

Meaning and Explanation

by

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For Theodore and Michelle,
and for Michael, Chris, Karl, and Uncle David

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I find myself finishing a third Michigan philosophy degree, 12 years after I came to Ann Arbor for Freshman Orientation with instructions from Mrs. Bloom to take a philosophy class. I find myself at a loss for words.

I eventually find these: when I left the PhD program for two years to pursue a master's degree abroad, I knew that my cohort would be finishing their dissertations as I began to make serious progress on my own, but I hadn't expected that both of my undergraduate thesis advisors, who also taught my cohort's proseminar, would have left before my return. So it bears saying that, were it not for David Manley, I wouldn't have written a dissertation at all. He cracks wise about my mother when I mention this merely counterfactual importance, which is part of his as yet unsuccessful attempt to downplay his influence. But he has been the kind of advisor whose office you wander into with a half-formed thought, only to exit several hours later with a chapter outline in mind. I even sometimes take his advice, which is, my wife observes, uniquely identifying. He has my thanks.

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PREFACE

I first became interested in the questions pursued in this dissertation in 2007, in a metaphysics course with Boris Kment. The project as I then conceived it was a vindication of van Fraassen (1980) against the triviality critique of Kitcher and Salmon (1987). I made my first serious attempt to approach explanation through a theory of ‘why’-questions in my 2010 M.Sc. thesis, where I developed a rich notion of a context that was supposed to permit a plausible exhaustive treatment of ‘why’-questions via a contextual notion of completeness for their answers. I subsequently attempted to find something systematic and illuminating to say about the relationship between contexts, contrasts, and answers. But an eventual increase in semantic sophistication led me to the approach pursued here. It thus represents one phase of my attempt to chip away at the problem of explanation.

The dissertation investigates the semantic contribution of the individual words ‘why’ and ‘because’, attempting to get clear on whether and how some of our central explanatory terminology gets disambiguated, and thereby to make some progress on a theory of ‘why’-questions that can tell us something substantive about explanation. Chapter 1 presents some previous theories of ‘why’-questions and situates my account relative to them. Chapter 2 argues that ‘why’ and ‘because’ are, indeed, polysemous. In particular, I argue that why and because have literal causal senses, as well as distinct senses that we use to communicate metaphysical explanations. Chapter 3 considers some uses of ‘because’ that are commonly supposed to be distinct from its causal uses, and shows how to understand them as involving the causal sense of ‘because’ after all. That is, it shows that apparent semantic variations in the meaning of ‘because’ in its so-called epistemic and metalinguistic uses are illusory, and gives a full explanation of those variations in terms of syntactic ambiguities. Chapter 4 offers an explanation of the polysemy observed in chapter 2, and investigates to what extent polysemy can tell us about metaphysics. I argue that a causal metaphor unifies the senses of ‘why’ and ‘because’ at issue in metaphysical explanations with their literal causal senses. This semantic investigation turns out to offer us a new understanding of the centrality of causal explanation to explanation in general.

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CHAPTER 1

The Context of Inquiry

‘Why’-questions present a special opportunity for philosophers. If we could develop an adequate, substantive, and illuminating theory of them, we would be well on our way to understanding explanation as a human practice. But developing a general theory of ‘why’-questions can seem intractable. For one thing, they’re recalcitrant to semantic analysis (§1.1). Two noteworthy approaches to this challenge have been taken. The first imposes artificial order on the phenomena by adopting established theories of explanation to find an account of answerhood for ‘why’-questions (§1.2). The second gives up on informative semantic analysis in favor of empty or opaque pragmatic considerations (§1.3). The present study can be understood as injecting some semantic complexity into more purely pragmatic accounts, and then trying to divine something about explanation itself from the resulting theory.

1.1 RECALCITRANCE OF ‘WHY’-QUESTIONS TO SEMANTIC ANALYSIS

Semanticists typically identify a question with the set of its possible answers, following the second postulate of Hamblin (1958), a foundational work in the logic of questions.¹

Postulate 2 (Hamblin) Knowing what counts as an answer is equivalent to knowing the question.

For certain classes of questions, the typical identification is unproblematic. Yes/no and ‘whether’ questions have straightforward answers. Even constituent questions like ‘who went to the party?’, which query the extension of a property or relation,

¹See the discussion of “set-of-answers methodology” in Harrah (2002).

have clearly definable answers.² But it is not easy to say what the possible answers of a ‘why’-question are. The space of possible answers is messy. Further, for yes/no, ‘whether’, and constituent questions, it’s possible to treat answers as providing exhaustive answers, so that each answer is complete and any two answers mutually exclude one another. Doing so is the very basis for partition semantics, one of the major approaches to the logic of questions.³ But it’s typically doubted that there is such a thing as a complete answer to a ‘why’-question, or that nothing short of the entirety of what Peter Railton calls an ideal explanatory text could give a complete answer.⁴ But if the answers we actually give are never complete, they can never properly be read exhaustively, and can never mutually exclude all other answers from being correct. This would flatly rule out adapting a major approach to questions to the case of ‘why’-questions.⁵

Sylvain Bromberger, who produced perhaps the earliest treatment of answerhood for ‘why’-questions as part of his work on science and ignorance, doubts that Hamblin’s second postulate can be respected when it comes to a particular class of ‘why’-questions.⁶ He thinks scientists often ask ‘why’-questions when they are at a loss, not when they are just trying to decide between a well-understood collection of possible answers. So the role of ‘why’-questions in scientific practice sometimes requires that we can understand them without knowing what would count as answering them.

The search for and discovery of scientific *explanations*, we think, is essentially the search for and discovery of answers to questions that are unanswerable relative to prevailing beliefs and concepts. It is not, therefore, merely a quest for evidence to settle which available answer is correct, it is a quest for the unthought-of.⁷

There is doubtless something right about this idea, but I’m not sure it precludes respecting Hamblin’s second postulate. First, the role of ‘why’-questions in scientific research does not require that ‘why’-questions in general receive an esoteric semantics. When a test asks why a projectile traveled m meters after being fired from the ground at angle θ , we know perfectly well what the possible answers are,

²In the case of properties, the answers just say, of various subsets of the domain, that the members of that subset have the property. In the case of n -ary relations, the answers identify different subsets of the n -ary cross product of the domain.

³See Groenendijk and Stokhof (1984).

⁴See Railton (1981).

⁵I speak in the subjunctive here because it is not obvious that a notion of completeness relative to a context cannot be isolated.

⁶The survey of work on ‘why’-questions in Harrah (2002), §7.1 supports the ‘earliest’ hypothesis.

⁷Bromberger (1992d), 81-82.

and need only employ the equation for projectile motion to answer it. Second, we can distinguish between the semantic value of a question—say, the set of its possible answers—and the interrogative used to ask it.⁸ Insofar as scientific research involves looking for an answer to a ‘why’-interrogative without knowing what the answer might look like, there is a perfectly good sense in which we do not know what question we are trying to answer.

1.2 HEMPELIAN ACCOUNTS OF ‘WHY’-QUESTIONS

One way to impose order on the space of possible answers of ‘why’-questions is via a pre-existing account of scientific explanation. The main problem with this approach to providing an account of ‘why’-questions is that it eliminates the possibility of learning something novel about explanation. The erotetic (i.e., question-based) approach to explanation promised to illuminate explanation via a theory of questions.⁹ It presents an opportunity to understand explanation not merely as a part of scientific practice, but as one of the functions of our common language, a part of the diverse social practice of jointly coming to grips with the world. But some of the most prominent accounts of ‘why’-questions build Hempel’s deductive-nomological theory of scientific explanation into their account of the answerhood conditions for ‘why’-questions. I will discuss the accounts of Bromberger (1992d) and Hintikka and Halonen (1995) in some detail here. The apparent presupposition of such accounts is not that explanations are answers to ‘why’-questions, but that answers to ‘why’-questions are explanations.¹⁰ We first find out what an explanation is, and then use the right theory of explanation to produce a theory of the semantics of ‘why’-questions.

1.2.1 SYLVAIN BROMBERGER’S ACCOUNT

Bromberger’s goal is to identify a set of necessary and sufficient conditions for a true proposition a to be the answer to the question ‘why b ?’, where b is another true proposition. Now, Bromberger is responsible for the class of examples, typified by the flagpole and its shadow, that shows Hempel’s deductive-nomological account of explanation is too permissive.¹¹ But he accepts that the D-N account provides

⁸‘Interrogative’ is a syntactic classification: see Groenendijk and Stokhof (1984), 260ff. and Harrah (2002), §1.1.

⁹See Hempel (1965a), van Fraassen (1980), Achinstein (1971, 1983), Salmon (1984b), and Koura (1988).

¹⁰See Hintikka (1976), 24.

¹¹On the standard understanding of this class of examples, they exploit the fact that, given an equation that counts as a law, filling in values on either side of the equation will permit a

necessary conditions on answers to ‘why’-questions, and restricts the scope of his account to exclude plausible counterexamples to its necessity, including ‘why’-questions about “human acts or intentions or mental states” and ‘why’-questions that receive answers using what I discuss under the label *epistemic ‘because’* in chapter 3.¹² The set of conditions he identifies, then, is intended to strengthen the requirements of the D-N account in order to yield a set of necessary and sufficient conditions for a restricted class of ‘why’-questions.

He first introduces the notion of a *general rule*. General rules are lawlike generalizations of the form represented in (1).

$$(1) \quad (\forall x)[(F_1x \& \dots \& F_jx) \rightarrow (S_1x \& \dots \& S_kx)] \text{ where } j, k \geq 1.$$

(1) looks more complicated than it is: it’s just a first-order representation of the proposition that there’s some class of objects (the ones with all the *F* properties) that have some cluster of properties (namely, S_1, \dots, S_k). We can think here of statements like ‘All Ps are Qs’, and I’ll take that as my sample general rule throughout the next few paragraphs. Bromberger holds that ‘why’-questions arise when a departure from a general rule occurs. The existence of such a departure means that the general rule is false: some P isn’t a Q, after all. The departure can only be explained, in the Hempelian spirit of the account, if we can replace the false general rule with a true lawlike generalization—i.e., a law—that covers it. Given that the departure is a departure from the general rule, it must be in the class of objects that the general rule says something about: in our example, it’s a P. So we are in the market for a law that says something about the Ps, but draws distinctions between the ones that have the properties mentioned in the general rule and the ones that don’t.

Bromberger here introduces the notion of an *abnormic law*.¹³ An abnormic law is a true, lawlike generalization that bears a certain relationship to a general rule. It says that a class of objects mentioned in some general rule—in our example, the Ps—divides up into more specific, mutually exclusive classes, where the members of

nomological deduction of the other side. But unlike equations, explanation is asymmetric: flagpole heights explain shadow lengths, but shadow lengths do not explain flagpole heights.

¹²Bromberger (1992d), 75-76.

¹³The interested reader may consult Bromberger (1992d), §7 for formal renditions of this and the other definitions mentioned here in first-order logic. Wiśniewski (1999) presents a formalization of an associated procedure for answering ‘why’-questions. Cross and Roelofsen (2014) give a simplified presentation with a somewhat different focus than the present discussion. For example, their discussion concludes with counterexamples to the account due to Teller (1974). But as I note below, Bromberger subsequently revised his account to exclude those counterexamples; I discuss his theory as it appears in Bromberger (1992d) rather than the original Bromberger (1966). Thanks to Sylvain Bromberger for discussion here.

all but one such class lack the cluster of properties mentioned by the general rule. Sticking with our example, here we can think of ‘All Ps are exactly one of the following: Qs, Rs, Ss, or Ts’.¹⁴ The Rs, Ss, and Ts are the sole exceptions to the norm mentioned in the general rule, so this is an abnormic law. It *completes* the general rule. We can answer the question why an object fails to exemplify the suite of properties mentioned in the general rule by appealing to its membership in one of the more specific classes of objects that contains exceptions to the general rule: say, that our P isn’t a Q because it’s an S. Note that its being a P and an S, together with the abnormic law as described, entails that it is not a Q. So we have a deduction of the explanandum. Further, the abnormic law is a law. So we have a deductive-nomological explanation of the explanandum. The heart of the D-N account beats on.

Counterexamples to the D-N account are supposed to be blocked in part via a restriction on general rules. Let’s try to apply the standard way of constructing counterexamples to the D-N account to our example. We have a(n abnormic) law that all Ps are exactly one of the following: Qs, Rs, Ss, or Ts. We explain a given P’s not being a Q by appealing to its being an S. This accords with the D-N account: the law together with the fact that our P is an S entails that it’s not a Q. But the law together with the fact that our P is not a Q does not entail that it’s an S. It might be an R or a T instead. If we can get rid of the Rs and the Ts, though, we’ll have a law about a subclass of Ps that are Ss if and only if they aren’t Qs. That law says that all Ps that aren’t Rs or Ts are either Ss or Qs, but not both. Consider what this law entails. It entails that, if a non-R, non-T P is an S, it’s not a Q. It also entails that, if a non-R, non-T P is a non-Q, it’s an S. This is the kind of symmetry that undermines the D-N account of explanation, and it’s bad news for a theory of answerhood conditions for ‘why’-questions. For if our non-R, non-T P is a non-Q because it’s an S, it can’t be an S because it’s a non-Q.

Bromberger argues that he can avoid the counterexamples by imposing a formal generality condition on general rules.¹⁵ Recall from (1) that the class of objects a general rule is about is identified by a conjunction. General laws are required to be as general as possible, without making it impossible for non-trivial abnormic laws to complete them. The law currently causing trouble is that all Ps that aren’t Rs or Ts

¹⁴Q, R, S, and T in our example are what Bromberger calls *antonymic predicates*. An abnormic law may specify properties that the Rs, Ss, and Ts exemplify instead of exemplifying Q. If it does, Bromberger calls it a *general abnormic law*. If it doesn’t, he calls it a *specific abnormic law*.

¹⁵Teller (1974) gives a successful general strategy for turning counterexamples to the D-N account of explanation into counterexamples to the original version of Bromberger’s theory of ‘why’-questions; Bromberger (1992d), 92 claims the generality condition has been fixed.

are either Ss or Qs, but not both. There are only two general rules it can complete: (i) all Ps that aren't Rs or Ts are Qs and (ii) all Ps that aren't Rs or Ts are Ss. But neither (i) nor (ii) is sufficiently general. We can delete the conjuncts requiring our Ps not to be Rs or Ts and still have a general rule that can be completed by an abnormic law. After all, it's a law that all Ps are exactly one of the following: Qs, Rs, Ss, or Ts.¹⁶ The success of this maneuver, though, seems to depend on our being lucky in what laws there are.¹⁷

Nothing stated so far actually requires general rules. The generality condition, for example, might just as well have been imposed on abnormic laws themselves. But the general rule does have a role in the answerhood conditions for 'why'-questions. It is required to be such that, were it true, it would be part of a deductive nomological explanation of some fact incompatible with our actual explanandum. In our example, the general rule together with the fact that our P is a P entails that our P is a Q, which is actually false. On Bromberger's view, the contrast between what the general rule says and what's actually the case is what gives rise to 'why'-questions.

This can make it seem like the class of 'why'-questions characterized by the account is even more heavily restricted than the introductory comments suggested. It provides answerhood conditions only for those 'why'-questions that ask for an explanation of an exception to a general pattern. If the would-be explanandum conforms to a general pattern, the 'why'-question is not to be answered, but rejected.

- (2) A: Why does this live oak keep its leaves during the winter?
B: All live oaks do!¹⁸
- (3) A: Why does this quail bob its head?
B: Because all quails bob their heads.¹⁹

Bromberger reads (2) as a rejection of the 'why'-question: note the lack of 'because'.²⁰ It is not unnatural to include the 'because' in at least some contexts, though. (3)

¹⁶Note that the general rule that all Ps are Qs will only count as sufficiently general as long as we've run out of conjuncts to delete. If being a P is really satisfying a conjunction of atomic formulas, we might be able to keep generalizing.

¹⁷It also rules out lots of things that scientists actually treat as laws: see Lange (2000), Ch. 1, Appendix 2 for examples.

¹⁸From Bromberger (1992d), 95.

¹⁹After Cartwright (1983), 70, who notes that the answer is "not... very explanatory."

²⁰The question is to be rejected because there is no general rule that can be completed by an abnormic law that meets the criteria set forth above. So it has no answer, while a presupposition of any question put forth is that it has an answer. See Belnap (1966), 610, Belnap and Steel (1976), 108-116, and van Fraassen (1980), 140, 144-145 on this presupposition of ('why'-)questions.

gives the response one might give a child who is worried that something is wrong with the bird in question.²¹ The response implicitly corrects the question, though: the ‘quail’ bit, not the ‘this’ bit, is to be emphasized. There are two nearby ‘why’-questions that, even on Bromberger’s account, can be answered.

