: it allows us to count being a rock as extrinsic not in virtue of its being the property expressed by the the negation of the supposedly “bad” disjunction being not intrinsically rock-like or else intrinsically rock-like but embedded in some more inclusive rock-like thing but because being a rock and being lonely is more natural than being a rock—the former applying to all and only intrinsically rock-like lonely things, the latter not applying to things that are not rocks but would be rocks if they were not embedded within rocks.

Another objection, which applies also to Lewis’ new account, has been put forward by John Hawthorne

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\(^{37}\)Sider’s criticism presupposes one of the two solutions Lewis (1993) gives to the so-called “problem of the many”. Despite all the intrinsically cat-like, but non-overlapping and hence non-identical aggregates on the mat, only one of them is a cat. This can be either be taken, on a supervaluationist treatment, to be a conceptual truth restriction acceptable precisifications of the vague term “cat”; alternatively, we can loosen our strict notion of identity and count the cats as one in virtue of their being almost identical.
8. Intrinsicness

(2001). Take any binary relation $R$ which may hold between a thing and one of its proper parts (which is “part-directed” in the sense def. 39) and consider its existential derivative $\lambda x (\exists y (x R y))$. This property is independent of accompaniment — so it either fails the tests of comparative naturalness of def. 28 or else is Lewis,’ intrinsic. If there are perfectly natural relations $R$ the existential derivative of which are independent of accompaniment, however, it is very hard to see how $\lambda x (\exists y (x R y))$ could be more natural than or even as natural as $\lambda x (\exists y (x R y \land x \text{ is accompanied}))$ (Hawthorne 2001: 401). So any such property standing in, $R$ to something will come out intrinsic — which, again, seems the intuitively wrong result.

Intuitively, intrinsicness is closely bound up with parthood. A property is intrinsic iff it is entirely a matter of how a thing is by itself whether the thing has or lacks it. In all Lewis’ definitions, “how a thing is by itself” is translated into “how a thing would be if it were lonely”. This transition, however, is far from being mandatory: Another possible way to spell out the “by itself” clause, as Sider’s examples show, is to count those features of a thing as intrinsic which are determined by what goes on inside its borders, i.e. on how its parts are and in what relations they stand.

What parts a thing has equally is a matter of how a thing is by itself. And how a thing is by itself will depend on what parts it has. The dependence of intrinsicness and parthood is two-way: $x$ is part of $y$ iff there is a region of intrinsic match between $x$ and $y$. There is thus a strong presumption to have having an $F$ part count intrinsic with respect to a whole that has a part which has $F$ intrinsically — at least with respect to an explication of intrinsicness that preserves its connection with parthood. We already noted that Lewis’ definitions do not fall in this class. The construal of intrinsicness as interiority, as Humberstone (1996: 239) calls it, is however clearly present in Vallentyne, Yablo and Dunn.

A possible reason to underestimate the connection between intrinsicness and parthood lies in the confusion, lamented by (Humberstone 1996), between a property’s being impure and its being relational.

Impurity, as noted in def. 8.1, is a notion applying at the level of the specification. of properties, i.e. of predicates, while it is properties that are or are not relational (or extrinsic). Having $b$ as a part, typically, is an impure, but not a relational property of a thing.

How, then, could we have $a$’s property having an $F$ part (where $a$’s part in question is intrinsically $F$) come out intrinsic?

Lewis (1986d: 61) solved this problem by including an isomorphism condition into his definition of duplicates to allow for intrinsic structural properties: two things are duplicates iff they have the same basic intrinsic properties and there is an isomorphism between their parts preserving all their basic

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38As Hawthorne (2001: 403) notes, this result could be avoided by a notion of duplication that requires duplicating parts for duplication of wholes and preserves part/whole relationships. This option will be explored below.

39A similar point is made by Humberstone (1996: 229): “...the idea of an intrinsic property is the idea of a property a thing has in and of itself: but considering a thing in itself is not the same as supposing the thing to be by itself.”

40If $x$ is part of $y$, $x$ and a part of $y$ are indiscernible, hence share their intrinsic properties. This is mirrored by the fact that the intrinsic properties $F$ of $x$ can be ascribed ‘obliquely’ to $y$ under the form “has an $F$ part” — which denotes an intrinsic property if $F$ does.

41The last even helps himself to explicitly mereological terms: “Metaphysically, an intrinsic property of an object is a property that the object has by virtue of itself, depending on no other thing. Epistemologically, an intrinsic property would be a property that one could determine by inspection of the object itself — in particular, for a physical object, one would not have to look outside its region of space-time.” (Dunn 1990a: 178)

42This confusion is especially vivid in the case of Moore (1922a: 262) who classifies every difference in constitution as intrinsic.

43Though he uses a different terminology, this has been recognised by Sprigge (1983: 134). “They [some non-standard properties] are, at least in some sense, relational properties, though not, on the face of it, matters of the thing which possesses them being related to something ‘outside itself’. An example is the property of containing London, shared by England, Britain, the UK, etc.”
intrinsic properties and relations. On this account, then, **having an \( F \) part**, for a basic intrinsic property \( F \) of a part of \( a \), is classified as an intrinsic property of \( a \). If we keep the Lewisian definition of intrinsicness, we then have the following: If \( x \) and \( y \) are duplicates and \( x \) has a part \( z \) then \( y \) has a part which is a duplicate of \( z \). Although it saves the intrinsicness of **having an \( F \) part**, this principle seems false. Duplication of wholes does not require duplication of parts: some duplicates of a whole may compensate for a dissimilarity in one part by a dissimilarity in another.

In order to account for the intrinsicness of **having a as a part**, Humberstone advocated tightening the duplication relation:

“The duplication relation is not enough to preserve all interior properties, since the impure intrinsics are not guaranteed to be inherited by duplicates of objects possessing them.”

(Humberstone 1996: 242)

He therefore introduces the notion of ‘super-duplication’: \( a' \) is a super-duplicate of \( a \) iff \( a \) and \( a' \) are duplicates and any part of \( a \) has a (similarly located and qualitatively indiscernible) part of \( a' \) as its counterpart. The idea is that counterparthood heeds enough of extrinsic similarities to make a real difference to duplication (as hinted at in Lewis 1986d: 89). Humberstone recognises and acknowledges a major weakness of this proposal, i.e. that all properties of \( a \) which are shared by all its counterparts come out intrinsic. On a modal account of essence, a defender of the essentiality of origin would then have to claim that my being the offspring of a certain sperm and egg is an intrinsic property of mine.

Another weakness is that it goes too far: only some extrinsic similarities matter for the restriction of the relevant class of duplicates and we would like to capture which. These are those which make for intrinsic similarities of the wholes concerned, or, in other words, similarities with respect to structural properties.

What we need, then, is an account which classifies as intrinsic those properties of the form **having a \( F \) part** that arise from intrinsic properties of parts and structural properties of wholes that record internal relations among their parts. As Humberstone realised, in order to have properties of the form **having a \( F \) part** come out intrinsic for any \( F \) intrinsic to the relevant part \( b \) of \( a \), we have to make our counterpart relation structural. For \( a' \) to be a counterpart of \( a \), there has to be an isomorphism mapping any part \( b \) of \( a \) to a counterpart part \( b' \) of \( a' \). Such an isomorphism condition seems to me much more plausible if imposed on the counterpart rather than the duplication relation.

Let us, following Bricker (1993: 274), call a counterpart relation between \( a \) and \( b \) that preserves all natural properties and relations of \( a \) and its parts \( a \) \((a, b)\)-duplication relation. Such a \((a, b)\)-duplication relation between \( a \) and \( b \) gives us a relation between their parts which is stronger than mere duplication: in order for a part \( b' \) of \( b \) to be a \((a, b)\)-duplicate of a part \( a' \) of \( a \), \( b' \) does not only have to be a duplicate of \( a' \), but also be related to other parts of \( b \) in a way similar to how \( a' \) is related to the other parts of \( a \).

This, I think, allows us to capture the conceptual connection of intrinsicness with parthood in the following sense: structural properties which are intrinsic to wholes are preserved by \((a, b)\)-duplication;
although the intrinsic nature of a whole could be the result of parts with different intrinsic properties (the combination of respective the parts ‘cancelling out’ their intrinsic dissimilarity), any similarity between wholes must nevertheless be grounded in. similarities of their respective parts: the parts just have to be chosen coarse-grained enough. If two wholes $a$ and $b$ are similar in spite of the fact that their respective parts $a_1$ and $b_1$ (and $a_2$ and $b_2$) are dissimilar, but the dissimilarity of the respective pairs is cancelled out by their combination, the parts to consider are not $a_1$ and $a_2$ ($b_1$ and $b_2$ respectively), but $a_1 \oplus a_2$ (and $b_1 \oplus b_2$). Wholes having dissimilar parts are only dissimilar tout court if there is no such way of grouping their parts such that the dissimilarity is cancelled out in this way.

We could therefore be tempted to give a definition of intrinsicness along the lines proposed by Bricker (1993: 289) for “locality”:

**Definition 39.** A property $F$ is local iff for any $a$ and $b$, neighbourhoods $A$ of $a$ and $B$ of $b$, $F$ is a counterpart. of $A$ and $B$ is a counterpart of $a$, then $F(a)$ iff $F(b)$.

As with Yablo’s definition, the important drawback of this move is that it applies only to entities for which a contrast analogous to that between a material object and the spatio-temporal region it occupies makes sense.

Taking into account the close connection between intrinsicness and parthood also helps us to solve the problem raised by Sider. If there are maximal properties, this means that there is an ontological distinction to be drawn between what Achille Varzi (1997: 42) calls (topologically) “open” and “closed” entities, i.e. entities which include their boundaries and those that do not. Houses and rocks, if being a house and being a rock are maximal, are closed – the open counterparts of a house which are embedded in a larger house are not houses, for they lack (counterparts of) parts the original house had, namely its boundary.

So we get the intuitively right result by requiring duplication of parts for duplication of the whole. But how exactly is this to be done?

### 8.3 Intrinsicness as substantiality

In her attempt to reinterpret Kant’s notorious concept of noumenal causation as the thesis of epistemic humility, that we have no knowledge of the intrinsic properties of things, Rae Langton (1998) makes some interesting remarks about the interdefinability of intrinsicness and the concept of a substance. A substance, she thinks, is something which has an intrinsic properties – intrinsic properties are properties had by substances. In this last section of this chapter, I will try to turn this into a definition.