- (4) A: Why does this animal bob its head?
B: Because it’s a quail.
- (5) A: Why do quails bob their heads?
B: Because of the following nifty facts about quail anatomy: [insert your favorite facts about quail anatomy here]

In order to see how Bromberger’s account applies to these questions, it suffices to imagine general rules like ‘animals don’t bob their heads’ and corresponding abnormic laws that mention being a quail or having a quailish anatomy as exceptions to the general rule. As Bromberger says, general rules needn’t “be true or even plausible.”²² So there’s no prospect of the account being too strict to capture the phenomena by requiring ‘why’-questions to be about something actually surprising.²³

1.2.2 THE EPISTEMIC TRADITION

Hintikka and Halonen (1995) attempt to account for ‘why’-questions within the epistemic approach to questions inaugurated by Åqvist (1965).²⁴ Like Bromberger, they build their theory of the answerhood conditions for ‘why’-questions around a Hempelian theory of explanation. They claim, however, that the notion of answerhood thereby characterized is pragmatic, and adopt a deflationary approach to the complexity of the semantics of ‘why’-questions. As will be seen, this is an extremely radical way of imposing order on the semantics of ‘why’-questions.

The semantic account of answerhood for ‘why’-questions favored by Hintikka and Halonen (1995) centers around the claim that ‘why’-questions are in a certain sense degenerate. Because it is part of the epistemic tradition, the most basic definitions necessary for a discussion of the logic of questions must be reformulated in terms of epistemic logic before that sense can be elucidated. First, the *desideratum* of a question is “the epistemic state of affairs that the questioner would like to have brought

²¹See Schurz and Lambert (1994), 110-111 for a discussion of this point in the context of a theory of scientific understanding.

²²Bromberger (1992d), 88.

²³Cf. Kahneman and Miller (1986), 148-149 on surprise as the source of causal questions.

²⁴Kubiński (1980) claims Bolzano and Loeser as forefathers of the approach.

about (in the normal use of a wh-question).”²⁵ That is, it is the statement that the individual asking a question knows the information that he set out to get by asking it. Next, the *presupposition* of a question is the statement (fronted by a knowledge operator) that must be true in order for the questioner to be in a position to know that the question has a correct answer. Hintikka and Halonen (1995) observe that the presupposition of a question must have been established before the inquirer is allowed to ask this question.²⁶ A response to a question need only have the proper form to count as a *reply*, but it is only an *answer* if it succeeds in providing the necessary information to bring about the desideratum. A response can only provide that information if the questioner is in a position to understand it; Hintikka and Halonen (1995) formalize this requirement as a *conclusiveness condition*.

They provide two examples, meant to illustrate these notions as well as the difference between two types of questions. The first example, (6), is a *constituent question*, which asks for the specification of the member of the singleton set $\{x|Mxr\}$.

(6) For the question ‘Who murdered Roger Ackroyd?’,

Desideratum I know who murdered Roger Ackroyd.

(Symbolically: $\exists x\mathcal{K}Mxr.$)

Presupposition I know Roger Ackroyd was murdered. ($\mathcal{K}\exists xMxr.$)

Reply $\lceil b$ murdered Roger Ackroyd. \rceil ($\mathcal{K}Mbr.$)

Conclusiveness Condition \lceil I know who b is. \rceil ($\exists x\mathcal{K}b = x.$)

In general, constituent questions are queries that can be answered by truthfully filling in a missing grammatical constituent, which has been replaced in the question by a wh-word.²⁷ In (6), replies to the question supply the missing grammatical constituent corresponding to ‘who’, as b does in the indicated reply.

The second example, (7), is a *propositional question*, which is supposed to ask for the indication of the correct disjunct in its presupposition, rather than querying the extension of some predicate or relation.

(7) For the question ‘In which continent is Luxembourg?’,

²⁵Hintikka and Halonen (1995), 638.

²⁶Hintikka and Halonen (1995), 639.

²⁷This replacement is part of a syntactic account of the deep structure of questions: “the wh-word represents, roughly speaking, the queried element that in the syntactical generation of the question is moved to the beginning of the question from its original position in the clause, leaving a trace where it originally was” (Hintikka and Halonen (1995), 645).

Desideratum I know Luxembourg is in Europe, or I know Luxembourg is in Africa, or I know Luxembourg is in North America, or I know Luxembourg is in South America, or I know Luxembourg is in Asia, or I know Luxembourg is in Antarctica, or I know Luxembourg is in Australia.

(Symbolically: $\mathcal{K}El \vee \mathcal{K}Fl \vee \mathcal{K}Nl \vee \mathcal{K}Sl \vee \mathcal{K}Al \vee \mathcal{K}Tl \vee \mathcal{K}Ul$.)²⁸

Presupposition I know Luxembourg is in some continent.

($\mathcal{K}(El \vee Fl \vee Nl \vee Sl \vee Al \vee Tl \vee Ul)$.)

Reply Luxembourg is in Europe. ($\mathcal{K}El$.)

Conclusiveness Condition I know where Europe is.

($\exists P\mathcal{K}P = E$.)

The example is perhaps not ideal, as a different first-order translation of each of these statements could be chosen to render ‘In which continent is Luxembourg?’ itself a constituent question.²⁹ But the contrast between constituent and propositional questions is clear in the case of yes-no questions.

(8) For the question ‘Is Luxembourg in Europe?’,

Desideratum I know Luxembourg is in Europe, or I know it is not the case that Luxembourg is in Europe. (Symbolically: $\mathcal{K}El \vee \mathcal{K} \sim El$, or $\mathcal{K}Ile \vee \mathcal{K} \sim Ile$.)

Presupposition I know Luxembourg is either in Europe or not in Europe.

(E.g., $\mathcal{K}(El \vee \sim El)$.)

Reply Luxembourg is in Europe. (E.g., $\mathcal{K}El$.)

Conclusiveness Condition I know where Europe is.

(E.g., $\exists x\mathcal{K}e = x$.)

There is no natural way, absent a truth predicate, to translate the desideratum, presupposition, etc. of (8) into first-order logic such that what is being queried is the extension of some property or relation.

With these preliminaries in place, the radically deflationary strategy for dealing with the logical complexity of answerhood for ‘why’-questions favored by Hintikka

²⁸Hintikka and Halonen (1995) do not specify a logical form for the items of knowledge here. The translation I have chosen prevents us from interpreting (7) as a constituent question, but also requires a second-order representation of the conclusiveness condition, below.

²⁹For example, translating ‘Luxembourg is in Europe’ as ‘*Ile*’, the desideratum might be something like the following: $\mathcal{K}Ile \vee \mathcal{K}Ilf \vee \mathcal{K}Iln \vee \mathcal{K}Ils \vee \mathcal{K}Ila \vee \mathcal{K}Ilt \vee \mathcal{K}Ilu$. Then the question asks for the specification of the member of the singleton set $\{x|Ilx\}$.

and Halonen (1995) can be stated. ‘Why’-questions, they hold, are simply defective propositional questions: their desiderata are composed of only one disjunct. Since the difference between a question’s desideratum and its presupposition is the distribution of the knowledge operator over the disjunction, desideratum and presupposition coincide for ‘why’-questions. What must be known in order for a questioner to ask a why-question is precisely the information for which he is asking. (9) applies this idea to a schematic why-question.³⁰

- (9) For the question \lceil Why is b P ? \rceil ,
- Desideratum** \lceil I know b is P . \rceil (Symbolically: $\mathcal{K}Pb$.)
- Presupposition** \lceil I know b is P . \rceil (Again, $\mathcal{K}Pb$.)
- Reply*** $\lceil b$ is P . \rceil ($\mathcal{K}Pb$.)
- Conclusiveness Condition*** \lceil I know what b is. \rceil
 $(\exists x \mathcal{K}b = x.)$

According to Hintikka and Halonen (1995), as long as I know what b is, then $\lceil b$ is P . \rceil is the answer to my question \lceil Why is b P ? \rceil .

This seems clearly wrong. Hintikka and Halonen (1995) satisfy common sense by distinguishing between the answer, in their technical sense, and a pragmatic sense of answerhood that better accords with intuition.

*... in ordinary usage the notion of answer is used in a logically different way when it is applied to ‘why’-questions from the way it applies to other kinds of questions.*³¹

This disjunctive treatment is justified by another difference in presuppositions between ‘why’-questions and other kinds of questions founded on a rather technical syntactic difference between them.³² But the logically very different notion of answerhood they offer for ‘why’-questions, like Bromberger’s, coincides with the Hempelian notion of an explanation: “the covering law and/or its initial condition.”³³ They employ Beth tableaux in their formal characterization of what exactly this answerhood condition amounts to, but since the details don’t actually matter for my purposes, I

³⁰The reply and conclusiveness condition in (9) are included for the sake of completeness; the asterisks are to draw attention to the peculiarity of the Hintikka and Halonen (1995) account.

³¹Hintikka and Halonen (1995), 647. Italics theirs.

³²Here they rely on Bromberger (1992c), §2.2, which shows that ‘why’, unlike other ‘wh’-interrogatives, does not bind mid-sentence traces, and so does not have a queried element. (Bromberger (1992b), §5 is inconsistent with this claim, but Bromberger (1992c) is the superseding paper.)

³³Op. cit., 656.

won't introduce the formalism. I will, however, note that their pragmatic account, like the semantic one, is a Procrustean bed. Sometimes the answer to a 'why'-question is that some potential defeater failed to occur. That is, an inquirer might know the relevant laws and initial conditions, but fail to know that some background condition relevant to the application of the laws obtains. Sometimes the answer to the question why a match lit really is that oxygen was present.

Before leaving the epistemic tradition, Koura (1988) deserves some notice for offering a non-degenerate semantics for 'why'-questions. Like Hintikka and Halonen, Koura interprets 'why'-questions as requests for a particular bit of information. But he offers a few different accounts of the information requested by 'why'-questions about the occurrence of events. By reading the why-question 'Why did e occur?' as the what-question 'What caused e ?', he is at least able to generate non-trivial semantic accounts of 'why'-questions by plugging in various theories of the causal relation.³⁴ He gives a similar treatment of 'why'-questions of the form 'Why did actor a do action b ?', which he interprets as requests for reasons.³⁵

1.2.3 GENERAL PROBLEMS WITH THIS APPROACH

The approach taken by Bromberger (1992d) and Hintikka and Halonen (1995) puts a particular theory of scientific explanation at the center of the meaning of 'why'-questions by fiat. But Hempel himself refers to his own notion of explanation as "abstracted" from a "pragmatic" concept of explanation present in ordinary language.³⁶ So it seems unlikely that theories of 'why'-questions as they exist in ordinary language built on top of a Hempelian account of explanation could be adequate to the phenomena.³⁷ Nevertheless, the common presupposition of the literature on explanation is that all genuine explanations "embody in a more or less inchoate way" the features of scientific ones.³⁸ This is probably something that ought to be left up to empirical research rather than presupposed. If, for example, what humans do in providing historical explanations is vastly different from what they do in providing scientific explanations, then the semantics of 'why'-questions cannot just be parasitic

³⁴The first involves a necessitation relation (op. cit., §1); the second the connective involved in counterfactual conditionals (ibid., §2); the third a probability-raising condition (ibid., §3).

³⁵The theory plugged in involves a desire operator, a belief operator, and a necessitation relation (ibid., §4).

³⁶Hempel (1965a), 425-428.

³⁷Indeed, Halonen and Hintikka (2005) offer a heavily modified view that is not just parasitic on a Hempelian account of explanation.

³⁸Woodward (2009), §1.

on a theory of scientific explanation.³⁹ Further, not only does taking this approach expose the semantic theory to the shortcomings of the theory of explanation, but it also just abandons the promise of the erotetic approach to explanation. Koura (1988)’s paint-by-numbers approach, for example, fails, because it does not try, to provide an *illuminating* account of ‘why’-questions. But the goal of an erotetic account of explanation is to learn something about explanation. It is not to massage a pre-existing theory into an artificially regimented semantics.

1.3 PRAGMATIC ACCOUNTS OF ‘WHY’-QUESTIONS

There is something right about the idea of Hintikka and Halonen (1995) that the semantics of ‘why’ leaves a lot up to pragmatics. Paul Teller pointed it out decades ago, in a critical study of Bromberger’s account of ‘why’-questions:

...contextual considerations which have not yet been clearly isolated must be taken into account before we can expect to have an adequate account of explanation or answers to ‘why’-questions.⁴⁰

At least since van Fraassen (1980) presented a context-sensitive theory of explanations as answers to ‘why’-questions, the received view among philosophers of science is that ‘why’ and ‘because’ are context-sensitive.⁴¹ Van Fraassen (1980) presents the main pragmatic account of ‘why’-questions discussed here, and the one relative to which the present work will be explicitly located, as the questions I am trying to answer can be stated perspicuously relative to that theory.

1.3.1 VAN FRAASSEN’S CONTRASTIVE ACCOUNT

Van Fraassen provides a framework for a contrastive account of explanation that is as unobjectionable as it is underspecified. According to van Fraassen (1980)’s account, a ‘why’-question Q can be identified with a triple $\langle P_k, X, R \rangle$, where P_k is the *topic* of the question; X , a set $\{P_1, \dots, P_k, \dots\}$ of propositions, is a *contrast-class*; and R is a

³⁹The relationship between historical and scientific explanations was once a central concern of the explanation literature: see, e.g., Dray (1957); Hempel (1965a), §7; Hempel (1965c); and Salmon (1989), §1.2. Readers familiar with Dray (1957) may think historical explanations have nothing to do with ‘why’-questions but are rather concerned with ‘how possibly’-questions. No doubt for some historical explanations that is correct. But we can also ask why historical figures acted as they did, why certain battles occurred, and so on. It is not obvious that answers to these kinds of questions should be expected to coincide with scientific explanations, but see, e.g., Hempel (1965a), §10 and Weber et al. (2005), §4.1.

⁴⁰Teller (1974), 379.

⁴¹In discussing van Fraassen’s treatment of explanations as answers to ‘why’-questions, Salmon (1989) claims it is simply “obvious that various features of actual explanations depend upon context” (146). But see Nickel (2010) for some limited dissent.

relevance relation.⁴² The question “Why is the shadow 10 feet long?”, for example, has as topic the proposition expressed by “the shadow is 10 feet long.” A useful way to think of a contrast-class is as the set of possible answers to a question answered by the topic. Thus the aforementioned question might have the set of answers to the question “How long is the shadow?” as contrast-class, namely, the set of those propositions expressed by “the shadow is 8 feet long”, “the shadow is 9 feet long”, “the shadow is 10 feet long”, “the shadow is 11 feet long”, etc. Alternatively it might have the set of answers to the question “What is 10 feet long?” as contrast-class, namely, the set of those propositions expressed by “the line is 10 feet long”, “the shadow is 10 feet long”, “the tape measure is 10 feet long”, etc.⁴³ The relevance relation is where the action is: it relates propositions to the pair $\langle P_k, X \rangle$, and any proposition so related is the answer.⁴⁴ Van Fraassen holds identification of the contrast-class and the extension of the relevance relation to be contextual matters.⁴⁵

Van Fraassen says only a little more about contexts or how they fix contrast-classes or relevance relations. He does require that the canonical form of a ‘because’ sentence should include an explicit specification of the contrast-class for the explanandum: proper answers are sentences like ‘ ϕ in contrast to (the rest of) X because ψ ’. But he allows that such answers can be—as, of course, they often are—abbreviated to ‘because ψ ’.⁴⁶ The contrast-class should nevertheless be composed of alternatives somehow salient in the context, but this is not fleshed out at all. That’s not to say that it couldn’t be. Sally Haslanger’s (as yet unpublished) work on social structural explanation, for example, could be thought of as offering (i) an account of how social structures can fix the contrast-classes operative in shallow explanations of, e.g., women’s choices to put their careers on hold, while also emphasizing (ii) that relative to a contrast-class of what would look like more desirable choices in the absence of prevailing social structures, the prevalence of a social structure itself can be the answer to a question why a particular decision was made. The relevance relation varies with contexts because, van Fraassen holds, relevance is pragmatic: it depends upon such features of a context as “assumptions taken for granted, theories

⁴²On contrastivity in explanation, see Dretske (1972), Schaffer (2005a), and Hitchcock (2013).

⁴³In line with Hamblin (1958)’s first postulate, answers are expressed by full sentences, not mere noun phrases.

⁴⁴In his terminology, any proposition so related is the *core* of a *direct answer*, where a direct answer is a proposition that’s true just in case the topic is true, none of the members of its contrast class are true, and the core is true.

⁴⁵What is given above is just van Fraassen’s account of what it is for something to be an answer to a ‘why’-question. He has a further account (see op. cit., §4.4) of what it takes for an answer to a ‘why’-question to be a good one. Insofar as my interest in this section is in semantics and pragmatics rather than in philosophy of science, I neglect discussion of the further account.

⁴⁶See op. cit., §4.3.

accepted, world-pictures or paradigms adhered to, in that context.”⁴⁷ Note that the answerhood conditions for ‘why’-questions are thus sensitive to *extra-linguistic* context: the contextual identification of the relevance relation, for example, is sensitive to whether one’s interlocutor is a mechanic or a civic planner.⁴⁸ He adverts to a single feature of contexts that determines the relevance relation, which he calls “the respect-in-which a reason is requested”.⁴⁹ Without going in for an ontology of respects in which reasons might be requested, we can at least say that, on van Fraassen’s view, answerhood conditions are properly understood as relativized to the interests, background theories, and other contextual idiosyncrasies of conversational participants.

But none of this makes it into the formalization of the theory that he offers. No constraints, beyond the definitional ones, are placed on contrast-classes or relevance relations. Kitcher and Salmon (1987) are thus able to argue with some plausibility that the theory is basically trivial, since nothing in the formalization prevents the relevance relation from relating arbitrary propositions.

... the lack of any constraints on “relevance” relations allows just about anything to count as the answer to just about any question.⁵⁰

The moral is that, unless he imposes some conditions on relevance relations, his theory is committed to the result that almost anything can explain almost anything.⁵¹

As I discuss below, according to van Fraassen, the word ‘because’ communicates that the relevance relation holds between a ‘why’-question’s topic and its answer. An investigation into the semantics ‘because’ can, I think, provide some constraints that would have helped to avoid Kitcher and Salmon’s trivialization charge. This dissertation is devoted to such an investigation. Making headway will involve departing from van Fraassen’s view of the semantics of ‘because’, but jumping off from

⁴⁷van Fraassen (1980), 137. Achinstein (2010b) insists that this is not enough for an account of explanation to be pragmatic, which according to him requires that explanation sentences and their truth-conditions contain terms for explainers or audiences. This strikes me as insisting upon importing a pragmatic black box into our semantics. Better if we can isolate the features of explainers and their audiences that actually matter. Achinstein (2010b), 139 complains that such maneuvers would ‘trivialize’ the non-pragmatist’s position; I agree that it undermines the debate, but I see no cause for complaint.

⁴⁸van Fraassen (1980), 126.

⁴⁹Ibid., 142. Van Fraassen suggests that the fourfold Aristotelian typology of causes is a crude typology of the different respects in which one might request an explanation.

⁵⁰Kitcher and Salmon (1987), 319.

⁵¹Ibid., 322.

his account nevertheless provides a nice way to characterize what I'll be up to.

1.3.2 AN IMPLEMENTATION OF VAN FRAASSEN'S ACCOUNT

In order to locate the discussion of 'because' as a lexical item relative to van Fraassen's view, it will help to provide a concrete implementation of his general description of truth-conditions for 'because' sentences. The envisioned semantics is a context-sensitive semantics for 'why' and 'because', insofar as extra-linguistic context is claimed to supply otherwise underspecified semantic values. In particular, the truth-values of 'because' sentences vary with extra-linguistic context. Several decisions have to be made in order to implement the idea, but the details of the implementation to be discussed are not of great importance. The point is to get a plausible version of the received view on the table. Part of what this dissertation shows is that, in contrast to the received view, context-sensitivity does not provide the full story about the semantic behavior of 'why' and 'because', and that it is necessary to posit, in addition, some complexity in their lexical entries.⁵² The chosen implementation should therefore clearly separate non-lexical sources of context-sensitivity from the contributions of lexical entries themselves. This is accomplished by representing the context-sensitive features of 'why' and 'because' in logical form with free variables that represent contrast-classes and relevance relations. These free variables are saturated by extra-linguistic context. The contextual saturation of the free variable representing the relevance relation will be constrained by the lexical entry for either 'why' or 'because'.⁵³ One of the questions pursued below is whether the constraints on the saturation of that variable are themselves context-invariant. If all of the semantic context-sensitivity of 'why' and 'because' can be traced to the extra-linguistic contextual saturation of free variables, then there is no need to posit any complexity in the corresponding lexical entries.

Figures 1.1 and 1.2 show what the syntactic trees for a couple of examples might look like under such an implementation.⁵⁴ There are three things to notice about

⁵²For those who would prefer to avoid commitment to lexical entries as theoretical entities, complexity in the lexical entry can be thought of as complexity in the tacit knowledge that language users must have in order to know what 'why' and 'because' mean. The latter sort of complexity will have to be characterized in terms appropriate to tacit knowledge, but there is no reason to think that this should present any obstacle.

⁵³This implementation incorporates Stanley (2000)'s contention that all truth-conditional effects of extra-linguistic context are traceable to logical form, but the incorporation is not essential to the account. I will say more about this below.

⁵⁴The trees are simplified for consumption by non-syntacticians in a few ways: 'Adam' is better treated as a DP with a null determiner; tense should be represented by a separate element that combines with a VP to yield a TP (tense phrase); the mechanism of inversion that transforms

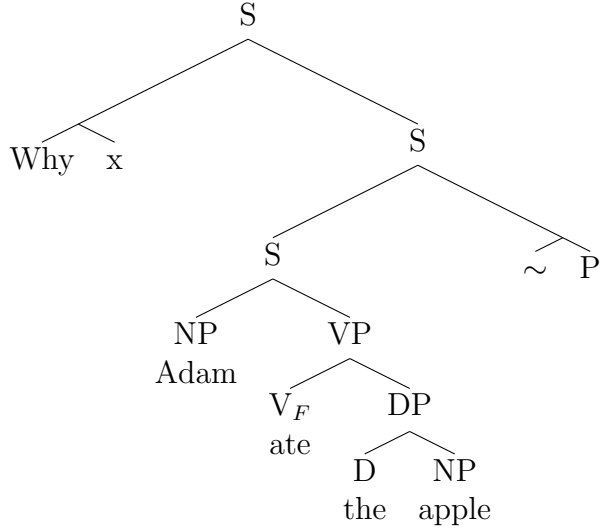


Figure 1.1: Why did Adam *eat* the apple?

this implementation. The first is the use of Rooth (1992)’s representation of focus in Figures 1.1 and 1.2: the focus feature F , the focus interpretation operator \sim , and the set variable P . These are the mechanism by which context supplies contrast-classes: in particular, P is the contrast-class. The details of Rooth’s treatment are unimportant.⁵⁵ But, crucially, the mechanism by which context supplies contrast-classes has nothing to do with the semantics of either ‘why’ or ‘because’. Contrast-classes are supplied by extra-linguistic context, keyed by emphatic stress or focus in the linguistic material expressing the topic of the why-question or, correspondingly, the explanandum phrase of the ‘because’ sentence.⁵⁶ This is precisely analogous to van Fraassen’s treatment of contrast-classes: he requires the contrast-class to be made

‘Adam *ate* the apple’ to ‘did Adam *eat* the apple’ in the derivation of the interrogative of Figure 1.1 is left unrepresented. The simplifications (listed here or otherwise) do not affect the substance of the present discussion. I am indebted to Ezra Keshet for help with the trees, as well as many other parts of the present section.

⁵⁵The focus feature F subscripted on the V in Figures 1.1 and 1.2 is the syntactic counterpart of the emphatic stress represented with italicization in their captions. (The claimed relationship between focus and emphatic stress is something like the received view, though it is not entirely uncontroversial: see, e.g., Xu and Xu (2005) for criticism.) The semantic correlate of the syntactic focus feature is the so-called focus semantic value. The focus semantic value of the explanandum phrase of Figure 1.2, denoted $[[[s \text{ Adam } [ate]_F \text{ the apple}]]]^f$, is the set of sentences of the form ‘Adam X ’d the apple’ for some transitive verb X . Oversimplifying, this set looks something like $\{X(a, b) \mid X : E^2 \rightarrow \mathcal{P}(W)\}$ where a names Adam, b names the apple, E is the set of entities, W the set of worlds, and so $\mathcal{P}(W)$ the set of possible worlds propositions. The set variable P is the famed contrast-class, and the focus interpretation operator \sim simply requires that $P \subseteq [[[s \text{ Adam } [ate]_F \text{ the apple}]]]^f$. That is, the focus interpretation operator \sim requires that the contrast-class is a (contextually supplied) subset of the mechanically generated focus semantic value of the explanandum sentence.

⁵⁶In Rooth (1992), focus-free phrases receive degenerate focus semantic values. Thus, the implementation easily accommodates non-contrastive ‘why’-questions. Cf. Lewis (1986a), §6.

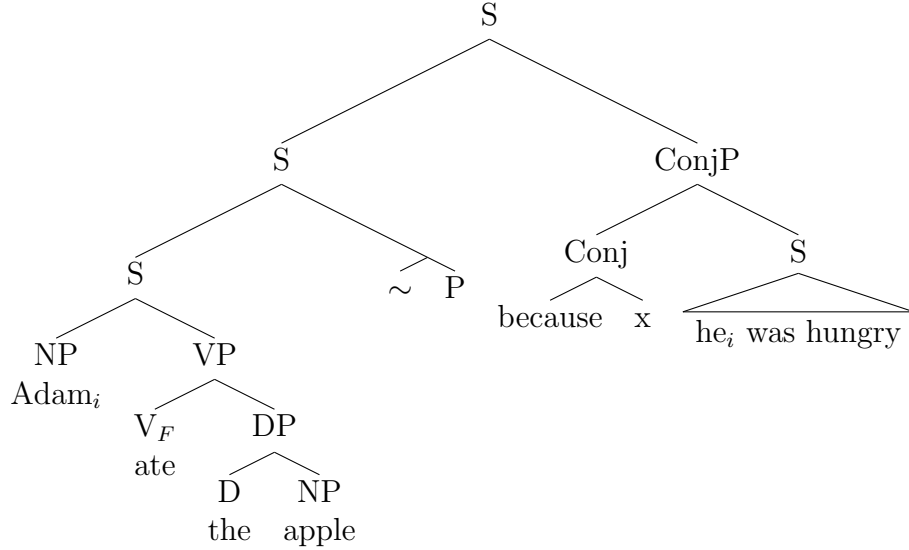


Figure 1.2: Adam *ate* the apple because he was hungry.

explicit in the canonical forms of both ‘why’-questions and answers, so that the denotations of ‘why’ and ‘because’ can be given with reference to contrast-classes without requiring that either word somehow introduces them.⁵⁷ (Note that one could also incorporate contrast-classes on the explanans side if so desired, using the same syntactic and semantic machinery.⁵⁸)

The second thing to notice is the free variable x associated with both ‘why’ and ‘because’: this is the syntactic correlate of the contextually supplied relevance relation. According to van Fraassen, supplying this variable is almost the whole of the semantic contribution made by ‘because’:

And finally, there is that word ‘because’: [the ‘because’ sentence] claims that [the explanans] is a *reason*.

This fourth point we have awaited with bated breath. Is this not where the inextricably modal or counterfactual element comes in? But not at all; in my opinion, the word ‘because’ here signifies only that [the explanans] is relevant, in this context, to this question. Hence the claim is merely that [the explanans] bears [the relevance relation] to [the topic and its contrast-class].⁵⁹

So the semantic contribution of [_{Conj} because] is something like

⁵⁷Recall the discussion of the canonical form of ‘because’ sentences above.

⁵⁸I proposed a version of this incorporation in my masters thesis as a generalization of the causal contrastivism of Schaffer (2005b). See Hitchcock (2013) for a recent defense of the possibility of the appearance of contrasts on the explanans side of ‘because’ sentences.

⁵⁹van Fraassen (1980), 143.

$$(10) \quad \llbracket [\text{Conj because}] \rrbracket = \lambda z \lambda T \lambda S . z(S, T)$$

where S and T are of type t . Further,

$$(11) \quad \llbracket [\text{ConjP because x}] \rrbracket = \lambda z \lambda T \lambda S . z(S, T)(x) = \lambda T \lambda S . x(S, T).$$

If x is a relevance relation, this is again precisely analogous to van Fraassen’s account. The conjunction phrase ‘because x ’ first links up with the sentence expressing the explanans. It then relates the explanans phrase to the focus phrase. Since the set variable P in Figure 1.2 just is the contrast-class for the topic, this is but a decurrying or *deschönfinkelization* away from relating the explanantia to the ordered pair of the topic and contrast-class. On this implementation of van Fraassen’s idea, ‘because’ makes a two-part semantic contribution. First, it introduces the free variable x , which is contextually saturated as a relevance relation. Second, the lexical entry for ‘because’ constrains how x can be saturated: according to the quote above, x has to be a reason.⁶⁰ A similar story applies to the interrogative word ‘why’ in Figure 1.1.

The third and final thing to notice is that the implementation incorporates the position of Stanley (2000) by tracing all sources of truth-conditional context-dependence to elements of logical form. In particular, it traces the context-dependence of ‘why’-questions and their answers to free variables in their underlying logical forms that get assigned contextually supplied values. The semantic questions investigated below could just as well be framed in terms of lexical constraints on the contextual identification of the denotations of ‘why’ and ‘because’, even if there were no free variables in the relevant logical forms responsible for the context-sensitivity. It could just as well be framed in terms of lexical constraints on the truth-conditional contributions of unarticulated constituents analogous to the free variables that the implementation posits. It could even be framed in terms of lexical constraints on the truth-conditional contributions of unarticulated constituents *not* analogous to the free variables that the implementation posits: maybe instead of the contrast-class being introduced separately from the semantic contributions of ‘why’ or ‘because’ (as on the present implementation), those terms instead introduce a two-place relation between propositions that varies contextually *as if* it were sensitive to additional relata like van Fraassen’s contrast-classes and relevance relations.⁶¹

⁶⁰But the question of what it takes to be a reason is apparently just the question of what it takes to be explanatory: Wesley Salmon, in Salmon (1989) and elsewhere, emphasizes the poverty of the van Fraassen’s account here.

⁶¹To get a sense of the options here, see Perry (1986), which introduces the notion of unarticulated constituents, and Recanati (2002), which critically discusses the arguments against them in Stanley (2000).

Now, van Fraassen (1980) holds that all ‘why’-questions and because-sentences answering them have canonical forms corresponding, under the present implementation, to logical forms like Figures 1.1 and 1.2. These underlying logical forms are commonly supposed to be unambiguous: after all, any structural ambiguities had to be disambiguated in order to draw the trees, and the terminal nodes are either labels of lexical entries, contextually saturated free variables, or the unambiguous focus interpretation operator \sim .⁶² So it ought to follow either that van Fraassen is wrong about the canonical forms of ‘why’-questions and their answers, or that the implementation is mistaken, or that ‘why’ and ‘because’ are unambiguous. Nevertheless, the alleged labels of lexical entries appearing at terminal nodes in Figures 1.1 and 1.2 are just words.⁶³ If those words are themselves ambiguous, then their ambiguity is inherited by the logical forms in which they appear. So the identification of allegedly unambiguous logical forms, i.e., our concrete implementation of van Fraassen’s account of ‘why’-questions and their answers, does not settle the question of the proper treatment of ‘why’ and ‘because’ as lexical items. But it does allow for a perspicuous statement of the research question.

One of the main issues pursued below, which can now be located precisely relative to the van Fraassenian account, is how the lexical entry (or entries) for ‘why’ and ‘because’ constrain(s) the values that their semantic values can take as arguments. In the formalism provided by van Fraassen (1980), there is simply no constraint, as suggested by the adverbs in the quotation above.⁶⁴ But the implementation represented in Figure 1.2 does provide some constraint: the node labeled ‘because’ points to its lexical entry. Per the quotation above, van Fraassen’s informal comments make clear that the lexical entry for ‘because’ should require that the free variable x be saturated with a relevance relation. Salmon has emphasized that this is just the requirement that potential explanantia must be explanatory: whatever other virtues the account may have, it leaves unspecified what kind of constraints there are on would-be explanantia.⁶⁵ But while Salmon has discussed the need to specify what a

⁶²Cf. Stanley (2000), 399.

⁶³Thus Gillon (1990), 401:

It is important to observe that standard linguistic notation is equivocal with respect to the distinction between expression and syntactic analysis [i.e., logical form]. In particular, it does not distinguish between words as phonic or graphic expressions, on the one hand, and words as syntactic labels of terminal nodes of phrase markers, on the other. While this practice is notationally convenient, it is theoretically misleading. . .