Dunn (1990b: 13) makes some interesting observations regarding these matters. The objection he considers is that Lewis’ intrinsic properties (and necessary properties on a counterpart-theoretic...
8.3 Intrinsicness as substantiality

The construal of trans-world identity will, intuitively, not classify as intrinsic, for they whether or not they are intrinsic (or, with necessary properties, exemplified) will “not depend upon a alone, but also on its counterparts [duplicates], and this would cancel out the thought that □F is intrinsic to a”. The obvious response is that what duplicates (or, to some extent at least, counterparts) there are of a in other worlds depends on a alone. Dunn remarks that this line of thought is easily adapted to temporal and spatial dimensions:

“...can it be an intrinsic property of an object that it always was, or always will be square?
One cannot tell by inspecting an object only here and now that this is the case. But if one understands the object to be a substance enduring as the same object over time, its having been square, or its going to be square, can both be viewed as intrinsic to the object itself, though perhaps not intrinsic to the object at this moment.” (Dunn 1990b: 13, n. 11)

Dunn’s insight in this passage is that the question what properties are intrinsic depends on what the bearers of the property in question are taken to be – i.e. in what dimensions they are extended. We readily accept spatially extended entities and therefore consider parthood properties as intrinsic. A defender of persistence by endurance might claim that, contra Kim, my property of having been shorter than one meter is an intrinsic property of mine: the temporal part in virtue of which I have it is nothing other than myself. Analogously, a defender of modal continuants, trans-world individuals stretching over different possible world will count my property of being possibly bent as intrinsic.

We saw that Yablo’s definition of intrinsicness presupposes world-overlap, though only overlap of intrinsically perfectly similar world-parts, thereby avoiding Lewis’ famous problem of accidental intrinsics. Assuming the existence of universals and the traditional conception that they are wholly present when and where they are exemplified, world overlap cannot be avoided anyway.50 But given universals, do we really need worlds overlapping in particulars? I think not.

In what way will our possible worlds overlap in virtue of universals? In just the way we need to define what it is for something to be a duplicate. Traditionally, a particular a is a substance if it is possible that a exists independently. What, however, is independent existence? When does a particular a in a world w exist independently of anything else? Whenever there is no other particular which exists in that world. For Lewis, as Humberstone (1996: 261, n. 28) has remarked, a lonely object is a possible world. Substances, in other words, are entities that are possibly worlds.

By means of a suggestive analogy, Lewis (2001c) tests his definition of Lewisian intrinsicness against judgements of intrinsic and purely extrinsic similarity:

“A property is a region in some sort of similarity space of actual and possible things. An unnatural property is like an irregularly shaped region of the plane: a continent with lots of promontories and inlets, or an archipelago. A natural property is like a regular region: a disk, a square, or a straight stripe (in the right sort of direction) across the entire plane.”

Lewis (2001c: 385-386)

The comparative naturalness of properties can then be visualised by its spread and scatter on a two-dimensional plane, where horizontal distance measures intrinsic and vertical distance measures purely extrinsic dissimilarity (Lewis 2001c: 390-395).

Because worlds, which I take to be maximal spatio-temporally interrelated wholes, are particulars, we can state our proposal thus:

50 This is explicitly acknowledged by Lewis (1983b: 11) who claims that we do not therefore have a problem analogous to the problem of temporary intrinsics for particulars, for universals do not have contingent intrinsic properties (Lewis 1986d: 209).
Definition 40. A particular α is a substance iff it is a counterpart of a world.

(40) is intended to be neutral on what substances there are, e.g. on whether un-detached arms are substances or not. It does give us, however, a general characterisation of non-substances: Any particular x is not a substance iff x cannot exist but as proper part of something else. Any substance has intrinsic properties and thus an intrinsic nature. We now have yet another pair of interdefinables:

Definition 41. A property F is the intrinsic nature of a substance α iff it is the fusion of all universals that are part both of α and of all counterparts of α which are worlds.

Substances and intrinsic natures are intimately connected: a substance is a maximal spatio-temporally interrelated whole; an intrinsic nature is a maximal nonspatiotemporal part of a substance. Now, at least, we can define duplication:

Definition 42. Two things are duplicates iff they have the same intrinsic nature.

I think that this gives us the right results. A property F is intrinsic to α iff it does not differ between duplicates of α, i.e. iff it is part of any substance which has the same intrinsic nature as α, i.e. iff it is part of the intrinsic nature of α. An extrinsic property, differing between duplicates α and α’, is not part of their common intrinsic nature and thus differs between them and their lonely counterpart.

We now finally get the desired result. Suppose having a F part, is extrinsic for an intrinsic F of a part b of α. Then there is a world α’ which is a counterpart of α and which has no F part. So α’ does not contain F. Because b has an intrinsic property, it is a substance, i.e. it has a counterpart b’ which is a world. If α’ would contain a counterpart b’’ of b then b’’ would have to be a counterpart of b’. Being a counterpart of b’, b’’ would have F as part of its intrinsic nature. So α’ cannot contain b’’, so α and α’ are not duplicates. So having an F part is intrinsic. Properties of the form having b as a (proper) part, however, will, in general, but not necessarily, be extrinsic, for it may well be that nothing having it is a substance.

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51The distinction between substances and non-substances allows us to distinguish derivatively between two sub-species of the part/whole relation. In some cases, e.g. when we say that ethics is part of philosophy, the ontological dependence is two-way: the whole generically depends on having some parts or other, the parts depend on there being a whole. No ethics without philosophy, no philosophy without there being philosophical disciplines. In other cases, we have generic dependence of the parts on the whole and specific dependence of the whole on the parts, e.g. when we say that the proposition that it rains is part of the argument “If it rains, I will be sad. It rains. So I will be sad.” There would be no such argument if the proposition would not exist. The existence of the proposition, however, does not depend on any particular argument, but (perhaps) on there being arguments (at least of the trivial “If p, then p” form).

52I am assuming that any counterpart of a substance is a substance. This is justified because being a substance is essential to substances if anything is.
Chapter 9

Relations

9.1 The irreducibility of relations

9.1.1 Monism and monadism

On hardly any subject has contemporary philosophy diverged as much from philosophical tradition as with respect to relations. Aristotle held that relations are “the least of the things there are” and the Stoics, Averroes, William of Ockham, Hobbes and Spinoza denied them real existence.

Leibniz famously argued in his correspondance with Clarke that relations, if they existed, would be “in two subjects, with one leg in one, and the other in the other, which is contrary to the notion of accidents” and he thought that “there is no denomination so extrinsic as not to have an intrinsic one for its foundation”.

Though it certainly sounds anachronistic, this reductionist attitude towards relations has some intuitive plausibility. Although contemporary property theorists usually assume that what they say about properties easily generalises to relations, relations pose problems that do not arise (at least not as sharply) in the monadic special case. It is, e.g., unclear whether and where relations can sensibly said to have a location: we cannot say, it seems, that they are wholly present in all their relata, and it does not seem to make sense to speak of parts of one relation located in different places. Relations, but not properties, can be merely partially exemplified. As Armstrong (1986), Forrest (1986) and Sider (1996b) have noted, an ‘extensional’ conception of relations as $v$-tuples of relata commits us to the claim that either “relation” has different meanings corresponding to different set-theoretic construals

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1Cf. Met. N 1088a22. Ross translates this as “the relative is least of all things a real thing or substance, and is posterior to quality and quantity” (Aristoteles 1924: 1709). Aristotle argues against relations partially on the ground that they give rise to Cambridge changes (cf. Met. N 1088a30-1099b1).

2“…en deux sujets, qui auroit une jambe dans l’un, et l’autre dans l’autre, ce qui est contre la notion des accidens.” (Leibniz’s fifth letter to Clark).

3Armstrong (1986: 98), hesitatingly, accepts the view that they are unlocated, without explaining how a mere difference in arity could account for such a drastic difference in ontological character to properties which are located where their exemplifications are.

4Armstrong (1986b: 77) reduces only partially instantiated relations to relational properties, but this seems ad hoc in view of his general reduction of relational properties to relations. Moreover, populating the universe with properties like expecting the Second Coming does not match well with his realism.
of ordered \( n \)-tuples or else that “relation” is only partially interpreted: what do, say, binary and ternary relations have in common and do not share with monadic properties? Relations, finally, seem to contain a mysterious “direction” component which we do not find in their monadic cousins: relations may be “from” some relatum “to” some other and it seems possible that they differ from each other in this respect alone. A property reduction of relations, therefore, would certainly simplify our metaphysical world-picture and it was assumed, for a long time, that such a reduction could be achieved.

Things radically changed with Russell. In his Principles of Mathematics (Russell 1903: 221 (§212)) he criticised both monadism and monism. Monadism (defended, according to Russell, by Leibniz and Lotze) holds that any truth of the form “\( a R b \)” is equivalent to some truth of the form “\( F a \land G b \)”, while monism (represented, for Russell, by Spinoza and Bradley) replaces “\( a R b \)” by some predication of the whole consisting of both relata taken together, “\( H(ab) \)”. Against monadism, Russell urges that relational properties cannot be interpreted except as involving relations (Russell 1903: 222–223 (§214)). Against monism, he argues, that it is unable to distinguish the two directions characteristic of (binary) asymmetric relations other than by distinguishing the two parts of the whole by some other asymmetric relation (Russell 1903: 224–225 (§215)).

Subsequent to his influential criticism of attempts to reduce relations to properties, many philosophers bought from Russell some highly simplified account of why 20th century logic and philosophy is superior to its predecessors. Broadly Aristotelian logic and metaphysics, it was said, were crippled by their inability to get to grip with relations. Frege then freed logic from its artificial limitation to monadic properties, discovered predicate logic and opened up the way to a more solidly ontological account of relations. Only by taking relations seriously, the story goes, can we account for phenomena like multiple generality, e.g. the difference between “\( \exists x \forall y (Rxy) \)” and “\( \forall y \exists x (Rxy) \)”.

The difficulties of a ‘reduction’ of relations to relational properties can be seen in the passage Russell (1900: 13) claimed to be “of capital importance for a comprehension of Leibniz’s philosophy”:

> “The ratio or proportion between two lines \( L \) and \( M \) may be conceived [of in] three several ways; as a ratio of the greater \( L \) to the lesser \( M \); as a ratio of the lesser \( M \) to the greater \( L \); and lastly, as something abstracted from both, that is, as the ratio between \( L \) and \( M \), without considering which is the antecedent, or which the consequent; which the subject, and which the object. [...] In the first way of considering them, \( L \) the greater is the subject, in the second \( M \) the lesser is the subject of that accident which philosophers call relation, or ratio. But which of them will be the subject, in the third way of considering them? It cannot be said that both of them, \( L \) and \( M \) together, are the subject of such an accident; for if so, we should have an accident in two subjects, with one leg in one, and the other in the other; which is contrary to the notion of accidents. Therefore we must say that this relation, in this third way of considering it, is indeed out of the subjects; but being neither a substance, nor an accident, it must be a mere ideal thing, the consideration of which is nevertheless useful.”