⁶⁴This fact underlies the trivialization critique of Kitcher and Salmon (1987).

⁶⁵Salmon (1989). Cf. also Kitcher (1989), §2.2.

why-question is asking by identifying statistical sample spaces and relevant contrasts, he neglects to consider whether ‘why’ and ‘because’ themselves require disambiguation or other lexical specification.⁶⁶ Without getting into the specific architecture of lexical entries, we can fruitfully investigate whether the constraints on the pragmatic saturation of the free variable corresponding to van Frassen’s relevance relations are the same across all uses of ‘why’ and ‘because’. Perhaps surprisingly, the evidence to be considered suggests that they are not.

1.4 THE FRUITS OF INQUIRY

The theories described above have primarily focused on answerhood conditions for interrogatives beginning with ‘why’. This study takes a different approach, investigating the semantic contribution of the individual words ‘why’ and ‘because’. It is not, however, an attempt to revive generative semantics or anything like it.⁶⁷ It is just an attempt to get clear on whether and how some of our central explanatory terminology gets disambiguated, and thereby to make some progress on a theory of ‘why’-questions that can tell us something about explanation.

In the second chapter, I argue that ‘why’ and ‘because’ put additional semantic constraints on relevance relations. In particular, they have literal causal senses, as well as non-literal metaphorical senses. The third chapter shows that apparent further variations in the meaning of ‘because’ in its so-called epistemic and metalinguistic uses are illusory. Syntactic differences fully explain the apparent differences in the meaning of ‘because’ in these uses. One of the consequences here is that theories of ‘why’-questions should be able to encompass cases that previous theorists have merely set aside. The fourth and final chapter investigates further the unity of the causal sense of ‘because’, its relationship to the metaphorical sense, and what, if anything, this kind of semantic investigation can tell us about explanation. What it turns out to offer us, I argue, is a new understanding of the centrality of causal explanation to explanation in general.

⁶⁶Cf. Salmon (1998b).

⁶⁷See de Swart (1998), Ch. 2, §§1-2 for a brief description of the rise and fall of generative semantics.

CHAPTER 2

Ambiguity and Explanation

Philosophical interest in ‘because’ typically arises from one of two camps: philosophers of science interested in explanation, and metaphysicians interested in grounding relations.¹ Many explanations can be characterized as answers to why-questions, which are paradigmatically answered with ‘because’ clauses.² So philosophers of science have sometimes advanced claims about ‘why’ and ‘because’ in the course of elaborating claims about explanation.³ Metaphysics, for its part, has recently seen an explosion of interest in grounding and fundamentality relations, which are picked out by terms like ‘in virtue of’, ‘due to’, ‘depends on’, ‘because’, ‘because of’, and ‘makes it the case that’.⁴ Since grounding and fundamentality relations back metaphysical explanations in much the way causal relations back scientific explanations, theorists have become interested in the semantics of ‘because’ here, too. In particular, the question raised by philosophical discussions of ‘because’ is whether or not it is ambiguous between the causal sense expressed in many scientific explanations

¹This paper has benefited enormously from the questions and comments received from audiences in Ann Arbor, Amsterdam, and Bochum, and in particular from helpful exchanges with Dmitri Gallow, Ezra Keshet, Eric Lormand, David Manley, Ishani Maitra, Floor Rombout, Charles Sebens, Frank Veltman, Brian Weatherson, and Henk Zeevat. It would not be what it is without them. It would not be at all without David Manley.

²‘Many’, because not all: one standard exception is explanations that are better characterized as answers to other types of questions (cf. Bromberger (1992d), §4), with how-questions (e.g., Cross (1991)) or even how-possibly-questions (see Dray (1957) and Hempel (1965b), 428-430) sometimes receiving special emphasis. Another possible exception is why-questions that are answered with ‘in order to’ clauses, although ‘A ϕ ’d in order to X’ can be rewritten as ‘A ϕ ’d because she wanted to X’ when A is an agent, and the classic paper Wright (1973) analyzes the ‘in order to’ of teleological explanations in biology partly in terms of ‘because’. Van Fraassen (1980) somewhat idiosyncratically insists that all explanations are answers to why-questions, all of which can be given using ‘because’.

³All of the works cited in the previous footnote do this, but Jenkins (2008) and Nickel (2010) are two recent examples.

⁴See Fine (2001), Schaffer (2009), and Rosen (2010), as well as the works discussed in Clark and Liggins (2012) and the many essays in Correia and Schnieder (2012b) and Hoeltje et al. (2013).

and the sense expressed in metaphysical explanations.⁵

To the extent that the ambiguity of words in the mental lexicon directly reflects conceptual distinctions, understanding the meaning of ‘why’ and ‘because’ can help us understand how we think about explanations, illuminating explanation as a human practice.⁶ In particular, the account of ‘why’ and ‘because’ I begin to develop below opens a semantic window into the structure of our explanatory concepts, bringing into view the centrality of causal explanation. Despite the failure of univocality, the causal senses of ‘why’ and ‘because’ are central, and the senses relevant to metaphysical explanations are derivative from the causal senses.⁷ This yields a novel account of the relation between causal explanation and explanation in general: causal explanation does not exhaust explanation—*pace* Salmon (1984a), Lewis (1986a), and others—but it is nevertheless the paradigm for explanation, a conclusion such philosophers must surely welcome. Though the present paper is more concerned to establish the semantic facts than to develop the lessons they offer, I will return to this point at the end.

From a metaphysical perspective, the relationship between causation and grounding would seem to be independent of our linguistic and conceptual apparatus. Ambiguities and associated conceptual distinctions are not guaranteed to reflect metaphysical differences, *pace* a plausible reading of early Wittgenstein.⁸ Nevertheless, particular theories of metaphysical explanation incur commitments about the semantics of ‘why’ and ‘because’. For example, if grounding relations are different in kind from causal relations, the fact (if it is one) that ‘because’ can express explanatory connections backed by grounding relations itself requires explanation.⁹ An ambiguity posit, according to which there are distinct causal and metaphysical senses of ‘because’,

⁵See Tatzel (2002), §3, Correia (2010), Schnieder (2011), 447-448, Correia and Schnieder (2012a), §4.2, A. Wilson (2013), 6-7, and Schaffer (2014), 30 but cf. Mulligan (2006), 38 and Fine (2012), 46.

⁶See the discussion in Johnson (2004) of what he calls ‘the Isomorphism Assumption’ for more on the relationship between semantic complexity and conceptual complexity. A parallel investigation might focus on whether ‘explains’ and ‘explanation’ are ambiguous; much of the evidence presented below with regard to ‘because’ can indeed be reproduced for ‘explains’ and ‘explanation’. Jenkins (2008) considers ambiguity posits for these terms, but only with respect to ontological category: see the discussion in §2.2 below.

⁷This should recall the Aristotelian notion of $\pi\rho\delta\varsigma\ \tilde{\epsilon}\nu$ or focal meaning: see Owen (1960) for the classic discussion, as well as Irwin (1981).

⁸See *Tractatus*, 4.121 and 6.124, and cf. the rejection of any such guarantee at Rayo (2013), §1.2.2. I discuss the situation here in detail in §4.4.

⁹Correia and Schnieder (2012a), §4.2 suggests this motivation for philosophical interest in ‘because’. Cf. the comments on the relationship between the context-sensitivity of ‘because’ claims and the context-sensitivity of what counts as explanatory information at Nickel (2010), 325, fn. 15.

could provide that explanation.

Insofar as particular theories of explanation incur commitments about the semantics of ‘why’ and ‘because’, the semantic facts about ‘why’ and ‘because’ can even help to adjudicate between particular theories of explanation. For example, if ‘why’ and ‘because’ turn out to be univocal, then all else equal we have reason to prefer a theory according to which causation and grounding involve a single relation. Thus the univocality thesis fits most naturally with the claim that grounding is “metaphysical causation” in A. Wilson (2013) and Schaffer (2014).¹⁰ Inversely, if ‘why’ and ‘because’ turn out not to be univocal, as I argue below, then all else equal we have reason to prefer a theory according to which causation and grounding involve different relations.¹¹

This paper investigates the causal-explanatory and metaphysical explanatory uses of ‘because’.¹² I hold, contra Bolzano, van Fraassen (1980), A. Wilson (2013), and Schaffer (2014), that there is a second sense of ‘because’ relating to various grounding or fundamentality relations and distinct from a causal sense of ‘because’.¹³ However, the fact that ‘because’ is not univocal—or, to introduce this paper’s preferred terminology, *monosemous*—does not mean that ‘because’ is homonymous. That is, the two senses are not expressed by distinct words that happen to sound and look alike. ‘Because’, rather, is *polysemous*. There is a single lexical entry for ‘because’ with some semantic structure that encodes the distinction between the senses. This suggests a common core to the two meanings, the precise nature of which will be indicated at the end of this paper and further examined in other work. The semantic distinctness of the two senses of ‘because’ reflects the way in which speakers’ tacit

¹⁰This pairing is not however mandatory. ‘Jade’ is univocal—it means *jade*—though the two types of jade, jadeite and nephrite, are rather different materials.

¹¹A lesson reinforced by the semantic underdetermination literature—I am thinking of Putnam (1980), Kripke (1982), Lewis (1983), Lewis (1984), and related works—is that meaning just ain’t in the head. *Pace* skeptics like Kripke’s Wittgenstein, bullet biters like Boghossian, and internal realists like middle Putnam, the world itself makes a contribution to help fix reference insofar as some potential referents are more joint-cutting than others. If the most joint-cutting relation corresponding to our causal talk is also the most joint-cutting relation corresponding to our grounding and fundamentality talk, polysemy in our explanatory discourse may amount to a distinction without a difference. But the semantic facts of the matter are not inconsequential to the project of regimenting that discourse as a step towards finding the joints.

¹²I use ‘causal-explanatory’ and ‘causal’ interchangeably when referring to the former category of uses of ‘because’; likewise for ‘metaphysical explanatory’, and ‘metaphysical’ in reference to the grounding and fundamentality-related uses of ‘because’. The latter category of uses must also be distinguished from epistemic and metalinguistic uses. I argue elsewhere that these uses are in fact all causal, with differences between them attributable to syntactic rather than semantic variation.

¹³Correia and Schnieder (2012b), 22-23 construe Bolzano and van Fraassen (1980) as opponents to this claim; A. Wilson (2013) and Schaffer (2014) explicitly oppose it.

knowledge about ‘because’ has to be extended in order to acquire competence with its metaphysical uses. For a speaker to know the meaning of ‘because’ as it occurs in those uses, she has to develop the qualitatively novel tacit knowledge that ‘because’ can be used to express metaphysical explanations.¹⁴ The theoretical price of complicating the lexical entry for ‘because’ must be paid here.¹⁵

This paper is set up as follows. §2.1 surveys the apparently distinct senses of ‘because’. §2.2 introduces the theoretical categories of lexical semantics in terms of which the paper’s claims about ‘because’ will be posed. §2.3 discusses an ambiguity test that exploits the differences between these categories, and §2.4 explores its results when applied to ‘because’. The next two sections address arguments that ‘because’ is context-sensitive but monosemous (§2.5) and that so-called hybrid explanations provide evidence for the monosemy of ‘because’ (§2.6). §2.7 returns to the philosophical consequences of the view presented in the body of the paper, and indicates the work that remains.

2.1 CAUSAL AND METAPHYSICAL ‘BECAUSE’ SENTENCES

‘Because’ is etymologically transparent: it comes from the phrase ‘by cause’. It lives up to its etymology in most of its uses.¹⁶

- (1) Adam ate the apple because he was hungry.
- (2) There’s a table here because we asked for one.
- (3) Vixens visit here because rabbits visit here.

(1) expresses something like the claim that Adam’s hunger is a (partial) causal explanation of his eating (rather than juggling, etc.) the apple. The ‘because’ of (1) thus

¹⁴In §2.6, slightly more will be said to refine what must be tacitly known to have competence with this second sense of ‘because’.

¹⁵Ambiguity posits are theoretically costly because they predict an increased cognitive burden on language users: see Bontly (2005). Grice (1989), 47 packaged the theoretical preference for monosemy in slogan form, proffering a “modified Occam’s razor principle”—“do not multiply senses beyond necessity”—which Ziff (1960), 44 before him called “Occam’s eraser”. The intuition that neglecting the principle will lead to ‘endless atomisation of meanings’ (Weydt (1973), 576) is widespread, and Putnam (1965) gives a methodological justification for the principle along these lines. The principle is not, of course, without its critics: see, e.g., Devitt (1997, 2004, 2013) and Phillips (2012).

¹⁶It will become clear that I presuppose that the English word ‘cause’ means roughly *efficient cause*. This presupposition is semantically defensible, notwithstanding the broader range of uses of *αἰτιον* in ancient Greek. Cf. Vlastos (1969) and Hocutt (1974) on translating *αἰτιον* into English as ‘because’ rather than ‘cause’. Thanks to David Manley for emphasizing the need to make this explicit.

expresses a relation of broadly causal dependence. Similar comments apply to the occurrences of ‘because’ in (2) and (3): the explanantia named in these sentences are (partial) causal explanations of their explananda, and ‘because’ says so. But ‘because’ can also be used when specifically non-causal dependence relations are at issue.

- (4) The pious is pious because it is loved by the gods.¹⁷
- (5) ‘Dog’ means *dog* because $dog \rightarrow animal$ is valid.¹⁸
- (6) ... we are infallible only because we are final.¹⁹
- (7) There’s a table here because there are simples arranged tablewise here.²⁰
- (8) The power set of the integers exists because the power set axiom holds.
- (9) Vixens visit here because female foxes visit here.²¹

(4) can be read as making not a causal claim, but rather a constitutive claim: what makes the pious pious is that the gods love it. Likewise, (5) can express a commitment of inferential role semantics, to the effect that the word ‘dog’ means what it means (partly) in virtue of the validity of certain inferences. This commitment of inferential role semantics is contentious, but the parallel causal claim is just false. Again, (6) can be read as expressing the claim that the infallibility of the Supreme Court is grounded in its finality. None of this is to say that (4)–(6) cannot be read as expressing causal claims—maybe even true ones in the cases of (4) and (6)—but rather that they can also be read as expressing non-causal dependence claims with different truth conditions.²² Similar comments apply to (7)–(9).

This paper argues that ‘because’ is ambiguous: the distinction between causal and grounding explanations is embedded even within our most commonplace explanatory idioms. But before the positive argument can be given, more preliminaries are

¹⁷Derived from Plato, *Euthyphro* 10a.

¹⁸The antecedent of a conditional at Fodor and Lepore (2002b), 90.

¹⁹*Brown v. Allen*, 344 U.S. 443, 540 (1953) (Jackson, J., concurring).

²⁰Inspired by van Inwagen (1990).

²¹After Williamson (2007), 48ff.

²²Pollock (1998), 251 rephrases (6) in a manner that suggests a causal understanding:

- (i) Even if the court is perceived as infallible only because it is final, the perception of infallibility, or something close to it, survives.

(i) construes the dependence relation as holding not between the court’s infallibility and its finality but rather between perceptions of the former and the latter. Only the first pair of relata are plausibly constitutively related.

needed. The next section introduces the classificatory scheme in terms of which the argument will be made.

2.2 MONOSEMY, POLYSEMY, HOMONYMY

It turns out that only some ambiguous words have multiple senses.²³ Others have doppelgänger. The string of letters b-a-n-k and the corresponding phonological item, for example, can each be used to articulate multiple words. But there is no word ‘bank’ that has both a financial institution sense and a riverbank sense. The two words ‘bank’ and ‘bank’ are merely univocal doppelgänger.²⁴ The plurality of words articulated by the string b-a-n-k and the corresponding phonological item is *homonymous*; each word ‘bank’ is a *homonym* of the other word ‘bank’.

‘Healthy’ and ‘book’, however, do have multiple senses. The sense in which healthy boys are healthy is distinct from the sense in which healthy meals are healthy, and both of these again are distinct from the sense in which healthy cholesterol levels are healthy. Likewise, ‘book’ has distinct senses: one for physical objects and one for abstract texts. The words ‘healthy’ and ‘book’ are thus *polysemous* or *polysemes*.

Unambiguous words go by a lot of different names in the literature, but I call them *monosemous* or *monosemes*.²⁵ Monosemes can be extremely specific (‘electron’), vague (‘glabrous’), or context-sensitive (‘big’).²⁶ To further settle terminology, and to make it clear that I have in mind lexical items rather than sounds, I call the bearers of the properties of polysemy and monosemy *terms*, and the bearers of homonymy

²³As will become clear, I use ‘ambiguity’ as an umbrella term that covers both polysemy and homonymy.

²⁴The univocality claim here should be taken with a grain of salt: the word ‘bank’ that has a financial institution sense is plausibly ambiguous between a sense applying to entire corporations and a sense applying to individual buildings. But the point is that there is no word that is ambiguous between the financial institution sense of one word ‘bank’ and the riverbank sense of another word ‘bank’.

²⁵Terminology here is messy. In addition to ‘monosemy’, preferred by Ruhl (1989), Sennet (2011) uses ‘sense-general’; Lakoff (1970) and Tuggy (1993) (as usual in the cognitive linguistics literature, though perversely relative to standard philosophical usage) ‘vague’. Zwicky and Sadock (1975) report in addition ‘generality’, ‘indeterminacy’, ‘nondetermination’, ‘indefiniteness of reference’, and further proffer ‘neutrality’, ‘unmarkedness’, and ‘lack of specification’. The messiness is such that this extensive list fails to be exhaustive of the terminological idiosyncrasies even of the limited selection of works cited in this paper. Moreover, some theorists use some of these labels to mark subdivisions of monosemy: thus Falkum (2011) distinguishes ‘indeterminacy of meaning’ from ‘lack of specification’.

²⁶Thus my preference for ‘monosemous’ over several of the alternatives. Thanks to David Manley for emphasizing the potential for misunderstanding of labels like ‘general’.

*pluralities of terms.*²⁷ I call the graphemic/phonetic objects that homonymous pluralities of words have in common *expressions*, and I call them *ambiguous* when they articulate polysemes or homonyms.²⁸

A term is polysemous just in case it can literally express different, intuitively related meanings in different contexts. A plurality of terms is homonymous just in case the terms are homographic homophones that literally express different, intuitively unrelated meanings. (Intuitions of relatedness may seem theoretically suspect, though brain imaging studies have been suggested to support the legitimacy of the distinction.²⁹) So a term is monosemous just in case it expresses a single meaning across the full range of its literal uses. This suffices to characterize monosemy *tout court*, although monosemy with respect to individual features can also be defined. Terms have the latter property with respect to features relative to which their meanings are non-specific. In denotational terms, for a term to be monosemous with respect to some feature is for its denotation to include members, relate relata, etc. regardless of their status with respect to that feature. Thus when Jenkins (2008) opines that ‘explanation’ is ‘semantically general’ with respect to ontological category, what she means is that facts, objects, and members of other ontological categories can be explanations in precisely the same sense.³⁰ So far as the meaning (or meanings)—contextually determined or otherwise—of ‘explanation’ goes, ontological category is irrelevant.

The following examples help illustrate the distinction between monosemy and polysemy.

²⁷Sennet (2011), n. 2 observes that calling the carriers of these properties “words” (as he does) is “philosophically somewhat suspect” but does not pursue the point. Bromberger (2012) explores the question of the entities that can be monosemous or polysemous, favoring the view that it is sounds which can be thus or so. It is good to be able to say, in the case of homonymy, that a single thing actually serves as more than one word. Bromberger approximates this result in his analysis by allowing that two sound-content pairs can be homonymous if both pairs include the same sound element.

²⁸My usage can be contrasted with that of John Lyons. My ‘terms’ are roughly his ‘lexemes’, while my ‘expressions’ are his ‘forms’. He reserves ‘expression’ for the object underlying different morphological realizations of the same term/lexeme. Cf. Lyons (1977), §1.5.

²⁹Pylkkänen et al. (2006), a study by a group of NYU neurolinguists, uncovered distinct latency effects in semantic priming experiments with homonyms and polysemes, by studying the timing of the M350, a distinctive, MEG-measurable brain wave pattern thought to reflect lexical activation that typically occurs around 350ms after visual exposure to a word. If the distinction between polysemy and homonymy is legitimate, there should also be evidence involving related signals such as the N400, an EEG-measurable brain wave pattern that is correlated with violations of lexical-level semantic expectations, and indeed Klepousniotou et al. (2012) present such evidence.

³⁰Cf. *op. cit.*, 65.

(10) Our philosophy teacher is on paternity leave.³¹

(11) This book is (musty / popular).

The usual illustrative example of a monosemous term is ‘teacher’. Sex is not specified in the lexical entry for ‘teacher’, though the occurrence of ‘paternity’ in (10) requires that the teacher referred to be male.³² (This is indeed obvious; monosemy is just a foil for polysemy and homonymy.) So ‘teacher’ is monosemous with respect to sex.³³ In fact, ‘teacher’ is monosemous *tout court*. But in (11) the occurrence of ‘musty’ would select the physical object sense of ‘book’, while the occurrence of ‘popular’ would select the abstract text sense of ‘book’.³⁴

There are a number of tests for ambiguity that exploit the features of polysemy and homonymy discussed above. The next section introduces one of these tests and discusses its application to ‘because’.

2.3 TESTING FOR POLYSEMY

The test on which this section focuses is CONJUNCTION REDUCTION.

(12) CONJUNCTION REDUCTION If an expression is ambiguous, a reduced conjunction containing it can be constructed so that crossed readings are ruled

³¹Adapted from Cruse (1995), 33.

³²The example allows us to see the inadequacy of another characterization of monosemy. The idea of Roberts (1984) is that monosemous terms have disjunctive meanings. The distinction between monosemy and ambiguity, on Roberts’s view, is just the scope of a disjunction: monosemes have disjunctive meanings, while ambiguous expressions bring into play multiple meanings, each of which is a candidate for contribution to the correct interpretation. But it is unclear how precisely the scopal ambiguity is to be understood; Roberts seems to be committed to a meaning-forming operator, a (potentially sub-)lexemic content stroke, that can interact scopally with a (presumably unambiguous) disjunction operator. But consider the case of ‘teacher’, which is monosemous with respect to gender. This does not mean that ‘teacher’ expresses the disjunctive sense *male teacher or female teacher*, but that it expresses the atomic, non-disjunctive, gender-neutral sense *teacher*. Male teachers and female teachers are (obviously) both teachers in precisely the same sense. Roberts’s disjunctive analysis gets this fact right only extensionally. So it is not a plausible account of the meanings of monosemes. (See the exchange across Roberts (1984), Zwicky and Sadock (1987), and Roberts (1989) for discussion of a criticism of Roberts’s characterization distinct from that suggested here.)

³³Note that monosemy need not be preserved across languages; French ‘*maître*’ and ‘*maîtresse*’ are not monosemous with respect to sex. Thanks to Ezra Keshet for the example.

³⁴Selection by context is a complex phenomenon. Presumably a feature of the meaning of the adjective ‘musty’ requires the nouns it modifies to denote physical objects—something along the lines of what linguists, following Katz and Fodor (1963), call a *selectional restriction*. But the adjective ‘popular’ presumably lacks a comparable mechanism that enforces its selection of the abstract text sense of ‘book’. In that case, world knowledge mediates our recognition of the contextually selected meaning.

out (or heard as sylleptic).³⁵

There are three new technical terms to be explained in the definition of this test. A *reduced conjunction* is a conjunction that results from deleting repeated words (and making the resulting sentence grammatical, e.g., by ensuring subject-verb agreement).³⁶

(13) The sky is light and the dumbbell is light.

(14) The sky and the dumbbell are light.

The reduced conjunction in (14) is formed by deleting the first occurrence of ‘is light’ and restoring subject-verb agreement. I will call the expressions deleted in order to form a reduced conjunction (e.g., ‘is light’) the *reduced material*. A *crossed reading* of a reduced conjunction is an understanding on which the reduced material is interpreted differently for each conjunct. (13) is likely to be interpreted as saying that the sky is light in color and the dumbbell is not heavy. (It might also be interpreted as saying that both are light in color. And to hear it as saying that neither is heavy, imagine a conversation among the gods.) But (14) lacks the corresponding crossed reading.³⁷ Note that CONJUNCTION REDUCTION does allow punning: it is not evidence of monosemy if crossed readings are available as puns or plays on the multiple meanings of the reduced material. The crossed reading of (14) is available if the sentence is heard as *sylleptic*, i.e., as this kind of pun.³⁸ The explanation for the punniness is that the expression ‘light’ has no core meaning that allows both color- and weight-related uses.³⁹

Compare the behavior of the homonyms in (13) and (14) with the behavior of a

³⁵Apresjan (1974), §1.1.6 gestures at this test. Zwicky and Sadock (1975), 21ff. is the canonical discussion. While I take CONJUNCTION REDUCTION to be a test for lexical ambiguity in general (which includes, on my usage, polysemy), Kempson (1980), 8-9 implicitly and Fodor and Lepore (2002b), 107, fn. 17 explicitly claim it to be a test specifically for homonymy, though Tuggy (1993), §3.4.4 correctly notes that the clearly polysemous term ‘paint’ allows for sylleptic punning, and Lascarides et al. (1996) provide a formalization of pragmatic discourse principles that predicts/explains sylleptic punning with both homonyms and polysemes via the same mechanism. Cappelen and Lepore (2005), 99-104 take a version of CONJUNCTION REDUCTION that they call “the Collective Descriptions Test” to be a test for context-sensitivity. I discuss a worry about interference from the context-sensitivity of ‘because’ below.

³⁶Chomsky (1957), 35-36 noted that such reduction is in general possible where constituents are of the same type.

³⁷Typically, acceptability judgments and judgments about how sentences can be read constitute our data: see Ludlow (2011), §3.1.

³⁸*Pace* Roberts (1989) and Ludlow (2011), syllepsis itself sometimes seems to be accessible to direct intuition.

³⁹Cruse (1986), 62 discusses a similar example and makes much the same point.

polyseme like ‘healthy’.

(15) This meal is healthy and this urine is healthy.

(16) ??This meal and this urine are healthy.

(17) ??This meal is healthy, and so is this urine.

(15) says that the meal is conducive to health and the urine is reflective of it. If (16) is to be understood, it must be understood this way, too. But accessing the crossed reading has the phenomenology of hearing a pun. Analogous comments apply to (17), which replaces deleted material with the pro-form ‘so’.⁴⁰ While (16) and (17) are punny, their crossed readings are not as inaccessible, or as strikingly punny, as the crossed reading for (14). This is how polysemes behave in reduced conjunctions, and I argue below that ‘because’ behaves the same way.

An interpretation of a sentence can involve only one meaning of any given expression for each of its occurrences in the sentence.⁴¹ So the process of conjunction reduction eliminates crossed readings just in case the crossed readings of the unreduced conjunctions depend on the availability of multiple occurrences of the target expression.⁴² The preceding sentence is a biconditional, though CONJUNCTION REDUCTION as stated is a conditional. The weaker, merely conditional statement of the test makes room for other sources of differences in meaning, namely, context-sensitivity. §2.5 argues that context-sensitivity is a worse explanation of the data than polysemy.

Before applying CONJUNCTION REDUCTION to the case of ‘because’, another type of test for ambiguity deserves at least some comment. Cross-linguistic evidence, and in particular how to translate various ‘because’ sentences into other languages, is

⁴⁰Variants of CONJUNCTION REDUCTION based on replacing repeated verb phrases with appropriate pro-forms like ‘so’ or ‘neither’ follow Lakoff (1970).

⁴¹Cf. Lascarides et al. (1996), §2.1. See also Cruse (1986), 61-62, on the “antagonism” of distinct senses.

⁴²The source of this dependence in the case of distinct lexical entries is that reduced conjunctions have logical forms with one pointer to what Adger (2003), §4.6 calls the Conceptual-Intentional System, i.e., with one pointer to the lexicon, so that only a single meaning can be accessed. If, in the case of polysemous terms, logical form is understood to include a pointer to the entry for the term without specifying which sense is being used, some pragmatic account of the correct identification of that sense is necessary. Lascarides et al. (1996) offer such an account of the absence of crossed readings. But for all that has so far been said, logical forms may well turn out to include pointers directly to individual senses of polysemous terms. In that case, the explanation of the absence of crossed readings in cases of polysemy would be identical to the explanation of the absence of crossed readings in cases of homonymy.

sometimes thought to be essential for ambiguity claims.⁴³ While linguists have not to my knowledge explored the translational facts about causal-explanatory versus metaphysical explanatory uses of ‘because’—they have instead focused on distinctions between causal and epistemic uses that I discuss elsewhere—in many of the cases I will discuss, metaphysical uses of ‘because’ must be rendered in Dutch as ‘omdat’ rather than ‘doordat’.⁴⁴ But making progress on cross-linguistic lines will require more fine-grained data from native speakers of the relevant languages, and plenty can be learned from CONJUNCTION REDUCTION alone.

Note that the position that ‘because’ is homonymous, as opposed to merely polysemous, is to my knowledge unwitnessed in the literature. The philosophy literature is replete with unified accounts of explanation, why-questions, and ‘because’ clauses, and includes argumentation that satisfactory accounts of explanation have to be fully general.⁴⁵ Very recent work even argues that grounding relations, the sorts of relations picked out by the second sense of ‘because’, just *are* causal relations.⁴⁶ So I set the thesis that ‘because’ is homonymous—that it expresses distinct and unrelated senses—aside, and argue that ‘because’ is polysemous.

2.4 APPLYING CONJUNCTION REDUCTION TO ‘BECAUSE’

Suppose you were interested, for whatever reason, in both the causal history and the non-causal or constitutive dependence facts about certain explananda. (Perhaps you are trying to emphasize how explanation outruns information about the causal history of explananda.) There is no syntactic obstacle to conjoining ‘because’ clauses describing dependences of each type, in order to achieve some (albeit minimal) economy of language.

- (18) There’s a table here because we asked for one and because there are simples arranged tablewise here.

⁴³Kripke (1977) is the source for these tests in the philosophical literature. Though Jason Stanley (2004, 2005) claims that translational evidence is the only possible linguistic ground for ambiguity claims, cross-linguistic evidence is just one piece of the puzzle.

⁴⁴Thanks to Floor Rombout, my Dutch informant. Pit (2003) claims that ‘doordat’ prefers non-agential causes, whereas its hypernym ‘omdat’ allows both non-agential and agential causes, but equivalents of metaphysical explanatory uses of ‘because’ are not on her radar. The Dutch data are intriguing, but further research would be required to shed light on the question of interest here.

⁴⁵Replete: Hempel (1965b), van Fraassen (1980), Salmon (1984a), Kitcher (1989), Sweetser (1990), Bromberger (1992a), Hintikka and Halonen (1995), Strevens (2008). Argumentation: Nickel (2010). Cf. Woodward (2009), §6.3.

⁴⁶See A. Wilson (2013) and Schaffer (2014).

(19) Vixens visit here because rabbits visit here and because female foxes visit here.

(18) and (19) admit causal, metaphysical, and crossed readings of their ‘because’ clauses. By ‘crossed readings’ here, I mean readings in which one conjunct is read causally and the other is not. However, when the second occurrence of ‘because’ is deleted, yielding the reduced conjunctions below, the crossed readings disappear.

(20) There’s a table here because we asked for one and ??there are simples arranged tablewise here.

(21) Vixens visit here because rabbits visit here and ??female foxes visit here.

Since both of the non-crossed readings of these reduced conjunctions are false, the sentences are unacceptable. Since (18)-(20) and (19)-(21) are minimal pairs, the difference in acceptability between them can only be attributed to the deletion of the second ‘because’ in the pre-reduction conjunctions. The remaining occurrence of ‘because’ in each of the latter group of sentences apparently cannot bear the semantic weight needed to allow crossed readings. This is evidence of the ambiguity of ‘because’, according to CONJUNCTION REDUCTION.⁴⁷

Despite its utility, CONJUNCTION REDUCTION has been virtually ignored in the philosophical literature on ‘because’ and related terms like ‘explanation’. Almost the only reduced conjunction discussed in the literature, to my knowledge, is (22), which is introduced as *prima facie* evidence against the hypothesis that ‘because’ is monosemous with respect to ontological category.⁴⁸

(22) One explanation of the car crash is the broken steering wheel and another is the fact that the driver was drunk.⁴⁹

⁴⁷One obvious worry is that this claim affirms the consequent: CONJUNCTION REDUCTION says roughly that if an expression is ambiguous, then crossed readings of it are eliminated under reduction, not that if crossed readings of an expression are eliminated under reduction, then it is ambiguous. But CONJUNCTION REDUCTION does point us toward ambiguity as an explanation of the elimination of crossed readings. In §2.5 below, I rule out context-sensitivity, the main potential confounding factor, and that leaves ambiguity as the best explanation of the facts discussed in this section.

⁴⁸The only other reduced conjunction in the literature is (i).