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“This is the translation by Russell (1900: 13) of “La raison ou la proportion entre deux \( L \) et \( M \) peut être conçue de trois façons: comme raison du plus grand \( L \) au moindre \( M \), comme raison du moindre \( M \) au plus grand \( L \), et enfin comme quelque chose d’abstrait des deux, c’est à dire comme la raison entre \( L \) et \( M \), sans considerer lequel est l’antérieur ou le posterior, le sujet ou l’objet. Et c’est ainsi que les proportions sont considerées dans la Musique. Dans la première consideration, \( L \) le plus grand est le sujet; dans la seconde, \( M \) le moindre est le sujet de cet accident, que les philosophes appellent relation ou rapport. Mais quel en sera le sujet dans le troisième sens? On ne saurait dire que tous les deux, \( L \) et \( M \) ensemble, soient le sujet d’un tel accident, car ainsi nous aurions un Accident en deux sujets, qui aurait une jambe dans l’un, et l’autre dans l’autre, ce qui est contre la notion des accidents. Donc il faut dire, que ce rapport dans ce troisième sens est bien hors des sujets; mais que n’étant ny substance ny accident, cela doit etre une chose purement ideale, dont la consideration ne laisse pas d’etre utile.” (Leibniz 1890: 401). As Russell notes, the reality of relations, for Leibniz, consists in their being perceived by God (cf. the first draft of his letter to Bartholomé Les Bosses from the 5th of February 1912, Leibniz (1879: 438)). Russell (1900: 14) comments on this as following: “...Leibniz is forced, in order to maintain the subject-predicate doctrine, to the Kantian theory that relations,
9.1 The irreducibility of relations

Russell (1903: 222 (§214)) interprets this passage as a statement of monadism (the view that “\(aRb\)" has to be analysed as “\(Fa \land Gb\)”) and urges against it that relations are prior to the relational properties they give rise to:

“The supposed adjective of \(L\) ["greater than \(M\)"] involves some reference to \(M\); but what can be meant by a reference the theory leaves unintelligible. An adjective involving a reference to \(M\) is plainly an adjective which is relative to \(M\), and this is merely a cumbrous way of describing a relation. [...] Apart from \(M\), nothing appears in the analysis of \(L\) to differentiate it from \(M\); and yet, on the theory of relations in question, \(L\) should differ intrinsically from \(M\). Thus we should be forced, in all cases of asymmetrical relations, to admit a specific difference between the related terms, although no analysis of either singly will reveal any relevant property which it possesses and the other lacks." (Russell 1903: 222–223 (§214))

Russell’s point here is not just that the allegedly subvening relational properties are not intrinsic, but that they can only necessitate the relation if they differ in some specific, asymmetric way. This asymmetric difference, however, constitutes an additional, and unreduced, relational fact.

Russell makes a related case about the monadistic theory of quantitative relations. If “\(a\) is greater than \(b\)” is analysed as being founded on \(a\)’s being 20 and \(b\)’s being 15 hectares, these foundations entail the relational fact only if 20 is greater than 15. The reason this regress is vicious is not just, as Campbell (1990: 103) thinks, that Russell takes monadism to be proposing an eliminative analysis of relational propositions. It is because the proposed analysis of “\(aRb\)” as “\(Fa \land Gb\)” is incomplete and in need of another conjunct, “\(FR'G\)”, where \(R'\) is another asymmetric relation. I do not see why the regress should be tolerable just because these relations “become more and more abstract”:

...where relations are supervenient, Russell’s regress is not vicious. At each step in the regress, the asymmetric relation between the foundations will become more abstract, and will soon be repeated at each successive step. [...] Regresses of successively more abstract items, even if non-terminating, are harmless. (Campbell 1990: 104)

The supervenience argument against Russell does not, it seems, answer his critique of monadism. Even if the unreduced relations become more abstract, they are still relations, and a reductionist position restricted to non-abstract or not-too-abstract relations is without much metaphysical interest.

The supervenience reply to Russell, I think, is better applied to his critique of monism which is the following:

\((ab)\) [the whole composed of \(a\) and \(b\)] is symmetrical with regard to \(a\) and \(b\), and thus the property of the whole will be exactly the same in the case where \(a\) is greater than \(b\) as in the case where \(b\) is greater than \(a\). [...] In order to distinguish a whole \((ab)\) from a whole \((ba)\), as we must do if we are to explain asymmetry, we shall be forced back from the whole to the parts and their relation. For \((ab)\) and \((ba)\) consist of precisely the same parts, and differ in no respect whatever save the sense of the relation between \(a\) and \(b\). (Russell 1903: 225 (§215))

though veritable, are the work of the mind".

Campbell (2004: 359) advances another, and much better, argument against Russell: “Quelle que soit la philosophie structurale des nombres que nous acceptions, 20 aura toujours comme sa partie propre, ou comme un sous-ensemble propre, 15, et des lors 20 sera plus grand que 15. Mais les relations avoir une partie propre, ou avoir un sous-ensemble tel que..., sont clairement des candidates pour un traitement fondationaliste unilatéral. C’est un fait au sujet de 20, pris isolément, qui détermine quelles parties propres ou quels sous-ensembles il a.” Campbell’s reply, in other words, is that \(R’\), in contrast to \(R\), is an internal relation. While this is plausible in this case, its generalisability is precisely what is at stake in the discussion.
Russell's worry here is not, as it was in the case of monadism, how to distinguish the relational properties, but how to distinguish the parts of the whole that are said to exemplify them other than by reference to the relation to be reduced. This, however, is an epistemological, not an ontological question. Supervenience is untouched, if we ascribe, e.g., to \( (ab) \), but not to \( (ba) \) the property *increasing in length*. This property is structural — its exemplification presupposes a certain structure among the parts of the exemplifying thing; it can be exemplified by \( (ab) \) without being exemplified by \( (ba) \). Perhaps a thesis that relations supervene on structural properties of wholes does not deserve to be called 'reduction', but it is the most we can hope for.

In part, this story rests on indubitable logical fact. By Church's Theorem, monadic first-order predicate logic is decidable, while dyadic first-order predicate logic is not. The philosophical relevance of this difference, however, is not easily assessed: Kripke (1962) showed that monadic modal logic is likewise undecidable, and Meyer (1968) showed the undecidability of monadic relevance logic. But even if it is granted that any full predicate logic is importantly different from the logic of its monadic fragment, this is a difference in expressive power between different kinds of predicates, a difference on the level of representations not between what they represent. It is not clear whether the difference in logical behaviour of predicates cuts any ontological ice.

That there are relational facts is a Moorean truth; but that dyadic properties are truthmakers of relational truths is "une thèse métaphysique substantielle, qui ouvre par-là même au challenge philosophe" (Campbell 2004: 357).

It is indisputable that relations are distinguished from their relata by reason. The real question, as the Stoics realised, is whether this distinction by reason *rationis* translates into a distinction in reality *realiter* or whether it is distinction only on the basis of form *formaliter*. This question, contrary to what is often assumed, cannot be decided on purely logical grounds: it is an overstatement to say that the irreducibility of relations is a metaphysical lesson taught us by modern logic.\(^7\)

We may acknowledge that it is useful, and even indispensable, to quantify over relations and to distinguish syntactically the symbols expressing them from the individual terms with the referents of which they form expressions for relational properties. This is not to say, however, that we have to acknowledge relations as a separate and irreducible ontological category. Leibniz, after all, did not deny the reality of relations. He just held them to be "in the mind alone".\(^8\) In the same vein, we may very well hold relational talk *is* irreducible, while still attempting an ontological reduction of relations. The reduction to be attempted, in other words, does not aspire to express logical laws — there is therefore no reason to expect that the elimination of polyadic predicates will leave us with an equivalent system (cf. Fisk 1972: 149).

What would such an ontological reduction of relations amount to? Humberstone (1996: 219) has given the following definition of monadism:

**Definition 43.** A binary relation \( R \) is \( \land \)-representable iff there are monadic predicates \( F \) and \( G \) such that, for all \( x \) and \( y \), \( x R y \iff F x \land G y \).

More generally, call a relation \( R \circ \)-representable for any truth-functional connective "\( \circ \)" if there are monadic predicates \( F \) and \( G \) such that \( \forall x, y (Rx y \leftrightarrow (Fx \circ Gy)) \). A relation is monadically representable iff it is \( \circ \)-representable for some truth-functional connective "\( \circ \)" (Humberstone 1984: 366).

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\(^7\)This is the view of Bacon (1992: 37): "...it is one of the few unequivocal metaphysical lessons of modern logic that relations are indispensable to an account of the world. It's all very well to fantasize them as a "supervenient" free lunch; but save for ontological anorectics, the consequent inanition holds little charm, least of all in desert landscapes."

\(^8\)Cf. his letter to des Bosses: "Orders, or relations which join two monads, are not in one monad or the other, but equally well in both at the same time, that is, really in neither, but in the mind alone."
Humberstone (1984: 369–370) has shown that a binary relation $R$ is $\wedge$-representable if it satisfies the following condition of “forgetful transitivity” (cf. also Humberstone 1996: 219, 259):

\[(1) \forall x, y, u, z ((x R y \land u R z) \rightarrow x R z)\]

In general, a binary relation is monadically representable if it satisfies the following condition (Humberstone 1984: 373–375):

\[(2) \forall x, y, u, z, v ((y R u \land x R u \land x R z) \rightarrow (y R z \lor (x R v \land v R u)))\]

As this obviously is not true of all dyadic relations, not all such relations are monadically representable. We cannot, therefore, do away with truly relational (more than one-place) predicates and thus monadism, in its simplest form, is false.\(^9\)

Could we, e.g., ‘reduce’ relations to relational properties, properties of the form standing in $R$ to $a$ for some relation $R$ and some particular $a$? Hochberg (1988: 196), e.g., has argued that the answer is no: relational properties do even not give us enough expressive power to state their own identity conditions. To say that, generally and as a matter of logical truth, if $a = b$, then $\lambda x (a R x) = \lambda x (b R x)$, we need to quantify over relations. The individuation of relational properties, then, presupposes a prior individuation of relations – this part of Russell’s critique also seems justified. Furthermore, a ‘reduction’ of relations to relational properties is in danger of being trivial: a thesis according to which the fact that $a R b$ is ‘really’ the fact that $(\lambda x (a R b)) a \land (\lambda y (a R y)) b$ but that does not substantiate any sense in which the latter is in some sense prior to the first is not of much interest.