(i) #(?)One explanation of the car crash is the broken steering wheel and another is the fact that the steering wheel is broken.

As Jenkins (2008), 65 notes, its oddness can easily be explained away by its redundancy, so it is of no evidential value.

⁴⁹Suggested at Jenkins (2008), 65.

If there were distinct senses of ‘explanation’, one of which applied to facts, the other of which applied to objects, crossed readings of (22) would be eliminated, and the sentence would be odd. That it is not odd shows, not that ‘explanation’ is unambiguous, but that the joints of its meaning do not lie here.⁵⁰

Note that the minimal pairs (18)–(20) and (19)–(21) do not only provide evidence, via CONJUNCTION REDUCTION, that ‘because’ is ambiguous. They also rule out, via CONJUNCTION REDUCTION, the hypothesis that any ambiguity in these sentences is in the explanandum phrase. For (18)–(19) are already reduced versions of conjunctions like (23).

- (23) Vixens visit here because rabbits visit here and vixens visit here because female foxes visit here.

The fact that no readings are lost in moving from (23) to (19)—that is, no readings are lost in deleting a second occurrence of ‘vixens visit here’—shows that there is no need to disambiguate between the explananda of causal ‘because’ clauses and the explananda of metaphysical ‘because’ clauses.⁵¹

Crossed readings are also eliminated, yielding further evidence of the ambiguity of ‘because’, when it is explananda rather than explanantia that are conjoined.

- (24) Reynards visit here because female foxes visit here and vixens visit here because female foxes visit here.

- (25) ??Reynards visit here and vixens visit here because female foxes visit here.

Crossed readings are lost in the move from (24) to (25), as predicted by the ambiguity hypothesis. So it appears to make no difference to the judgments relevant for

⁵⁰Analogous comments apply to most of the examples discussed in Nickel (2010), such as (i), in the course of his arguments that the meaning of ‘because’ does not vary across scientific domains.

- (i) The conductor warped because a strong current passed through it and because it was in the Earth’s magnetic field.

(i) is partially reduced such that the explanandum phrase ‘the conductor warped’ occurs once, but ‘because’ occurs twice, as in (18)–(19) above. There are thus two reasons why Nickel does not uncover the ambiguity of ‘because’: he is looking mostly in the wrong places, and he does not reduce conjunctions like (i) far enough.

⁵¹Cf. Ylikoski (2013), §1, where it is claimed that ‘why’ questions have systematically ambiguous explananda. The distinction Ylikoski identifies—between the causal question how a vase became fragile and the metaphysical question what makes it fragile—is not a difference in explananda at all. In both cases, the explanandum is that the vase is fragile. What differs, on my view, is the sense of ‘why’ involved in the question asked about that shared explanandum.

the application of CONJUNCTION REDUCTION whether the reduction occurs on the explanandum- or explanans-side of ‘because’ sentences.

The possibility of applying CONJUNCTION REDUCTION to sentences with conjoined explananda allows us to test whether the ‘because’ of mathematical explanation is the causal ‘because’.⁵² First, we need a true sentence that uses a causal ‘because’ with a mathematical explanans.

(26) Jon is happy because the power set axiom holds.

I like the power set axiom, so we can imagine easily enough a context in which (26) is true on a causal reading of its ‘because’. We can combine (26) with (8) and use CONJUNCTION REDUCTION to test for ambiguity.

(27) Jon is happy because the power set axiom holds and the power set of the integers exists because the power set axiom holds.

(28) ??Jon is happy and the power set of the integers exists because the power set axiom holds.

The absence of an accessible crossed reading of (28) is evidence that the ‘because’ of mathematical explanation is not the causal ‘because’. In fact, the ‘because’ of mathematical explanation is just the ‘because’ of (4)–(9), etc.⁵³

The discussion so far has concerned rather lengthy and unusual sentences, about which somewhat delicate judgments have been reported. Fortunately, there are two additional sources of data. Both cardinal determiners and examples from sports contexts yield much more natural test sentences and clearer judgments.⁵⁴ Suppose

⁵²Open question: can purported explanations of mathematical theorems that use physical principles on the explanans side be expressed by ‘because’ sentences? See Skow (2013a). If so, what does CONJUNCTION REDUCTION say about reduced conjunctions with conjoined explanantia involving them?

⁵³I argue for this at greater length in other work, but applying CONJUNCTION REDUCTION here is not trivial.

(i) There’s a table here because the power set axiom holds.

The reader is invited to enumerate the acceptable readings of (i) as a first step; for my part I can only make sense of the sentence as introducing a partial causal explanation that backgrounds a bizarrely motivated carpenter. Readers who can recover, in spite of its obvious falsity, a metaphysical reading of (i) will be able to apply CONJUNCTION REDUCTION in the now familiar manner to draw their own conclusions.

⁵⁴Ideally, the examples would be witnessed in corpora. There are a number of witnessed examples concerning what it takes for something to be a foul that can be used to make the same point, but setting up the examples takes too much space to present them here.

the local facilities management team brings in a chair whenever there are simples arranged tablewise in a room. Then (29) will be true on both readings of ‘because’. On the causal reading, the sentence is true because of the chair. On the metaphysical reading, it’s true because of the table materially constituted by the simples.

- (29) There’s a piece of furniture here because there are simples arranged tablewise here.
- (30) #There are two pieces of furniture here because there are simples arranged tablewise here.

But (30) doesn’t allow a reading on which one piece of furniture’s being there is explained causally and the other piece of furniture’s being there is explained metaphysically.⁵⁵ While (30) is not a reduced conjunction—it is not a conjunction at all—it lacks this kind of mixed reading for precisely the same reason that reduced conjunctions targeting ambiguous terms lack crossed readings. There is only one occurrence of the target term to be interpreted. This, too, is evidence of the ambiguity of ‘because’.

Moving to sports contexts, the application of rules to determine the winner of a contest lends itself to unambiguous ‘because’ sentences, in which the linguistic context forces ‘because’ to take on a single reading.

- (31) Germany beat Portugal because Pepe got a red card.
- (32) Germany beat Portugal because they scored four more goals.
- (33) Germany beat Portugal because they scored four more goals and because Pepe got a red card.
- (34) Germany beat Portugal because they scored four more goals and ??Pepe got a red card.

Imagine a speaker uttering (32) in an attempt to disagree with another speaker’s previous utterance of (31). A bystander might then attempt to clear the air by uttering (33), but (34) sounds bad even in that context. So again we have evidence that ‘because’ is polysemous, having two distinct explanatory senses.⁵⁶

⁵⁵Thanks to Brian Weatherson and Henk Zeevat for the idea here.

⁵⁶Though there is not space to discuss it here, the same polysemy appears in ‘why’:

- (i) ?#Why there’s a table here is that we asked for one and there are simples arranged tablewise here.

2.5 A WORRY FOR CONJUNCTION REDUCTION

The evidential import of the preceding discussion is predicated on the claim that polysemy is the best explanation for the elimination of crossed readings in reduced conjunctions. But CONJUNCTION REDUCTION is stated as a conditional for a reason: context-sensitivity can confound it as a test for ambiguity. And ‘because’ is clearly context-sensitive. So the oddness of the reduced conjunctions and other examples discussed above—what was claimed to be evidence for the view that ‘because’ is polysemous—may just be a symptom of context-sensitivity.⁵⁷

Consider how the financial sense of the context-sensitive adjective ‘rich’ behaves in reduced conjunctions.

(35) Jane Smith is rich and Bill Gates is rich.

(36) Jane Smith and Bill Gates are rich.

An utterance of (35) might mean that Jane Smith is rich for a human (say, because she lives in the United States) and Bill Gates is rich for an American.⁵⁸ Call this interpretation the crossed reading. Alternatively, it can mean that both are rich relative to some single standard. If you don’t think (36) lacks the crossed reading, you should be ready to endorse the polysemy thesis for ‘because’: context-sensitivity doesn’t confound CONJUNCTION REDUCTION for you. But if, on the other hand, you think (36) lacks the crossed reading, then it only has the alternative reading on which both Jane Smith and Bill Gates are rich relative to a single standard. According to CONJUNCTION REDUCTION as it has been invoked above, this should be evidence for the ambiguity of ‘rich’. But if that were right, then ‘rich’ would be infinitely ambiguous, as it loses crossed readings involving richness for humans and richness for Americans, as well as richness for 1%ers, richness for citizens of Detroit, and so on ad infinitum. Since positing infinitely many senses of words like ‘rich’ is too theoretically costly, we should prefer a treatment in terms of context-sensitivity.⁵⁹

(ii) ?#Why vixens visit here is that there are rabbits here and female foxes visit here.

(iii) ?#Why Germany beat Portugal is that they scored four more goals and Pepe got a red card.

⁵⁷Other tests for polysemy cannot just be wheeled in to settle the issue here, because context-sensitivity also confounds tests other than CONJUNCTION REDUCTION: see Gillon (1990), 408-409 for an illustration of how to confound tests based on truth-conditional differences between senses of ambiguous expressions.

⁵⁸Cappelen and Lepore (2005) deny that (35) can have this meaning, though it is hoped that most readers will discern it.

⁵⁹See fn. 15 above.

On that sort of treatment, a speaker only needs to learn a single meaning for ‘rich’, which comes equipped with a mechanism for being modulated by a context’s operative standard (e.g., a variable that ranges over contrast-classes like the set of humans, the set of Americans, the set of 1%ers, etc., or a variable that ranges over numbers on a scale of monetary values that must be exceeded for something to count as rich in the context). But if context-sensitivity can explain the loss of crossed-readings in the case of ‘rich’, the worry goes, likewise in the case of ‘because’: the oddness of the reduced conjunctions in §2.4 was not evidence of ambiguity after all.

The worry is right about one thing: CONJUNCTION REDUCTION can be confounded by context-sensitivity. But there are a variety of ways of fleshing out a context-sensitivity semantics for ‘because’, and none of them explains the data better than the polysemy thesis. Before we look at a couple of those ways, note that ‘because’ is not precisely analogous to ‘rich’. In particular, while the gradability of ‘rich’ allows arbitrarily lax contextual standards, counting as rich things as poor as you like, and yielding true readings even of sentences like (36), there is no general sense of ‘because’ to which we can retreat when both causal and metaphysical explanantia of a single explanandum are given in a reduced conjunction. There is simply no way to hear the sentence ‘the table and the chair are here because simples are arranged tablewise here’ as true (and non-punny). There is no general sense of ‘because’ that applies regardless of causal status.⁶⁰

Still, we can consider the following monosemous but context-sensitive account of ‘because’. Let us suppose that ‘because’ picks out different specific dependence relations in different contexts. By ‘specific dependence relation’, I mean not only any broadly causal relation suitable for backing causal explanations, but also any of the variety of non-causal dependence relations appropriately characterized as grounding or fundamentality relations and suitable for backing metaphysical explanations. (Suppose for now that there is not a single grounding relation backing metaphysical explanations; the other kind of context-sensitivity account, which we consider below, will cover the case that there is just a single grounding relation.) To learn the meaning of ‘because’, on this account, all that a speaker has to learn is that it picks out different specific dependence relations. That there is no general sense of ‘because’ that covers both causal and non-causal relations is thus not evidence of ambiguity as against this kind of account, which posits many specific, contextually determined meanings for ‘because’. But this kind of account has a serious problem:

⁶⁰In the next section, I explain why allegedly ‘hybrid’ explanations involving both causal and grounding links can be covered by the sense of ‘because’ at issue in its metaphysical uses.

it overgenerates predictions of badness in reduced conjunctions.

Consider the metaphysical explanations in (37) and (38).

(37) This figure has a shape because it is a regular quadrilateral.

(38) This figure is a square because it is a regular quadrilateral.

The explanation in (37) is backed by the determinate/determinable relation: regular quadrilaterality is a determinate of the determinable shapedness. But the explanation in (38) is backed by the genus/species relation: being in the species square just is being in the genus quadrilateral and having the differentia regularity. So different specific dependence relations are involved in (37) and (38).⁶¹ But (39) is acceptable.⁶²

(39) This figure has a shape and this figure is a square because it is a regular quadrilateral.

The present context-sensitive account of ‘because’ cannot accommodate the acceptability of (39). This set of facts can be reproduced for other specific dependence relations, too.

(40) Holes in blocks of cheese and singletons of blocks of cheese both exist because blocks of cheese exist.

Holes in blocks of cheese are feature dependent on blocks of cheese, while singletons of blocks of cheese are constituent dependent on blocks of cheese.⁶³ So the sentence should be bad on the context-sensitivity theory we have been discussing, since feature dependence and constituent dependence are different relations. But (40) is fine.⁶⁴

⁶¹See Rosen (2010), §11 for more on the difference between the relations.

⁶²The sentence as written is a bit stilted; (i) sounds more natural.

(i) This figure has a shape and is a square because it is a regular quadrilateral.

I retain (39) in the body to conform with the usual syntactic procedure for conjunction reductions targeting ‘because’.

⁶³See Koslicki (2012) for the distinction.

⁶⁴The context-sensitivity theorist might object here that I am relying on examples with conjoined explananda to the exclusion of examples with conjoined explanantia. I have relied on that limited diet of examples because different specific dependence relations tend to back metaphysical explanations of disjoint sets of explananda. Equivocation on the explanandum must be carefully avoided. The context-sensitivity theorist thus needs examples of a very particular sort. The fully reduced conjunctions in which ‘because’ occurs only once should be unacceptable, but the partially reduced conjunctions that include a second occurrence of ‘because’ should be acceptable. (Recall the discussion of (18)-(20) and (19)-(21) above.)

This account's overgeneration of unacceptability predictions is not essential to context-sensitivity theories as such.⁶⁵ Let us consider a second fleshing out of a context-sensitive, monosemous account of 'because', one that says that the range of available senses of 'because' is restricted to the distinct senses posited by the polysemy account. This account will match the polysemy account's predictions about the distribution of crossed readings exactly. So there will be no empirical difference between the accounts.

This kind of context-sensitivity account may seem to have the theoretical advantage of simplicity, since it purports to avoid complicating the lexicon. But it actually requires that the lexicon reflect that 'because' comes with a parameter that can take one of only two values. If context-sensitivity that admits such a heavily restricted range of meanings is to be preferred to polysemy here, context-sensitivity presumably ought to supersede polysemy everywhere. 'Healthy', 'paper', and all other putative polysemes could just as well be treated as context-sensitive terms ranging over just the meanings posited by the standard polysemy accounts. But this is to wheel in heavy machinery where elbow grease will do. In general, we only fall back to context-sensitivity accounts when polysemy accounts become too cumbersome by positing too many senses for it to be plausible that they are individually encoded. To prefer the context-sensitivity account here is to prefer an existential quantifier that ranges over a domain of two to a disjunction. The burden is on the context-sensitivity theorist to explain such an arbitrary—and revisionary—preference.

So, absent alternative explanations of the data adduced above, we should conclude that 'because' is ambiguous. Further, since the distinct senses of 'because' are clearly related—the competing views are context-sensitive monosemy accounts rather than homonymy accounts—we can draw a more specific conclusion: 'because' is polysemous. In the next section, we consider one final objection to this conclusion.

-
- (i) There's a red thing here because there's a crimson thing here and because there are simples arranged red-thing-wise here.
 - (ii) There's a red thing here because there's a crimson thing here and there are simples arranged red-thing-wise here.

The relevant difference fails to emerge between (i) and (ii).

⁶⁵Thanks to Ishani Maitra for pressing me here.

2.6 THE OBJECTION FROM HYBRID EXPLANATIONS

Jonathan Schaffer has recently argued that there is a general notion of contrastive explanation univocally denoted by ‘because’.⁶⁶ His argument for the general notion is the alleged existence of ‘hybrid’ explanatory connections between an event and the cause of its ground, as depicted in Figure 2.1. Call a gas’s having the mean molecular motion it does at t_0 ‘ C ’; its having the mean molecular motion it does at a later time t_1 ‘ E ’; and its having the temperature it does at t_1 ‘ T ’. I agree with

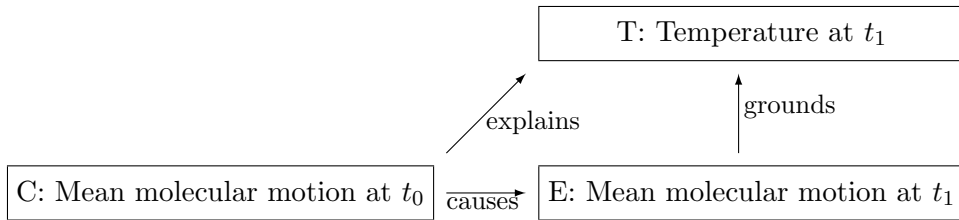


Figure 2.1: A Hybrid Explanatory Connection

Schaffer that C explains E and E explains T , and it even seems intuitive to say that C explains T . But the explanatory relationship between C and T , Schaffer says, is neither purely causal nor purely metaphysical; it is a hybrid explanation, proceeding via both kinds of explanatory link.⁶⁷

If hybrid explanations exist, explanations can’t just come in two flavors: causal and metaphysical. We’d need a third, hybrid flavor in addition. But since, to the best of my recollection, my childhood belief in the existence of chocolate and vanilla was unshaken by my discovery of the twist, I do not see a knockdown argument against the distinction between causal explanation and metaphysical explanation in the immediate vicinity. Schaffer does not, however, need to deny that we can distinguish the causal explanatory relation that holds between C and E from the metaphysical explanatory relation that holds between E and T . He only needs to claim that there is a third, general relation, univocally denoted by ‘because’, regardless of what further conceptual distinctions we might make. And this is just his position. The univocality of ‘because’ explains, on his view, the acceptability of (41), which communicates the general explanatory relation between C and T depicted in Figure 2.1.