How could such a priority be spelt out? Supervenience, nowadays, is the natural candidate. Supervenience allows us to say that relational vocabulary is ineliminable, even though its applicability “rest on and is exhausted by” monadic facts (Campbell 1990: 100) Supervenience, however, comes in different forms.\(^10\) Humberstone’s result shows that we cannot expect a one-to-one correlation between binary and conjunctions of monadic predicates. Should we then opt for global supervenience, some claim to the effect that no two worlds can differ in relational fact without differing in what monadic properties are exemplified?\(^11\) Or should we just say that relational facts presuppose the existence of at least some monadic facts?\(^12\) Or should we just say that relations are, in some sense, ‘dependent’ on their terms?\(^13\)

Any ‘reduction of relations’ that may sensibly be undertaken must meet the following conditions: it must reduce relations to properties of some whole containing their relata;\(^14\) it must not attempt to

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\(^9\)This form of irreducibility can also be traced back to the treatment of multiple generality in classic predicate logic: Grossmann (1986) points out that while the left of the following inferences is valid, the one on the right-hand side is not:

\[
\begin{align*}
\forall x \exists y (Fx \land Gy) & \quad \forall x \exists y (xRy) \\
\exists y \forall x (Fx \land Gy) & \quad \exists y \forall x (xRy)
\end{align*}
\]

\(^10\)We will distinguish, contrast and evaluate different concepts of supervenience in much detail in sect. 3.

\(^11\)It is not clear, however, that even global supervenience can do without correlations between supervening and subvening predicates. Cf. sect. 3 for details.

\(^12\)This is the option of choice for Campbell (1990: 98): “It is at least a plausible thesis that a world in which there are neither substances nor monadic qualities but there are nevertheless relations, is impossible.” Campbell (1990: 101) uses this against Russell and argues that he failed to distinguish supervenience from reduction: “Foundationism must not allow itself to be restricted in its search for foundations by any idea that sameness of relations requires sameness of foundation.”

\(^13\)Grossmann (1986: 1978b) argues that intentional relations are not so dependent and Campbell (1990: 178, n. 2) has taken this to be a proof that they are not relations at all.

\(^14\)Armstrong (1978b: 71) called such properties of fusions “relationally structural properties”, though he has subsequently changed his mind about these matters: Armstrong (1980a: 106) thinks that (at least) internal relations are non-relational structural properties of the fusion of their terms. External relations, on the other hand, are now no longer taken to be properties of the fusion of their relata but non-merological constituents of a state of affairs containing them (Armstrong 1997:…
reduce relational talk and assign truth-conditions to it that do not quantify over relations; it must show how relational properties can be understood without reference to relations that are in some sense prior to them. It is not clear how these desiderata might be met.

### 9. Relations

#### 9.1.2 Relational facts

By a ‘relational fact’, in the following, I will mean a fact that makes some proposition true in which occurs essentially a predicate of adicity higher than one. Defined in this way, “...the existence of relational facts does not automatically entail any real existence for relations” (Campbell 1990: 97).

The question whether relations exist as an ultimate ontological category or whether they can be ‘reduced’ to properties of complexes is a matter of how to analyse relational facts.

Relational facts are peculiar in many respects. A first problem concerns the relation between relations and relational properties. Necessarily, whenever a dyadic relation $R$ is exemplified, say by $a$ and $b$, two relational properties, having $R$ to $a$ and having $R$ to $b$, are exemplified too, by $b$ and $a$ respectively. If relations and relational properties are distinct, this co-exemplification tie constitutes a necessary connection between distinct existences, something which is prima facie mysterious and has to be explained or explained away.

One strategy is to deny that relational properties are ontologically basic. They differ from real properties, it might be held, by being ‘impure’, i.e. by involving essential reference to individuals. The problem with this, however, is that it is far from clear that all relational properties are impure. Humberstone (1996: 212–213), e.g., distinguishes three ways to obtain relational properties from relations: quantification, reflexivization and place-fixing. As Humberstone (1996: 216) points out, these are just three of the infinitely many patterns usable.

Even if we restrict ourselves to relational properties obtained by quantification and concentrate on those of which some qualitative property is predicated, the reduction is far from obvious. Armstrong (1978b: 78), e.g., proposes to reduce those relational properties to relations and properties via the following equivalence (cf. also Armstrong 1997: 92):

$$(3) \quad a \text{ has } R \text{ to an } F \iff \exists x (x \text{ is an } F \text{ and } a \text{ has } R \text{ to } x)$$

It is not clear, however, that this strategy can succeed: I can hate the murderer of my friend without hating anyone in particular; I can be smaller than a unicorn without there being a unicorn that is larger than I am; there might be an elephant that is smaller than me and still I am smaller than an elephant. These examples, probably, could be explained away. The general strategy, however, is unsatisfying, as long as we have no way to deal generally with relational properties, pure and impure.

If a reduction of relational properties to relations meets with problems, can conversely relations be taken to be properties of the fusion of their relata? What is the connection between a relation linking some terms and the relationally structural property of the fusion of their relata it gives rise to? Different sorts of relations give us different sorts of properties of the fusion of their relata. Relational properties allow us to factor out the contributions the parts make to these properties of the whole. It is therefore natural to ask whether we can not only account for relational properties in terms of relations, but also go the other way round and explain the holding of a relation by the exemplification of relational properties. A first candidate for accomplishing this is the following (letting “$^*^R$” denote...
the converse of \( R \), where the intrinsic nature of \( a \) is taken to be the totality of \( a \)'s intrinsic properties:

\[(4) \quad a \text{ has } R \text{ to } b \iff \exists F, G \ (F \text{ is the intrinsic nature of } a \\
\land G \text{ is the intrinsic nature of } b \land a \text{ has } R \text{ to } an \ F \land b \text{ has } \dot{R} \text{ to a } G)\]

This will not do, however, even apart from the reference to the converse of \( R \) we will later problematise. Define external relations to be those that do not supervene on the intrinsic properties of their relata, but on the intrinsic properties of the \( n \)-tuples of their relata (or, equivalently, of the fusion of their relata).\(^5\) Such relations can differ between duplicates, i.e. things with the same intrinsic nature. For such external relations (4) does not hold, for then \( \text{having } R \text{ to } a \) is not equivalent to \( \text{having } R \text{ to something that has } a \text{'s nature}.\(^6\) The reason for this, I think, that taking the pairs as the supervenience basis is not enough: we have to go for the fusions.

Just fusions, however, will not do neither, as Russell’s argument against monism shows: they have to be structured, their parts have to be distinguished and we need to be able to talk of a specific order of their parts. We need to be able to say that \( (ab) \) differs from \( (ba) \) not by containing different parts but by being composed of these parts in some different way. How could this be achieved without talking of relations holding between these parts? This will be the question addressed in the next section. Before tackling it, however, we have to some other puzzling features of relations.

A first, an important question we have to address is whether relations have a definite adicity. Relations, while distinguished from properties by being expressed by predicates taking more than one argument place, often connect an indefinite, rather than fixed, number of particulars. Such are the variably polyadic relations expressed by “...cause ...”, “...are adjacent”, “...are consistent”, “...are brothers”, “...built the bridge” etc. Adam Morton (1975) proposed to analyse them using \( M \)-quantifiers which stand for infinite conjunctions of ordinary quantifiers. “Any people who live together will influence each other” then goes over into “\( \forall x(Tx \rightarrow Ix) \land \forall x, y(Txy \rightarrow Ixy) \land \forall x, y, z(Txyz \rightarrow Ixyz) \ldots \)”, which is an abbreviation for “\( \forall x(Tx \rightarrow Ix) \land \forall x, y(Txy \rightarrow Ixy) \land \forall x, y, z(Txyz \rightarrow Ixyz) \ldots \)” (Morton 1975: 310). Morton’s semantics associates any multigrade relation with a set of tuples of different adicities. Symmetrical multigrade relations, i.e. relations that symmetrically relate two groups of an indefinite number of members, can then be interpreted in straightforward mereological terms: to say that Adam, Bill and Charles live together is to say that the whole composed of Adam, Bill and Charles lives together, where “...lives together” is a predicate that applies to wholes composed of people living together.\(^7\)

Multigrade relations, then, are not so much a problem of semantics; they are naturally interpreted as monadic properties of wholes. They present, however, a metaphysical problem. How can we say, e.g., that “\( I[x] \)”, where “\( [x] \)” is a ‘multigrade variable’, stands for the relation of living together? How can we say, as we should, that it takes at least two particulars to live together?\(^8\)

Another difficulty pertains to reflexive relations. Is it right to classify open sentences such as “\( \lambda x(Rxx) \)” as constituents of relational facts? Is identity, e.g., a relation, in which every thing stands

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5 Relations that supervene on the intrinsic properties of their relata taken individually are called “internal”, such that do not supervene on either kind of intrinsic properties are neither internal nor external, but extrinsic. We will come back to this distinction on p. 164 in sect. 9.1.2.

6 Presumably for this reason, Armstrong (1978b: 78) has argued that properties like \( \text{having } R \text{ to } a \) do not count as relational properties, as they are expressed by ‘impure’ predicates (cf. also Armstrong 1997: 93).

7 The case of non-symmetrical relations is slightly more complicated: The asymmetry between pluralities, however, has to be preserved: it does not follow from the fact that Adam fought with Bill and Charles that Bill fought with Adam and Charles (Morton 1975: 318, fn. 3).

8 Note, incidentally, that Morton’s rendering of “Any people who live together will influence each other” is only true if it is true if “\( Ix \)” and “\( Tx \)” are true of every individual in the domain. This seems to rule out reading them as “...live together” and “...influence each other” respectively.
to itself? To think it is not testifies, according to Humberstone (1996: 213), of a conflation of the relationality of a property with its extrinsiness: “$Raa$” to be sure, may ascribe an intrinsic property to $a$, but this is compatible with the property in question being relational.\footnote{Broadly, the distinction is that the first notion applies to properties and relations and the second to predicates.} Even if we concede that “$Raa$” may express the holding of a relation between $a$ and itself, how should we interpret it? Does it assert the holding of the same relation that “$Rab$” ($a \neq b$) asserts to hold between $a$ and $b$? Geach argued that there is a clear and logically important sense in which “Brutus killed Brutus” and “Cato killed Cato” contain a common predication which they do not share with e.g. “Brutus killed Caesar”. Suppose, then, we distinguish between “…kills …” and “…kills him- or herself”. We would then treat “$\lambda x (Rxx)$” as expressing a monadic property. As (Hochberg 1988: 195) argued, this has its drawbacks: how would we then describe the holding of an asymmetric relation $R$ between $a$ and $b$? Not as “$R$ holds between $a$ and $b$, but not between $a$ and itself”, because the conjuncts would not assert that one and the same relation holds between one pair but not between the other. The difficulty, then, is this: find a semantic difference between the ‘predicative’ parts of “Brutus killed Brutus” and of “Brutus killed Caesar” without postulating two relations.