⁶⁶Schaffer (2014), §4.3.

⁶⁷Schaffer also notes that “mathematical elements” are involved in the explanation of T by C , but presumably these are also involved in both the causal explanation of E by C and the metaphysical explanation of T by E . The presence of “mathematical elements” had better not compromise either the causal or the metaphysical status of an explanation.

(41) The gas has the temperature that it does at t_1 because it has the mean molecular energy that it does at t_0 .

The explanatory relation between C and T denoted by the ‘because’ in (41) is supposed to be the same relation denoted by the ‘because’s in (42) and (43).

(42) The gas has the mean molecular energy that it does at t_1 because it has the mean molecular energy that it does at t_0 .

(43) The gas has the temperature that it does at t_1 because it has the mean molecular energy that it does at t_1 .

But of course the position of the present paper is that the relation denoted by the ‘because’ of (42) is specifically causal, while the relation denoted by the ‘because’ of (43) is not. But neither relation can be denoted by the ‘because’ of (41), if it is to communicate a hybrid explanation.

The polysemy theorist has several avenues for response, though I will focus on just two here.⁶⁸ First, the polysemy theorist might insist that the allegedly hybrid explanation is, in fact, causal.⁶⁹ Schaffer’s rationale for claiming that the explanatory relation is not “purely causal” is that causal explanations cannot “cross levels”.⁷⁰ This is controversial.⁷¹ For one thing, there are metaphysical views on which there are no levels, and temperature is a pretty good candidate to just be identified with mean molecular energy, its alleged lower-level realizer.⁷² For another, level-crossing causal explanations seem to be quite common in everyday discourse.

(44) The general died because she had a heart attack.⁷³

(45) Cause of death: heart attack.⁷⁴

⁶⁸Here is another: following the suggestion at Kim (1999), 33 for abandoning cross-level causation in order to save a notion of cross-level causal explanation, we might think of T as a higher-level description of E . This move renders (41) true, as (41) then simply redescribes the more metaphysically perspicuous (42). But Williamson (2007), Ch. 3 tries to dissuade us from this metalinguistic maneuver, and Schaffer certainly will not accept it: grounding relations are to have metaphysically distinct relata.

⁶⁹Thanks to Dmitri Gallow and Charles Sebens for discussion of this issue.

⁷⁰Schaffer (2014), 30.

⁷¹His rationale for holding that it is not “purely metaphysical” is that metaphysical explanations cannot “cross times”. This is less controversial, as grounding is plausibly a synchronic relation: see, e.g., Rosen (2010), 118, fn. 8.

⁷²That Schaffer distinguishes temperature from mean molecular energy may be a consequence of his ontological permissiveness: see Schaffer (2009), *passim*.

⁷³After Craver and Bechtel (2006), 57.

⁷⁴A Google search of this string in quotation marks yields, at the time of writing, 615,000 results.

Craver and Bechtel (2006) tell us that (44) is not purely causal: the general's heart attack causes "a variety of physiological mechanisms [to] cease to function," and the non-functioning of that variety of physiological mechanisms constitutes her death.⁷⁵ This is an instance of their general strategy for rewriting bottom-up explanations, in which lower-level events explain higher-level ones, as Schaffer-style hybrid explanations, but it is not an argument that they are not causal explanations.⁷⁶ Suspicion of top-down causation, that is, of higher-level causes of lower-level effects, is indeed widespread.⁷⁷ But the relation denoted by 'because' as it occurs in (41) and (44) differs from that top-down relation in two ways: (i) it's an explanatory rather than a causal relation, and (ii) it is bottom-up, that is, the explanans is the lower-level event.

Even though intuitively causal explanations cross levels, perhaps there are still good theoretical reasons for prohibiting bottom-up explanations. But it is hard to see what these might be. Causal exclusion principles are usually understood to rule out higher-level rather than lower-level causes. We might prefer to identify high-level events as the causes of high-level effects, but that says nothing about the causal sufficiency of lower-level events.⁷⁸ And it is unclear why causal sufficiency could not back causal explanations or make causal 'because' sentences true. But even if it turns out that causation cannot cross levels, that what is meant by 'cause' is a relation that cannot cross levels, or that causal 'because' sentences cannot be made true by level-crossing explanations, the objection from hybrid explanations can still be defeated by a second kind of response.

Second, then, the objection assumes that the sense of 'because' at issue in its metaphysical uses is more restrictive than it actually is. Rather than being specifically non-causal, the sense is merely not specifically causal. It admits causal elements, but also requires some non-causal mediation. Compare 'extract': companies extract

⁷⁵Is this a straw-man? The heart attack and the death are on different levels according to Craver and Bechtel, but Schaffer needn't accept that. The Google result mentioned in 74 would be rather less impressive for 'Cause of death: heart stopped' (2,350 results), but (i) is still perfectly acceptable:

(i) The general died because her heart stopped.

The burden seems to me to be on those who take the layer-cake model to be sufficiently metaphysically restrictive that causal relations cannot cross levels.

⁷⁶Those who place weight on our actual explanatory practices (e.g., Burge (1993); see also Robb and Heil (2013), §7.5) tend to countenance level-crossing causal relations in both upward and downward directions.

⁷⁷See Kim (1993) for a representative from the mental causation literature and Craver and Bechtel (2006) for a representative from the philosophy of biology literature.

⁷⁸See Yablo (1992)'s discussion of distinguishing between *causally necessitating* and *being the cause of* on commensuration or proportionality grounds.

gold from the earth in order to extract value from the gold. The latter extraction is, of course, metaphorical. We can also say that companies extract value from the earth, in virtue of the fact that we extract gold and then extract value from the gold. The extraction of value from the earth is again metaphorical, but it is not a ‘hybrid’ extraction. The metaphorical sense of ‘extract’ is just permissive.⁷⁹ Likewise, perhaps, for what we have been calling the metaphysical sense of ‘because’.

Consider how polysemy arises in the first place. Often, a monosemous term gets used metaphorically long enough for the extended meaning to become a standard meaning of the term, at which point the metaphor dies and the originally metaphorical meaning becomes literal. The metaphorically extended meaning is not likely to have sharp borders, but it nevertheless remains conceptually distinguished from the original, narrow meaning. A conceptual distinction, in the case of ‘because’, between purely causal explanations and explanations that only count as explanatory insofar as they fit the causal metaphor can thus accommodate the acceptability of (41). The fact that the link between C and E is causal while the link between E and T merely fits the causal metaphor is no reason to think that the connection between C and T will fail to fit that metaphor. The conceptual distinction thus understood not only explains the difference in the truth conditions of the causal versus metaphysical readings of the sentences in §2.1, but also explains the oddness of the reduced conjunctions in §2.4. What the reduced conjunctions attempt but fail to express is that a specifically causal relation holds between (e.g.) an explanandum and its causal explanans, on the one hand, and a metaphorically causal relation holds between that explanandum and its metaphysical explanans, on the other.⁸⁰ It is, moreover, unclear how Schaffer’s univocality thesis admits distinct truth conditions for different readings of the sentences of §2.1 or the oddness of the reduced conjunctions of §2.4.⁸¹

We have now seen multiple ways the polysemy theorist might handle Schaffer’s hybrid explanations. I conclude that neither the existence of hybrid explanations nor the acceptability of ‘because’ sentences like (41) defeats the polysemy hypothesis.

⁷⁹Apresjan (1974), §2.2.1 gives a number of polysemous extraction-related verbs in Russian.

⁸⁰I develop this view in the fourth chapter.

⁸¹The best option for the univocality theorist in the latter case would seem to be to appeal to either the redundancy or the unnaturalness of the sentences. But that fails to explain why the oddness arises only with the deletion of a second occurrence of ‘because’ (recall the discussion of the minimal pairs (18)-(20) and (19)-(21) above) or why (34) remains odd in a context that makes (33) natural. This would seem to leave the univocality theorist with little other than appeal to the kinds of warranted assertability maneuvers DeRose (1999) convincingly criticizes. (Note that the polysemy theorist could also retreat to warranted assertability maneuvers to deal with examples like (41).) And it does not begin to address truth-conditional differences.

2.7 CONCLUSION AND OUTLOOK

In this paper, I have argued for the hypothesis that ‘because’ is polysemous between a causal sense and a second, not specifically causal sense that encompasses the explanatory relation or relations at issue in metaphysical explanations. Now, although the causal sense of ‘because’ is psychologically, semantically, and metaphysically natural, its second sense of ‘because’ is strikingly gerrymandered.⁸² It applies to explanantia that variously make their explananda the case; materially constitute their explananda; provide necessary or sufficient or INUS conditions for their explananda; are that partially or fully in virtue of which their explananda are true; and are that on which their explananda are feature or constituent dependent.⁸³ But the latter sense of ‘because’ does not exhibit symptoms of polysemy between this laundry list of potential senses. What unifies this variety of relations is the metaphor of causal structure: the shared feature of all types of explanation is that each provides information about the contextually relevant structure underneath or behind an explanandum.⁸⁴ The aptness of the metaphor distinguishes grounding relations from other partial orders, and its existence explains how ‘because’, with its causal etymology, has a distinct but unified second sense.⁸⁵ I develop these views in the fourth chapter.

Whether ‘because’ is subject to any other ambiguities is a natural further question. I argue in the next chapter that the range of uses of ‘because’ studied by linguists—including epistemological and metalinguistic uses as in (46) and (47)—are semantically causal.

(46) He likes her, because he brought her moss for her terrarium.

(47) What are you doing tonight?—because there’s a movie on.⁸⁶

⁸²The naturalness or unity of the causal sense itself might be found suspect by those familiar with the literature on causal pluralism (see Skyrms (1984), Sober (1984), Cartwright (1999, 2004), Hall (2004), and Godfrey-Smith (2009)). It seems to me that the causal sense of ‘because’ encompasses all of the causal notions distinguished in this debate; whatever the metaphysical facts, whatever the conceptual distinctions we might make between different kinds of causal relations, there is a single causal sense of ‘because’ and related terminology.

⁸³For INUS conditions, see Mackie (1974). For feature dependence and constituent dependence, see Koslicki (2012).

⁸⁴A. Wilson (2013) and Schaffer (2014) go so far as to argue that grounding is a type of causation. But this dissertation develops what A. Wilson (2013) calls ‘the challenge from metaphor’ against this view.

⁸⁵Note that I am not hereby committed to there being a single relation of grounding in all of these cases; cf. J. Wilson (2014) and Koslicki (forthcoming).

⁸⁶The example belongs to Sweetser (1990), 31.

Causation lies behind much more of our explanatory discourse than has previously been recognized. Even where the not specifically causal senses of our explanatory terms come into play, a causal metaphor unifies and gives content to those senses. Our practices of asking 'why' questions and answering them with 'because' sentences thus serve as the basis of a paradigmatically, if not exclusively, causal explanatory practice.

CHAPTER 3

How General Do Theories of ‘Why’ and ‘Because’ Need To Be?

The theories of ‘why’-questions presented in van Fraassen (1980), Bromberger (1992d), and Hintikka and Halonen (1995) focus on ‘why’-questions that receive scientific explanations as their answers. Insofar as scientific explanations are causal explanations, this makes sense: the primary senses of ‘why’ and ‘because’ are, on my view, causal. But insofar as ‘why’ and ‘because’ also function as terms of our metaphysical explanatory discourse, a theory of ‘why’-questions or ‘because’ sentences is not complete if it focuses only on causal ‘why’-questions and causal ‘because’ sentences. Here the question arises whether accounting for causal and metaphysical explanation is enough. In this paper, I argue that some kinds of cases that have been thought to be outside that dichotomy in fact fall within it, on its causal side.

I focus in particular on the taxonomy investigated by linguists pursuing the proper semantic treatment of ‘because’. That taxonomy distinguishes causal-explanatory, epistemic, and metalinguistic uses of ‘because’, represented by (1), (2), and (3), respectively.¹

(1) He brought her moss for her terrarium because he likes her.

(2) He likes her, because he brought her moss for her terrarium.

(3) What are you doing tonight?—because there’s a movie on.²

¹See, for example, Morreall (1979), Quirk et al. (1985), Sweetser (1990), Kanetani (2007), and Kanetani (2012). Linguists discussing epistemic meanings in general (i.e., not specifically for ‘because’) sometimes make a further distinction between meanings having to do with the speaker’s knowledge (or other propositional attitudes like belief) and evidential meanings, which have to do with information sources or evidence: see Traugott (1989), 32-33 for citations and some discussion. (A different distinction between epistemicity and evidentiality will play a role in an objection considered in §3.5.)

²The example belongs to Sweetser (1990), 31. She sometimes presents the example with different

Theorists, recognizing the distinction between these apparent senses of ‘because’, commonly set epistemic and metalinguistic uses aside in order to focus on explanatory uses.³ But I argue below that these uses of ‘because’ require the same semantic contribution of ‘because’ as its causal-explanatory uses.⁴ The difference between the categories of uses lies in what is being explained rather than in the explanatory relation at issue. That is, all differences between the uses are traceable to differences in their explananda. Epistemic and metalinguistic uses of ‘because’, on my view, introduce causal explanations of certain aspects of a speech act, such as how the speaker was in a position to make an assertion or why she has made it. Thus for a speaker who knows the causal meaning of ‘because’ to acquire competence with its epistemic and metalinguistic meanings, she need only recognize that more kinds of things—her own acts and their features—can be causally explained. Adopting this perspective on epistemic and metalinguistic ‘because’-sentences allows us to avoid positing excessive ambiguity for ‘because’, preserving semantic unity where we can.⁵ The benefit thereby gained strengthens an adequacy requirement for the theorist who would give an account of ‘why’-questions: it undermines her justification for excluding, e.g., ‘why’-questions that would be answered by metalinguistic ‘because’-clauses.⁶

This paper is structured as follows. §3.1 investigates and enlarges the linguists’ stock of examples. §3.2 is devoted to a discussion of the evidence, such as it is, for an

punctuation, e.g., ‘What are you doing tonight, because there’s a good movie on.’ at *ibid.*, 77.

³This is done explicitly for epistemic uses by Schnieder (2011), §1.2. Bromberger (1992d), 75 sets aside all ‘why’-questions that contain parenthetical verbs in the sense of Urmson (1952), some of which I think are properly thought of as metalinguistic ‘why’-questions. But it is more common to simply ignore epistemic and metalinguistic uses. Dakin (1970), 213-214 is the rare exception who recognizes that epistemic ‘because’ sentences can be handled along the lines of causal ‘because’ sentences, but he doesn’t develop the idea, which this paper tries to do.

⁴I will use ‘causal’ and ‘causal-explanatory’ interchangeably when referring to this category of uses.

⁵Sweetser (1990) is the most prominent proponent of the view that ‘because’ is essentially polysemous along the lines of the linguists’ taxonomy: she accounts for the epistemic and metalinguistic uses via metaphorical sense extension. But I reserve that treatment for the metaphorical sense of ‘because’ that communicates metaphysical explanations: see chapter 4 below. Keep in mind that ambiguity posits are to be avoided where possible, in accordance with the Occamist injunction: “do not multiply senses beyond necessity.” See chapter 2, fn. 15 above for discussion.