Reflexive relations are peculiar in other respects too. If we accept “$\lambda x (Rxx)$” as expressing a monadic property, it will be identical with its converse. Russell, in the Principles of Mathematics, argued that in all other cases, relations are different from their converses:

“A relational proposition may be symbolized by $aRb$, where $R$ is the relation and $a$ and $b$ are terms; and $aRb$ will then always, provided $a$ and $b$ are not identical, denote a different proposition from $bRa$. That is to say, it is characteristic of a relation of two terms that it proceeds, so to speak, from one to the other. […] It must be held as an axiom that $aRb$ implies and is implied by a relational proposition $bR'a$, in which the relation $R'$ proceeds from $b$ to $a$, and may or may not be the same relation as $R$. But even when $aRb$ implies and is implied by $bRa$, it must be strictly maintained that these are different propositions.” (Russell 1903: 95–95 (§94))

It seems difficult to agree with Russell. If the propositions “$aRb$” and “$bRa$” are different, where does this difference come from? Not from $a$ and $b$, so the relations must be different; they differ, Russell would say, in their sense. But then $R$ and $\hat{R}$ (“$R'$”) also differ in sense and hence cannot be the same relation, contrary to what Russell asserts.

Russell seems to think of the relational complexes $aRb$ and $bRa$ as consisting of four constituents: $a$, $b$, the relation $R$ and its ‘sense’. But what could this ‘sense’ possibly be? Moreover, the exclusion of the case where $a$ and $b$ are identical seems justifiable only if the relation denoted by “$R'$” in “$aR$” lacks a direction (a ‘sense’) – but how could the mere fact that $a$ has the relation to itself do away with this feature of the relation?

We face a double dilemma, for both symmetric and asymmetric relations: If $R$ and $R'$ are different if they have different senses, then the relational fact $aRb$ is different from the relational fact $bRa$ even if $R$ is necessarily symmetric. If they can be identical, even if their senses are different, then what distinguishes $aRb$ from $bRa$ for asymmetric relations $R$? If the ‘sense’ of a relation is something over and above the order of its constituents, then how can we identify $aRb$ with $aRb$ for necessarily symmetric $R$? If it just consists in this order, how can we distinguish $aRb$ from $aRb$ for asymmetric relations? It just does not seem possible to hold both $aRb = aRb = bRa$ for symmetric relations and $aRb \neq aRb \neq bRa$ for asymmetric relations.

The distinction between relations and the monadic properties they give rise to pushes the ontological extravagancy still further: If even necessarily symmetric relations are different from their converses,
we get four analyses of “aRb” for some symmetric relation R as monadic predications (cf. Russell 1903: 98 (§96)): a’s being R-related to b, a’s being R-related to b, b’s being R-related to a and b’s being R-related to a. These four relational facts are all different, in virtue of containing different constituents. How are they related? Is one of them more basic than the others? Can they be reduced to one of them? We do not want to populate the universe with distinct, but necessarily connected existents; we do not want to postulate four states of affairs where, intuitively, there is just one which admits of different analyses.

This ontological worry is as old as the rehabilitation of relations. How it can be, Ramsey (1925: 14, 406) asked in the spirit of Leibniz, that \((\lambda x(aRx)b, (\lambda y(yR[b]))a\) and \((\lambda x, y(xRy))(a, b)\) represent (are logical forms of) the same proposition, given that they have different components? If they represent the same proposition, and stand for the same fact, however, what are their constituents? If relations are different from their converses, what could give us a reason to take one, but not the other, to be a constituent of a relational fact?

...it is hard to see how the state s might consist both of the relation on top of in combination with the given relata and of the relation beneath in combination with those relata. Surely if the state is a genuine relational complex, there must be a single relation that can be correctly said to figure in the complex in combination with the given relata. (Fine 2000: 4)

As Castañeda has remarked à propos de. Plato, a’s having R to b and b’s having R to a are better thought of as two prongs of one state of affairs.20 If we reduce a’s having R to b to a’s having the property having R to b and b’s having the property having R to a, we have reduced the relation to two different properties, which are bound together by a “law of joint exemplification” (Castañeda 1972: 470). What is the ontological ground of such a necessary connection between distinct (non-overlapping) entities?

It is not just multiplication of entities that is at stake. Another problem is indeterminacy, both ontological and semantical. Armstrong (1997: 91), e.g., claims that R is not an increase in being, for every state of affairs containing it is identical with one containing just R. He does not tell us, however, which relation is a constituent of this state of affairs. Williamson (1985) asks us to imagine two languages \(L’\) and \(L”\), both differing from our language L only by inverting the order of arguments following R and by replacing R by its converse \(\hat{R}\) respectively. By hypothesis, we cannot distinguish between \(L’\) and \(L”\). If relations were different from their converses, we could never distinguish our language from either \(L’\) or \(L”\) – we would never be able to know what our relational expressions are standing for. In both cases, the natural reaction is to say that there is no real question because for any relation R, \(\hat{R}\) and \(\hat{\hat{R}}\) are identical.21 But how can they be identical, if they apply to the same relata only if these are taken to be in different orders respectively?

The notion of a converse is tightly tied up with the notion of order – a relation takes its arguments in some specified order which depends on whether we are think of it as “...stabs · · ·” or as “...is stabbed by ...”. “R” does not just stand for the relation R, but for “R with a particular convention as to which flanking name corresponds to which gap in \(\hat{R}\)” (Williamson 1985: 257).22 The connection

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20The sentence “Simias is taller than Socrates” does not reveal the truth it expresses perspicuously, because this sentence mentions only one Form, tallness, whereas the truth or fact in question involves two Forms, tallness and shortness.” (Castañeda 1972: 469)

21Cf. Williamson (1985: 249) and Armstrong (1978b: 42). Williamson's argument presupposes that relations are individuated by the semantical roles of expressions standing for them.

22We might conclude from this that the nominalisation “\(\hat{R}\)” is “frivolous”: “When we say that the relation ‘heavier than’ is distinct from the relation ‘lighter than’ we are then, if we are consistent, exploiting frivolous nominalization. What we are in effect saying is that “a bears the relation ‘heavier to’ to b” is not equivalent to “a bears the relation ‘lighter than.’ to b...” (Fox
between relations and order motivates the view that only non-symmetrical relations are “truly relational” (Armstrong 1997: 91). If we have relations different from their converses, we have order; if we have order, on the other hand, we can define, for any relation, the converse of that relation and this will, for non-symmetrical relations, give us a different entity.

To solve the problem of converses, we need to loosen the connection between relations and order. This is what has been undertaken by Kit Fine (2000). He argues that for some relations, the notion of a converse does not even make sense (Fine 2000: 6). Such “neutral relations”, as he calls them, do not hold of their arguments in any specifiable order (Fine 2000: 3). His starting point, as Castañeda’s, is the apparent absurdity of the claim that the fact of a’s being to the right of b is different from the fact of b’s being to the left of a. Fine’s conclusion is similar to Williamson’s: we cannot, in general, speak of the “first” and the “second” argument of some relation, identifying these in terms of closeness to the relational expression or their spatial position with respect to it. Instead, argument places in different relations can be associated only in terms of the content of the relations [...] To understand ‘Rxy’ and ‘Szy’ separately one needs to know, not just which relations they stand for, but which of the latter’s argument places ‘x’ is associated with and which ‘y’” (Williamson 1985: 260). Cian Dorr (2004: 180) has recently phrased this worry as the demand for an analysis of the following sentences which makes them jointly consistent:

(5) \( R_1 \) and \( R_2 \) hold between a and b in the same direction.
(6) \( R_1 \) and \( R_2 \) hold between a and b in the opposite direction.

If we give up on the idea, as both Williamson and Fine urge, that relations relate their terms in some specific order, how can we then account for their differential applicability, i.e. the fact that the loving relation may hold between Don José and Carmen but fail to hold between Carmen and Don José? Fine presents us with two options: positionalism, which reifies argument places and includes them as constituents into relational facts, and anti-positionalism, which takes it to be a brute fact that (some) relations may, when applied to some given terms, yield more than one relational complex.

On the positionalist account, which seems to be the one Williamson would opt for, the neutral amatory relation, e.g., comes with two extra entities, the argument places LOVER and BELOVED, which it associates to its terms. Exemplification of the relation must then “be understood to be relative to an assignment of objects to argument-places” (Fine 2000: 11). There are two immediate problems with this view: what entities are the argument-places that figure as extra relata of the amatory relation (Fine 2000: 10)? How could there be strictly symmetrical relations, e.g. relations R such that a’s being \( R \)-related to \( b \) is the same relational fact than \( b \)’s being \( R \)-related to \( a \) (Fine 2000: 17–18)? Because the argument positions are different and assigned to different entities, the relational facts will be different, though necessarily connected.

Anti-positionalism eschews these problems. According to the anti-positionalist, “it is a fundamental fact [...] that relations are capable of giving rise to a diversity of completions in application to any given relata and there is no explanation of this diversity in terms of a difference in the way the completions are formed from the relation and its relata” (Fine 2000: 19). Differential applicability is then explained by relations being ‘completed’ by their relata in the same manner as in some exemplary relational fact: the amatory relation, e.g., holds between Don José and Carmen in the same way as it

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23Armstrong (1997: 91) even seems to deny that non-symmetrical relations can be reduced to properties, even to properties of the fusion of their relata. His example is “before”, which he takes to be non-symmetrical (neither symmetrical nor asymmetrical). As he does not give any argument, however, I do not know what to say.

holds between Abelard and Eloise, but not in the same way as it fails to hold between Carmen and Don José. We account for strict symmetry and variable polyadicity by reference to the content of the relations concerned: some relations yield a unique whole when applied to some relata, and some relations combine with an indefinite number of things.

The notion of co-mannered completion, however, is problematic. Are we really speaking of Abelard and Eloise when we say that Don José loves Carmen? Fine (2000: 23) suggests that we may understand it as involving a rigid reference to some manner of completion, which is the equivalence class of all co-mannered completions of the same relation, and to which reference is fixed by some exemplary relational fact. Part of the worry remains, however: When we say of Carmen and Don José, that the latter loves the former but not vice versa, are we really saying that the amatory relation holds of them in some manner, but not in another? Would they love each other in both manners if they each loved the other? And if they loved each other, would they love each other in the same way than Abelard loves Eloise? The answer, as Fine (2000: 24, fn. 13) notes, is no, for otherwise Eloise would love Abelard. We thus have at least three ways two persons may love each other (three ways in which the amatory relation may be completed by two persons): from the first to the second, from the second to the first and reciprocally. For an \( n \)-place relation, there will be up to \( 2^n - 1 \) ways it may be completed by its \( n \) relata. If there is no upper bound to the adicity of asymmetrical relations and if the number of actual individuals is finite, we might run out of exemplars — and should we not still be able to say that some relation is completed by all the actual individuals in such-and-such a manner, though there are other, pairwise different manners in which it might have been completed?

Moreover, it seems that we should allow for some modal flexibility in the choice of the paradigm pairs. If Abelard and Eloise is our paradigm pair for the amatory relation, we should not be forced to say that no-one could love someone else if Abelard and Eloise did not exist or even if there were no particulars whatsoever.\(^25\)

Fine (2000: 25–26) suggests that we might define co-mannered completion in terms of substitution and say that some relational fact \( s \) is a completion of \( R \) by \( a_1, \ldots, a_n \) in the same manner that \( t \) is a completion of \( R \) by \( b_1, \ldots, b_n \) iff \( s \) results from \( t \) by simultaneously substituting \( a_1, \ldots, a_n \) for \( b_1, \ldots, b_n \). This substitution must, on an ontological level, be uniform, i.e. replace all and only identicals with identicals. As Fine has argued in more recent work, this is not enough: on a semantic level, it must preserve the semantic relations between the terms \( a_1, \ldots, a_n \) for \( b_1, \ldots, b_n \). It is in this coordination, I will argue, that the order-component of neutral relations is most plausibly located.

Interestingly, the problem arose already for the ‘positionalist’ Williamson. If relations are identical to their converses, Williamson (1985: 238) asked, what prevents \( \lambda x, y (Rxy \land Sxy) \) from being identical to \( \lambda x, y (Rxy \land Sxy) \)? Williamson’s answer was: only our understanding of how the variables are to be coordinated across the open sentences:

Consider a sentence such as \( \forall x \exists y (Rxy \land Sxy) \). To understand ‘\( Rxy \)’ and ‘\( Sxy \)’ separately, one needs to know, not just which relations they stand for, but which of the latter’s argument places ‘\( x \)’ is associated with and which ‘\( y \)’: this resolves the “ambiguity” between \( \lambda x, y (Rxy \land Sxy) \) and \( \lambda x, y (Rxy \land Sxy) \): one knows in which way \( R \) and \( S \) are to be put together. The lesson is that understanding a relational expression is not simply associating it with a relation, but knowing in which way it is to be associated. (Williamson 1985: 260–261)

Suppose we want to say, with Williamson, that some relation \( R \) is identical to its converse. Are we

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\(^25\)This, at least, is Cian Dorr’s intuition for the relation of temporal order: “...intuitively, it seems that some things could have been before other things even if no actual particulars, or anything like them, had existed.” (Dorr 2004: 169–170, fn. 18)
able to say this with the following:

\[(\gamma) \quad R_{xy} \iff R_{yx}\]

\[(\gamma)\] only identifies a relation with its converse if we understand it as affirming that the way \(R\) connects the value of \(x\) to the value of \(y\) is the same as the way \(R\) connects the value of \(y\), which was the value of \(x\), to the value of \(x\), which was the value of \(y\) (in ‘telegraphic notation’, this corresponds to four gaps in \((\gamma)\), with lines connecting the first to the fourth and the second to the third). Only so understood does \((\gamma)\), rather than absurdly saying that all relations are symmetric, say what Williamson wants it to say, namely that the convention regarding the order in which the arguments are to be taken is of no ontological significance.\(^{26}\) In \((\gamma)\), in other words, the values of the first occurrence of ‘\(x\)’ and the second of ‘\(y\)’ and of the first occurrence of ‘\(y\)’ and the second of ‘\(x\)’ have to be coordinated.

In more recent work, Kit Fine developed a theory of such coordination which forms the basis of what he calls “semantic relationism”.\(^{27}\) Its central tenets are that there are intrinsic semantic connections which are not reducible to and do not supervene on the intrinsic semantic features of what they connect and that these connections have to be indicated explicitly in a semantic account of the language. Under what he calls the ‘default’ rules of coordination, “\(R_{xy}\)” differs from “\(R_{xx}\)” by containing two non-coordinated variables.\(^{28}\) The order imposed by a relation on the items it relates can then be identified with the coordination it achieves among the corresponding variables, i.e. the coordination scheme which is an equivalence relation on the expressions evaluated. The neutral amatory relation, we may now say, relates Carmen and Don José in such a way that Carmen is coordinated with Eloise and Don José with Abelard. The distinction between Brutus’ stabbing Brutus and Brutus’ stabbing Caesar and the sense in which the former has something in common with Cato’s stabbing Cato the latter has not also lies in the coordination between its relata, which is absent from Brutus’ stabbing Caesar.

A surprisingly similar conclusion was drawn thirty years ago. Milton Fisk (1972) argued that relations could not account for what he calls “relatedness”. From Bradley’s regress, he argues that if relations related, then they would have to be components of the things they relate. By Leibniz’s argument, they cannot be component of both, hence they do not relate. Fisk (1972: 143) proposed to switch from the relation to the relational properties that are necessarily co-exemplified and to account for the correlation of those in terms of their monadic foundations in the different relata.

### 9.2 Relational properties

“...les philosophes scolastiques dans leur ensemble – y compris Guillaume d’Ockham – ne contestent nullement l’existence de faits relationnels objectifs, ou encore [...] leurs désaccords ne portent pas sur l’existence de propositions relationnelles (objectivement) vraies, mais seulement sur la nature exacte

\(^{26}\)This is not quite how Williamson puts it, cf. “\(R = R\) allows the substitution of ‘\(R\)’ for ‘\(R\)’ only in contexts where they are singular terms. Thus one cannot argue from ‘\(R_{xy} \equiv R_{yx}\)’ to ‘\(R_{xy} \equiv R_{xy}\)’ since in ‘\(R_{xy}\)’, ‘\(R\)’ is a relational expression. Although it stands for the relation \(R\), this does not exhaust its semantic significance: it stands for \(R\) with a particular convention, as to which flanking name corresponds to which gap in \(R\).” (Williamson 1985: 257) As with the proposal of Dorr (2004: 169) on behalf of Williamson, that “bears” is systematically ambiguous, this rules out reading “\(Rab\)” univocally as “the relation \(R\) holds between \(a\) and \(b\)”, a reading which seems too natural to be given up easily.

\(^{27}\)Cf. Fine (2003) and his, as yet unpublished, John Locke Lectures for 2003, a version of which will be published as Reference, Relation, and Meaning by Blackwell.

\(^{28}\)In the above statement of the identity of a relation with its converse \((\gamma)\), the default rules are given up: the first occurrence of ‘\(x\)’ is coordinated with the second occurrence of ‘\(y\)’, and the first occurrence of ‘\(y\)’ is coordinated with the second occurrence of ‘\(x\)’. 
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Let us then start with the following definition of universals:

**Definition 44.** *Something is a universal iff it is part of at least two worlds.*

I believe that (44) captures what is right in denying the existence of “impure” universals. An impure universal, e.g. *being married to Queen Elizabeth II* is, though (possibly) a “one over many”, too closely tied to a specific particular to account for qualitative similarity. If we assume, following Lewis, world-boundedness of possible individuals (any particular is part of only one world), we notice that “impure” universals inherit the world-boundedness of the individuals they depend on. Nothing can be married to an inhabitant of another world, so *being married to Queen Elizabeth II* is not a universal according to (44). Armstrong’s arguments against disjunctive and negative universals can also, I think, be taken to be implicitly relying on (44). For what is bad about disjunctive universals $F \lor G$ is that they can be shared by two things, $a$ which is $F$ but not $G$ and $b$ which is $G$ but not $F$, without these two things being similar at all. In view of (44), this means that the universal-hood of $F \lor G$ does not guarantee that its components $F$ and $G$ are universals. Similarly for negative universals: even if $\neg F$ is part of more than one world, $F$ could still be world-bound. Given an account of conjunctive, disjunctive and negative universals which renders them complex, we can thus explain why the first, but not the other two operations give us universals: if something is a universal, all its parts have to be universals too.

An impure property, intuitively, is a property that necessarily involves at least one other individual than the one exemplifying the property in question. It is not just that the exemplification of an impure property by $a$ is not a matter of how $a$ is by itself (this rather characterises, as has been seen in sct. 8, extrinsic properties); impurity applies to properties that make essential reference to other individuals, properties that provide for “necessary connections between distinct existences” and therefore have to be banned for Humean supervenience to hold.

As intuitively stated, impurity seems to apply on the level of predicates rather than that of properties, for only the former may uncontroversially be said to make or not to make essential reference to other individuals than the ones they are applying to.

We already discussed, in sct. 8.1, two definitions of impurity for predicates which failed for this reason. On which grounds, then, is the restriction to be justified? At first sight, the notion of impurity in play here seems to be the following:

**Definition 45.** *A property $P$ is impure iff it differs between counterparts.*

Unfortunately, def. 33 will not do, for any property that is had non-essentially by some thing will differ between counterparts of that thing. In fact, the characterisation of pure or “wholly qualitative” properties as those that “can be shared between counterparts” seems to involve us with intricate problems concerning iterated modalities. We could try to avoid these by settling for a stronger criterion:

**Definition 46.** *A property $P$ of $a$ is impure iff no counterpart of $a$ has it.*

The problem of def. 34 is that it commits us not only to the doctrine of world-bound individuals and the claim that no two counterparts of one thing are world-mates, but also to a (modally) strictly referential reading of the proper names contained in the predicates which should come out, according
We have to be extremely careful here, as expressing impure properties. The normal, counterpart-theoretic analysis of a sentence like “it is possible that Lewis does not live in Princeton” is that there is a possible world in which there exist a counterpart of Lewis and a counterpart of the city of Princeton such that the first does not live in the second (Lewis 1968). If the properties living in Princeton, living in the same city than Lewis and living in a house belonging to the same owner than the one in which Lewis lived in Princeton.. come out impure under def. 34, however, the properties counterparts are said to lack are not the properties living in a counterpart of the city of Princeton. etc. The properties in question, in other words, come out impure only if they are construed “haecceitically” from the outset. The problem is that not all intuitively impure properties admit of such a construal: being a duplicate of a is falsely classified as pure by (34), as is have the same intrinsic nature than. a.

We may now come back to a question raised on p. 8.1 in sect. impureintrinsic, whether haecceities like being identical to a (where “a” is understood to be a rigid designator) should count as intrinsic. G.E. Moore gave an affirmative answer:

“It is obvious that there is a sense in which when two things are exactly alike, they must be ‘intrinsicly different’ and have different intrinsic properties, merely because they are two ...the mere fact that they are numerically different does in a sense constitute an intrinsic difference between them, and each will have at least one intrinsic property which the other has not got – namely that of being identical with itself.” (Moore 1922: 262)

We have to be extremely careful here, however. What is the property one of the indistinguishables is said to lack?

Humberstone (1996: 236) mentions in passing another type of impurity, which he characterises as possessor-independence:

**Definition 47.** *A property P is possessor-independent iff it never differs between world-mates.*

Special cases of possessor-independent properties are properties of the form being such that. p, where p is an arbitrary true sentence. Dunn (1990a: 185) criticised that possessor-independent properties come out intrinsic under Lewis’ definitions.

Dunn (1987: 353–354) observed that while $Fa \rightarrow (x = a \rightarrow Fx)$ is a theorem of the relevant logic R, $(\phi \land (\phi \lor Fa)) \rightarrow (x = a \rightarrow (\phi \land (\phi \lor Fx)))$ is not. He thus proposes to restrict the indiscernibility theorem $\phi a \rightarrow (x = a \rightarrow \phi x)$ to formulae $\phi$ which are “of the kind that determines relevant properties”, where this is not a business of logic but of metaphysics (Dunn 1987: 355). The problem with this line, however, is that it seems possible for there to be predicates that express relevant properties of some individuals, but properties had non-relevantly by others. This possibility is not left open by a classification operating on formulae. It is therefore misleading of Dunn (1987: 357) to claim that the following states that smelling sweet is a relevant property of roses (where r stands for a particular rose and S for “...smells sweet”):

$$Sr \rightarrow \forall x(x = r \rightarrow Sx)$$

Let us, following Humberstone (1996)’s rephrasing of Dunn (1987) and Dunn (1990a), call a property “Dunn-pure” iff it is is, whenever it is truly predicated of a, a relevant property of that individual, i.e. a property such that the hypothesis that an arbitrary x is a relevantly implies that x has the property.

**Definition 48.** *A property P of a is Dunn-pure iff for all x, if x is a, then x is P.*

Dunn (1987: 357) abbreviates the right-hand side to “a is relevantly an x such that P.x” and Dunn
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(1990a: 180) to “a has P intrinsically.” The class of Dunn-pure properties is closed under negation, conjunction, disjunction, (relevant) implication and even under relevant implication of arbitrary formulae (e.g. if a is relevantly F, then it is relevantly F and such that ψ, for any formula ψ relevantly implies ψ ∨ χ in R) (Dunn 1987: 362–363). As Dunn (1990a: 203, n. 5) remarks, the absence of a free variable in φ should not be taken to be a reason for suspicion. Let us say that a logic L has the dumbmying-in property iff, for every formula A and every any sentence letter p of the language of L, there is a formula B(p) such that L ⊨ A ↔ B(p) (Humberstone 1996: 264,n. 45). Dunn’s logic R and the disjunction-free fragment of Positive R have this property.

The general problem with def. 48, as Humberstone (1996: 264, n. 46) has pointed out, is that it is not clear what such a relevant predicate amounts to. Take any ordinary predicate Fa. In Dunn’s logic R, Fa is not equivalent to the relevant predicate ∀x(x = a → F x). It is, however, equivalent to ∀x((Fa → Fa) ∧ x = a) → F x.

Another problem: it turns out that on Dunn’s account we can, from any formulae F x and G y that determine relevant properties of all their instances, we can construct a ‘relation’, namely (F x → G y) ∨ ¬(F x → G y), such that any two things are relevantly (internally) related by it (Dunn 1990a: 199). This trivialises an interesting metaphysical issue to be considered below in sct. 9.1.

9.2.2 Internal and external relations

What about the purity/impurity distinction for relations and relational properties? Dunn (1987: 338–339) proposes the following four definitions, which correspond to relevantly inequivalent ways of stating the Leibniz’s law for binary relations:

Definition 49 (Dunn-purity for relations). Let a and b be particulars and R a binary relation.

(9) ∀x(x = a → xRb) a is relevantly R-related to b
(10) ∀y(y = b → aRy) b is relevantly R-related to a
(11) ∀x, y(x = a → (y = b → xRy)) a and b stand in the relevant relation R
(12) ∀x, y(x = a ∧ y = b → xRy) a and b are relevantly R-related

While (11) implies all the others, no other relevant implication holds. (9) and (10) come apart in the case of ‘one-sided relations’ as the one between God and His creation according to Aquinas and my thinking of Dunn according to Dunn. (12) is satisfied by the “relation” F x ∨ G y for relevant properties F and G of a and b respectively (Dunn 1987: 365) which obviously does not qualify as a “relevant relation” in the sense of (11). (9) together with (10) imply (11) (Dunn 1987: 364–365).

The question of reducibility, as Dunn (1990a: 202) urged, is then best framed as the question whether

29In the following, I will not adopt this latter reading, having been convinced by Humberstone (1996) that Dunn’s notion of intrinsicalness classifies properties, and therefore is better taken to be an elucidation of purity, applying on the level of predicates not of properties. Dunn himself recognises this much: “All that our definition of relevant predicate requires is that φ makes a difference” to a. This can be viewed metaphysically as a’s coming to have the property φ or coming to lose it means a change in a’s identity, and hence some change in intrinsic properties. But this does not necessarily mean that φ itself is one of a’s intrinsic properties.” (Dunn 1990a: 201)

30(9) derives from x = a → (ϕab → ϕab), (10) from y = b → (ϕab → ϕab), (11) from x = a → (y = b → (ϕab → ϕab)) and (12) from x = a ∧ y = b → (ϕab → ϕab) (Cf. Dunn 1987: 358).

31This is equivalent to the ‘monadic ∀x(x = a → ∀y(y = b → xRy)) (Dunn 1987: 359).

32These examples are immune against the criticism of Sider (1996a: ) who changes Dunn of not having taken into account that it is metaphysical necessity (as opposed to mere biological or physical necessity) that is at stake in cases of one-sided intrinsicalness.
all relational facts reduce to the holding of relevant relational properties of the type of (9) and (10). Supposing for an instance that nationality is a relevant property, a relevant property of pair may be illustrated by the following example from Quine:

(13) If Verdi and Bizet were compatriots, Verdi would be French.
(14) If Verdi and Bizet were compatriots, Bizet would be Italian.

Quine uses this example to show that counterfactuals are truth-conditionally indeterminate, for we have no reason to choose (13) over (14) and the two are incompatible. It can also be used, however, to show that there are properties had collectively by pairs (or more generally \(n\)-tuples) of objects which are not distributable over their members.

9.3 Relations as structural properties

Let us call a foundation of a relation \(R\) any property on which it supervenes. Josh Parsons (2003), defending the British idealists against Russell, has argued that relations supervene at least on structural properties of worlds, if not of anything smaller. The argument is simply that any relation holds between some things; because wholes inherit the truth-making properties of their parts, any fact that makes true the statement that the relation holds among these things also makes true a non-relational statement about something of which these things are parts. So every relation \(R\) has a foundation, which we may denote by \(\overline{R}\). Supervenience on structural properties is not, however, enough to get rid of relations, for structural properties could still essentially involve relations.

We thus have to proceed further: From the foundation of a relation, we get its adicity with respect to a specific exemplification. Contra Armstrong, I do not take the adicity of a relation to be invariable: relations can hold between various numbers of relata. For any exemplification of a relation \(R\), we get its adicity by successively reducing the size of the world of which its foundation \(\overline{R}\) holds. If at any stage we get an object, \(a\), which has \(\overline{R}\) but lacks has a proper \(\overline{R}\) part, we stop. It does not matter if our minimal supervenience base for \(\overline{R}\) is not unique or if it is gerrymandered; all we need is a principled way of counting its relevant parts. Suppose, then, that we have a binary relation \(R\), holding between \(a\) and \(b\). I claim that \(\overline{R}\) is either internal or external, i.e. that it is intrinsic to \(a \oplus b\). Suppose it is not. Then \(\overline{R}\) is an extrinsic property of either \(a\), \(b\) or \(a \oplus b\). Then there is an extrinsic property of \(a \oplus b\) on which \(\overline{R}\) supervenes. But this means that \(\overline{R}\), which we assumed to be a property of \(a \oplus b\), is not a supervenience base for \(\overline{R}\) after all. The minimal supervenience base for \(\overline{R}\) will include more objects than just \(a\) and \(b\) and so we were wrong to assume that \(\overline{R}\) is binary.

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33 This may be part of the reason Dunn now thinks that properties expressed by predicates satisfying (9) and (10) are better not called ‘relational’ at all: “...I know think it is a mistake to speak of ‘relational properties’ when indiscernibility is satisfied with respect to say just \(x\) (and not \(y\)). One should better speak of ‘pseudo-relational properties’ (because there is no relation, at least no relevant one).” (Dunn 1995b: 3).

34 Parsons takes his clue from Simons (1987: 169): “If \(x\) makes \(p\) true and \(x\) is included in \(y\), then \(y\) makes \(p\) true.”

35 Maximally, this will be a world, if we do not (as we should not) accept relations spreading over different worlds.

36 I do not have any principled method to do this. I do not have to, however, as I assumed that every exemplification of a relation is by a definite number of objects (even if the relation itself does not have a fixed adicity).

37 Proof: Suppose \(\overline{R}\) is an extrinsic property of \(a\). Then there is a duplicate \(a’\) of \(a\) that lacks \(\overline{R}\). So \(a’ \oplus b\) is a duplicate of \(a \oplus b\) that lacks having an \(\overline{R}\) part. If \(\overline{R}\) supervenes on \(\overline{R}\), then it also supervenes on this property of the whole.

38 A word of caution is in order here with respect to \(n\)-adic relations that we get from \(n+1\)-adic ones not by ‘completion’,
9.3 Relations as structural properties

Relations, then, supervene on intrinsic properties of the fusion of their relata. Such properties are compositional properties of the form having parts standing in relation, \( R \).\(^{39}\) Why is such a property intrinsic? Suppose \( a \) has it. Then \( a \) has parts \( a_1, \ldots, a_n \) such that \( R(a_1, \ldots, a_n) \). Any \( a \), then has a relational property \( F_1 \) of the form \( \lambda x \exists x_1, \ldots, x_{n-1} (A_1 x_1 \land \ldots \land A_{i-1} x_{i-1} \land A_{i+1} x_{i+1} \land \ldots \land A_n x_n \land R(x_1, \ldots, x_{i-1}, x, x_{i+1}, \ldots, x_n) \). where \( A_i \) denotes \( x_i \)’s nature. Although having an, \( F_1 \) part, is an extrinsic property of \( a \), the conjunction of all these properties which is having parts standing in relation, \( R \), is intrinsic.\(^{40}\)

In what connection do these extrinsic properties of the relata stand to the relation which holds between them? The relata stand in the relation in virtue of being parts of something with an intrinsic nature that includes some structural property. This structural property we denote by “\( \vec{R} \)”. It is composed, in the case of the exemplification of the binary relation \( R \) by \( a \) and \( b \), of having \( R \) to \( b \) and having \( \vec{R} \) to \( a \) and has this internal structure intrinsically. We cannot, however, identify \( R \) with having \( R \) to \( b \) \( \oplus \) having \( \vec{R} \) to \( a \), for we want our relations to be universals, shared by all fusions of objects that exemplify them. To get genuine universals, we have to make use of the fact that any relation \( R \) has a foundation, a structural property of the fusion of its relata on which it supervenes. Let “\( \vec{R} \)" denote the foundation of \( R \). Then it seems plausible to adopt the following thesis for any two-place relation \( R \):

\[
(15) \quad R = \text{having } R \text{ to a part of a } R \oplus \text{having } \vec{R} \text{ to a part of a } \vec{R}
\]

This, however, is still defective, for the foundation of \( R \) can differ between different exemplifications of it. Fortunately, we do not really need it anyway. As we want to give an ontological, but not a terminological reduction of relations, we have to account only for specific exemplifications of relations. Whenever we have such an exemplification of \( R \), say by \( a \) and \( b \), however, we have:

\[
(16) \quad aRb \iff (\lambda x (x \text{ has } R \text{ to } b) \oplus \lambda y (y \text{ has } \vec{R} \text{ to } a)) (a \oplus b)
\]

All we need the existence of a foundation for is to substantiate the claim that \( x \text{ has } R \text{ to } b \) and \( y \text{ has } \vec{R} \text{ to } a \) are not unduly ‘impre’. We have thus have at least an ontological reduction of relations to relational properties.\(^{31}\) We can now answer the questions asked above: Where are relations located? In their relata, or, what amounts to the same, in the fusion of their relata. What is partial similarity? It is exemplification of (literally) only a part of the relation. Does sharing of relations account for similarity? It does not give us similarity of relata, but similarity of fusions of the relata. What is the ontological difference between internal and external relations?\(^{32}\) Internal relations are relations that hold in virtue of (nonrelational) properties of the relata: they are (literally) composed of nonrelational properties. External relations, however, are (fusions of) relational, hence extrinsic, properties.

We thus have a way to improve on (4) and to account for extrinsic relations by the following, where but by quantification or identification of argument places (Humberstone 1996). I do not know whether I have to introduce ‘arbitrary objects’ in order to substantiate my claim that, e.g., belonging to the same owner than, is, in reality, triadic.

\(^{39}\)See Lewis (1989: 62). As an example, take the relation being north of holding between Edinburgh and London. This relation is external for being north of London, does not supervene on the intrinsic properties of Edinburgh. Having two parts \( x \) and \( y \) such that \( x \) is north of \( y \), however, is an intrinsic property of London \( \oplus \) Edinburgh.

\(^{40}\)To see this, consider a binary relation \( R \). I claim that \( \lambda x (\lambda y (Rx)(Ra)b) \)" and "(\( \lambda x (Rx)(Ra) \land (\lambda y (Ry)(Ra)b) \)" ascribe the same property to \( a \) and \( b \), namely that \( R \) holds between them. But "\( \lambda x (\lambda y (Rx)(Ra)b \land (\lambda y (Ry)(Ra)b) \)" is just what is known as \( \alpha \)-conversion. Schoenfinkel observed already in 1924 that \( \alpha \)-conversion allows us to reduce functions of several variables to unary functions (cf. Barendregt 1984: 6, 22).

\(^{41}\)This, I think, is most plausibly to be taken for the Leibnizian view, called ”Monadic Realism” by Armstrong (1983b: 84) and considered to be logically, but not epistemically, possible.
The relational properties and their foundations are unspecifie

the relational property \( \lambda x (x \text{ has } R \text{ to } b) \) in a:

\[
(17) \quad a R b \iff \lambda x (x \text{ has } R \text{ to } b) a \land (\lambda x (x \text{ has } R \text{ to } b) a \iff \lambda x (x \text{ has } \bar{R} \text{ to } a) b) \\
\land (\lambda x (x \text{ has } R \text{ to } b) a \iff (\bar{R} a, a \land \bar{R} b))^{42}
\]

As Fisk (1972: 144) notes, (17) has to be relativised to specific relational facts for the foundations and the relata can differ among exemplifications of one and the same relation. Relational facts, however, are individuated by their foundations:

\[
(18) \quad \forall R \forall a, b \quad (a R b \implies \exists \bar{R} \lambda x (x \text{ has } R \text{ to } b) a \land (\lambda x (x \text{ has } R \text{ to } b) a \iff \lambda x (x \text{ has } \bar{R} \text{ to } a) b) \\
\land (\lambda x (x \text{ has } R \text{ to } b) a \iff (\bar{R} a, a \land \bar{R} b)))
\]

This accounts for asymmetric predicates. If "\( \bar{R} \)" is an predicate satisfying \( \forall a R b \iff \neg b \bar{R} a \), then \( \lambda x (x R b) a \iff \neg \lambda x (x R a) b \). The dissimilarity between the two relational properties \( \lambda x (x R b) a \) and \( \lambda x (x R a) b \) does not have to lie, as Russell thought, in the difference between \( a \) and \( b \). It can also lie in a difference in the foundations of the relational properties, i.e. in the fact that \( \lambda x (x R b) a \iff (\bar{R} a, a \land \bar{R} b) \) whereas \( \lambda x (x R a) b \iff (\bar{R} a, a \land \bar{R} b) \), where \( \bar{R} a, a \land \bar{R} b \) and \( \bar{R} a, a \land \bar{R} b \) are incompatible (Fisk 1972: 147).

As Fisk (1972: 147) notes, the biconditional in (4) cannot be taken to be truth-functional:

"Relational properties are not correlated simply because of a similarity of truth values of corresponding atomic sentences. They are correlated since a relatum's having one of them depends on the other relatum's having the other. [...] ...the basing of relational properties on foundations is equally a matter of dependency and not of a similarity of truth values. Relational properties are properties that relata have because there are certain foundations in those relata." (Fisk 1972: 147–148)

How does (16) reflect that fact that a relation holds of its relata only if these are taken in a given order? (16) identifies relations with fusions. Such fusions have an internal structure (they are composed of their parts in a certain way) and they have this structure intrinsically. The parts of the relations were described using the notion of a converse and we saw above that this is deeply problematic. A coordination account of neutral relations, however, may help us here. For it allows us to say that some asymmetric relation \( R \) distinguishes between two parts of the fusion that exemplifies it by coordinating them with different things, e.g. lovers and beloved ones. This allows us to say that Don José and Abelard, say, have something in common: they are both lover parts of fusions exemplifying the neutral amatory relation.

Relational properties are not correlated simply because of a similarity of truth values of corresponding atomic sentences. They are correlated since a relatum's having one of them depends on the other relatum's having the other. [...] ...the basing of relational properties on foundations is equally a matter of dependency and not of a similarity of truth values. Relational properties are properties that relata have because there are certain foundations in those relata.

The qua-locution provides us with a natural way of saying this. The relational 'complex' \( a, b / \text{loves} \) is at this level of analysis – indeterminate between \( a \)'s loving \( b \) and \( b \)'s loving \( a \). It may, at another

\[^{42}\text{A very similar analysis has been proposed by Fisk (1972: 144) who interprets the "\( \iff \)" as relevant coimplication. He leaves the relational properties and their foundations unspecified, for irrelevant epistemological reasons: "...one need not know which [relational properties] \( f, g \), [and which foundations of them] \( F, G \) will do the trick for the specific case of \( R \) holding between \( a \) and \( b \)." (Fisk 1972: 144).}

\[^{43}\text{This is Fine's word for either a state, a fact or a proposition. I would call it (part of) a fusion.} \]
Relations as structural properties

level of analysis, turn out to be \( a \) qua loving \( b \) \( \oplus \) \( b \) qua being loved by \( a \).\(^{44}\) My account shares both advantages of Fine’s antipositionalism (2000: 16), for it does not reify argument places and provides genuine identity of \( R \) and \( \bar{R} \) for strictly symmetric relations.\(^{45}\) It is also capable of dealing with variable adicity.\(^{46}\) Contrary to antipositionalism, it allows us to give “an account of what it is to substitute one thing for another in terms of the structure of the entities upon which the substitution is being performed” (Fine 2000: 26). This account has just been given: it amounts to pointing out that two completions are “co-mannered” (intuitively, are completions of \( R \) and not of \( \bar{R} \) if the parts of their ‘glosses’ (the involved relations) are identical and arranged in the same way to form the same sort of fusion.

Internal and external relations differ with respect to the relational properties they give rise to. If \( R \) is an internal relation holding between \( a \) and \( b \), the relational property \( \lambda x(Rxb) \) of \( a \) supervenes on the intrinsic properties of \( a \) and \( b \). If we let “\( B \)” denote \( b \)'s intrinsic nature, \( \lambda x \exists y(Rxy \land By) \) thus is an intrinsic property of \( a \). If \( R \) is an external relation, the relational property of \( a \) is then \( \lambda x \exists y(Rxy \land By \land x \text{ is part of a } C) \), which is extrinsic. Internal, but not in general intrinsic, relations thus give rise to intrinsic relational properties of their relata. Internal relations, being nothing over and above the intrinsic properties of their relata on which they supervene, are not really ‘relations’ in the (for us) problematic of this term: they are not mysteriously ‘between’ anything, they are located where their terms are and they account for resemblances between different things.\(^{47}\)

What about external relations? Having a foundation, they supervene on extrinsic properties of their relata, e.g. being part of an \( R \)-connected whole. In this way, it seems, we may have it both ways: we acknowledge the indispensability of relational talk and do not have to take relations with ontological seriousness. We have the expressive power without the ontological price.

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\(^{44}\) *Contra* Williamson (1985: 255), I do not exclude “brute semantic facts” as to whether “\( R \)” stands for \( R \) or its converse. Following Fine (2000), I would simply say that in some cases these are not real alternatives, for loving or being loved by denote the same fusion of two parts, located in different persons.

\(^{45}\) Strictly symmetric relations, on my account, that are such their corresponding relational properties differ only numerically, not qualitatively. Their fusion then is (qualitatively, but not numerically) indifferent to rearrangement of these parts.

\(^{46}\) Take, e.g., *support*. If this relation holds between \( a \) and \( b, c \), both \( b \) and \( c \) have being supported by \( a \) as a common part. If it holds between \( a \) and \( b, c, d \), these three objects overlap in being supported by \( a \). The relation, *supporting \( \oplus \) supported*, is the same.

\(^{47}\) One even could, as Armstrong does, argue that resemblance or, equivalently, partial identity is the only internal relation.
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