⁶I do, however, join others in restricting my attention to indicative ‘why’-questions and indicative ‘because’-sentences. Insofar as the strategy of the present paper is to adduce differences in explananda to explain away apparent differences in the meaning of ‘because’ in various contexts, I would seem to have a promising strategy for extending the treatment to sentences with subjunctive explananda phrases. I think the strategy will work—I suspect it will say that ‘why should’-questions, for example, receive answers that place the thing to be done in the context of a causal explanation of some good outcome in the relevant possible worlds—but working out the details of that kind of treatment is another project entirely.

ambiguity posit that tracks the linguists' taxonomy. But §3.3 argues that the best explanation of the data adduced in §3.2 is to be given in terms of grammatical or syntactic ambiguities. Syntactic account in hand, §3.4 shows how to unify the epistemic and metalinguistic uses of 'because' with the causal-explanatory use. Nevertheless, it's unclear whether all uses of 'because' can be unified with the causal 'because'. In particular, in addition to the metaphysical explanatory uses of 'because' discussed in chapters 2 and 4, I inquire into whether there is a distinct class of non-causal 'because' sentences in §3.5, which I call evidential 'because' sentences. This class is importantly different than epistemic uses of 'because' insofar as its relationship to the causal 'because' is less obvious. Nevertheless, by the end of this paper, it will have been shown, against established practice, that a theory of causal 'why'-questions and their answers should be expected to account for epistemic and metalinguistic uses of 'why' and 'because'.

3.1 EVALUATING AND ENLARGING THE STOCK OF EXAMPLES

Epistemic and metalinguistic 'because' sentences are typically introduced by way of contrast with causal 'because' sentences.

- (1) He brought her moss for her terrarium because he likes her.
- (4) The ice is melting because the temperature is rising.⁷
- (5) Jon stopped because his brakes had jammed.⁸
- (6) Joan doesn't lend Ted money because he'd never pay her back.⁹

The *explanans phrase*—the part after the 'because'—in each of these sentences adduces part of a causal explanation of the event named in the *explanandum phrase*—the part before the 'because', which I'll also sometimes call the *prejacent*. This applies even to (6), which explains Joan's refusal to lend Ted money by giving the reason that he'd never pay her back: the sentence would be false if the full causal explanation of Joan's refusal to lend Ted money didn't somehow appeal to that reason. That said, the label 'causal' for these uses of 'because' may strike you as dubious depending on how you feel about examples like (1) and (6). If the distinction between causes and reasons is important to you, you may want to find a more general label (e.g.,

⁷Morreall (1979)'s (1).

⁸Dakin (1970)'s (6) modulo pointless 'h'.

⁹Morreall (1979)'s (5).

‘narrative’).¹⁰ Still, I claim that the sense of ‘because’ at issue in (1) and (4)–(6) is the same throughout.¹¹ But you need not grant that claim: many of the arguments of this paper will go through if you take them as attempting to unify epistemic and metalinguistic uses of ‘because’ with the sense of ‘because’ at issue in (1) and (6).

The epistemic ‘because’ sentences below appear to involve a non-causal sense of ‘because’.

(2) He likes her, because he brought her moss for her terrarium.

(7) His brakes failed, because there are no skid marks.

(8) Alma is probably sick, because she didn’t show up for work.¹²

The relationship between (1) and (2) is excellent *prima facie* evidence that the relationship reported in (2) is not explanatory: if his liking her explains his bringing her moss, then his bringing her moss cannot explain his liking her, on pain of violating a very intuitive anti-symmetry condition on explanation. But the fact that his bringing her moss does not explain his liking her doesn’t mean that (2) cannot communicate any explanatory relationship. Consider the reaction of many native speakers confronted with written examples like (2), (7), and (8): they think they’re ungrammatical, on paper at least. Despite widespread claims in the linguistics literature that there are epistemic readings of sentences like (2), many native speakers claim that something like ‘I know’ is just missing from them.¹³ (Thus the label ‘epistemic’ for these kinds of ‘because’ sentences.) Nevertheless, we can hear utterances of (2), (7), (8), and the like as felicitous if they are spoken with a special kind of prosody, often called *comma intonation*.¹⁴ By uttering, with appropriate prosody,

¹⁰Sweetser (1990) uses the label ‘content’ where I use ‘causal’. The problem with that label is that, given how she categorizes uses of ‘because’, uses of the metaphorical sense of ‘because’ that convey metaphysical explanations fall in her category of content uses of ‘because’, while I want to show that epistemic and metalinguistic uses of ‘because’ involve a sense distinct from the metaphorical sense. Analogous comments apply to the label ‘explanatory’.

¹¹I say this without committing myself to the view of Davidson (1963) that what he calls rationalizations, the sort of things reported by (1) and (6), are causal explanations. Morreall (1977) is not sanguine about the possibility of providing an adequate account of explanation that runs roughshod over these kinds of distinctions, but see §4.2 for an implementation, in a different context, of the strategy I’d favor for arguing that all of (1) and (4)–(6) involve the same sense of ‘because’.

¹²Morreall (1979)’s (6).

¹³The standard English grammar, Quirk et al. (1985), claims that ‘because’ has an epistemic use: see the discussion of “style disjunct *because*” at §15.21.

¹⁴Sweetser (1990), §4.1.2 follows Chafe (1984) in explaining the need for comma intonation by appealing to presuppositional differences between causal and epistemic ‘because’ sentences: the sentences with comma intonation do not presuppose their prejacent, whereas the sentences without comma intonation do. I won’t dwell on it, but my account has the resources to explain the

the ‘because’ clause of (2), the speaker is most readily interpreted as justifying her assertion of the main clause. To see the importance of prosody here, compare (2) with (9).

(9) #He likes her because he brought her moss for her terrarium.

An utterance of (9)—without comma intonation—would only be true if, due to some psychological quirk, the reason he likes her really is that he brought her the moss. (2), uttered with comma intonation, has a causal reading with this truth-condition, in addition to its epistemic reading. But (9) has only the causal reading.

Previous analyses by linguists have accommodated the intuition that something like ‘I know’ is missing from sentences like (2), (7), and (8) straightforwardly, by writing epistemic operators directly into the meanings assigned to them.¹⁵ The results approximate—but only approximate—the account presented in this paper. They do not, for example, show that or explain why epistemic uses of ‘because’ involve the same lexical contribution of ‘because’ as (1) and (4)–(6).

The third category of uses of ‘because’ to be treated here is somewhat diverse. Sweetser (1990) focuses on what she calls ‘speech-act because’, typified by (3).

(3) What are you doing tonight?—because there’s a movie on.

The speech-act ‘because’ clause in (3) explains the speech-act performed in asking about the addressee’s plans, but speech-act ‘because’ clauses can also explain other kinds of speech-acts.

(10) Don’t bring her here, because Mum will be very upset and Dad will be furious.¹⁶

The ‘because’ clause in (10) explains the imperative in its prejacent. ‘Because’ clauses can also perform the full range of metalinguistic functions characterized by Horn (1985).

(11) He managed to solve *some* of the problems, because he didn’t manage to solve *all* of the problems.

presuppositional difference itself.

¹⁵They treat them variously as making claims about what must be the case (Kanetani (2007)), or about what the speaker judges (Morreall (1979)), concludes (Sweetser (1990), Dancygier and Sweetser (2000), Declerck et al. (2006)), or thinks (Kanetani (2007) again).

¹⁶An example reportedly found in the wild, reproduced from Declerck et al. (2006), 553, who calls its ‘because’ clause an ‘utterance-explaining *because*-clause’.

- (12) You *managed* to solve the problem, because it was hard.
- (13) ‘*Mongeeese*’, because it sounds better than ‘*mongooses*’.
- (14) ‘Indisposed’ rather than ‘feeling lousy’, because it’s more polite.

Utterers of the above sentences explain conversational implicatures ((11)), phonetic representation ((12)), inflectional morphology ((13)), and stylistic choices ((14)). Notice that each of these examples requires comma intonation. An interesting, and ultimately revealing, feature of metalinguistic uses of ‘because’ is that the sentences in which they appear do not also have distinct causal readings. The preadjacent of, e.g., (12) would have to be uttered with a phonetic realization other than that represented by the italicization pattern of the example as written for the utterance to have a causal reading. But the resulting utterance would not have a metalinguistic reading on which it explains the (now non-existent) emphatic stress on ‘managed’. (Later, I will put this kind of point in terms of a use/mention distinction.)

I think of speech-act ‘because’ sentences like (3) and (10) and metalinguistic ‘because’ sentences like (11)–(14) as part of a larger class of cases where the speaker explains something about what just happened.

- (15) (After knocking softly) Because I don’t want to wake their baby.

As the felicity of (15) shows, what the speaker explains with a ‘because’ clause needn’t involve anything linguistic. While I retain Horn’s familiar ‘metalinguistic’ label, the essential feature, shared by all of these examples, is that the ‘because’ clause comments on some salient act or representation.¹⁷ In what follows, I give a unified treatment of epistemic uses of ‘because’ and of this whole class of cases: whatever differences might be discerned between (2), (3), (10), (11)–(14), and (15), they don’t turn out to require different semantic contributions from ‘because’ itself.

None of this is to say that a theory of ‘why’-questions or ‘because’ sentences must be fully general. For one thing, ‘why’-questions are only felicitously answered with epistemic or metalinguistic ‘because’ sentences in echoic contexts. (See the brief discussions of (36-g) and (37-g) below.) For another, in this paper, I set aside non-

¹⁷On narrow construals of ‘metalinguistic’, metalinguistic uses are plausibly essentially echoic, as Carston (1996) argued, in a way that (3) does not seem to be and (15) cannot possibly be. Barbara Dancygier (1992, 1999) argues, partially on cross-linguistic grounds, that the speech-act ‘because’ of (3) can be distinguished from the ‘because’ of (11), and both of these again from the properly metalinguistic ‘because’ of (12)–(14), which introduces clauses commenting specifically on linguistic form. In any case, I use ‘metalinguistic’ as broadly as Dancygier (1992), 71 uses ‘conversational’ and Carston (1999) and Noh (2000) use ‘metarepresentational’.

indicative ‘why’-questions and ‘because’ sentences.¹⁸ I also set aside, for the time being, the class of metaphorical uses of ‘because’ that I discuss at length in chapters 2 and 4. Finally, I postpone discussion of what might properly be called evidential uses of ‘because’, where what is expressed is an evidential connection between two propositions, until §3.5. In the meantime, I turn to a more pressing matter: putative evidence that ‘because’ is ambiguous between causal, epistemic, and metalinguistic meanings.

3.2 EVIDENCE FOR THE AMBIGUITY OF ‘BECAUSE’

The tests for ambiguity are equivocal about whether ‘because’ is ambiguous between the senses of the linguists’ taxonomy. The failure of the tests to return a clear answer is a consequence of the fact that epistemic and metalinguistic uses of ‘because’ require comma intonation. This section summarizes some of the cross-linguistic, truth-conditional, and transformational evidence via a discussion of the following three tests:

- (16) **LEXICAL ENCODING** If other natural languages actually use different words for the different senses of a word, then the word is likely homonymous. Otherwise, it may be monosemous.¹⁹
- (17) **CONTRADICTION** If a word is ambiguous, it is possible to simultaneously assert and deny expressions containing the word without contradiction.²⁰
- (18) **CONJUNCTION REDUCTION** If an expression is ambiguous, a reduced conjunction containing it can be constructed so that crossed readings are ruled out (or heard as sylleptic).²¹

The relevant data for **LEXICAL ENCODING** are controversial, while **CONTRADICTION** seems to support the ambiguity hypothesis. But **CONJUNCTION REDUCTION** returns unexpected results. A brief review of the data will put us in position to see what’s happening.

Consider the cross-linguistic evidence relating to **LEXICAL ENCODING** first. It correctly diagnoses the ambiguity of homonyms like ‘bank’. The ‘bank’ that denotes

¹⁸See fn. 6 above.

¹⁹The source for this test is Kripke (1977).

²⁰The formulation in terms of simultaneous assertion and denial is indebted to Zwicky and Sadock (1975), 7-8. Quine (1960), 131 discusses ambiguous terms giving rise to a variation in truth-value from utterance to utterance.

²¹See §2.3 above for discussion of this test in standard cases.

financial institutions translates into French as ‘banque’, while the ‘bank’ that denotes riverbanks translates as ‘rive’. Other natural languages are sometimes claimed to have different words for the causal-explanatory and epistemic senses of ‘because’. Sweetser (1990) cites the French linguist Ducrot in claiming that the French word ‘puisque’ translates epistemic ‘because’, while the French ‘parce que’ translates causal ‘because’.²² (Something like these senses are also claimed to be lexically distinguished in Dutch and German.²³) One serious problem with this data is that ‘puisque’ is not obviously equivalent to epistemic ‘because’: the former arguably has to do specifically with reasons, whereas the latter (as I argue below) introduces a causal explanation of how the speaker is in a position to make the assertion being explained.²⁴ So it would need to be shown that ‘puisque’ corresponds to epistemic ‘because’. The presence of ‘since’ in English, which is sometimes suggested to prefer the epistemic and metalinguistic senses of ‘because’, further complicates the dialectic here: if ‘puisque’ just translates ‘since’, then it needs to be shown that ‘since’ and epistemic (and metalinguistic) ‘because’ are interchangeable.²⁵ There are at least some differences between them: ‘since’ doesn’t require comma intonation, for example. The semantic importance of these differences requires investigation. But more importantly, Zuffery (forthcoming) shows that ‘parce que’, like ‘because’, has epistemic and metalinguistic uses, especially in spoken French, and that ‘because’ is only very rarely translated with ‘puisque’.²⁶

Even if there is no clear cross-linguistic support for the claim that ‘because’ is ambiguous between causal, epistemic, and metalinguistic uses, other tests should be able to diagnose the ambiguity. Set aside the controversial cross-linguistic data and consider CONTRADICTION. The intuition behind CONTRADICTION is that truth-conditions are semantic, so words that are responsible for truth-conditionally distinct interpretations of the sentences in which they occur must be susceptible of semantically distinct interpretations, i.e., they must be ambiguous. (19) gives a clear example of a

²²Op. cit., 155-156, n. 5.

²³‘Something like’, because there is a recent tendency in some of the linguistics literature—see Degand and Maat (2003) and Pit (2003)—to differentiate epistemic and causal-explanatory senses by some difference on a scale of ‘speaker involvement’ or ‘subjectivity’, rather than differentiating between epistemic and causal senses specifically.

²⁴Consult the French children’s song “Lundi matin”, introduced to me by David Manley, for support for the idea that ‘puisque’ also has to do with reasons, but is not specifically epistemic/metalinguistic.

²⁵See Kanetani (2006) for the suggestion.

²⁶Zuffery argues that ‘puisque’ marks echoic use. Incidentally, in her translation corpus, epistemic and metalinguistic uses of ‘because’ tended to be translated with ‘car’ rather than ‘parce que’, but she also found that ‘car’ is practically nonexistent in spoken French, having been replaced in contemporary spoken French by ‘parce que’. (This highlights a drawback of LEXICAL ENCODING: diachronic language change affects what it says.)

sentence that can be used to simultaneously assert and deny expressions containing the ambiguous word ‘light’ (namely, ‘the dumbbell is light’) without contradiction.

(19) The dumbbell is light, but the dumbbell is not light.

To see the non-contradictory reading of (19), it suffices to interpret one of the two occurrences of ‘light’ as saying something about the dumbbell’s color, and the other as saying something about its weight. CONTRADICTION tells us to expect to find an available non-contradictory reading of a sentence like (20) if ‘because’ is, like ‘light’, ambiguous.

(20) You went to the doctor, because I saw you go by; but you went to the doctor because you were sick, not because I saw you go by.

The most natural reading of (20) is indeed non-contradictory. This is the clearest evidence that ‘because’ is ambiguous between causal and epistemic senses yet. Similar examples abound for checking metalinguistic uses of ‘because’ against causal and epistemic uses.

(21) You *managed* to solve the problem, because it was hard, but you managed to solve the problem because you worked hard, not because it was hard.

(22) You managed to solve the problem, because you’re smiling, but you *managed* to solve the problem, because it was hard, not because you’re smiling.

We can grant that the availability of non-contradictory readings of (21) and (22) is further evidence that ‘because’ is ambiguous between causal, epistemic, and metalinguistic senses.

But evidence that ‘because’ is ambiguous in that way fails to accumulate as expected when we turn to our last test, CONJUNCTION REDUCTION. When CONJUNCTION REDUCTION works as expected, a conjunction with four readings is reduced to a conjunction with two readings through the deletion of a repeated ambiguous expression.

(23) Morton tossed down his lunch.

(24) Morton tossed down his lunch and Oliver tossed down his lunch.

(25) Morton and Oliver tossed down their lunches.²⁷

²⁷Zwicky and Sadock (1975)’s (61).

Given that ‘tossed down his lunch’ can mean either that the subject ate his lunch quickly or that the subject threw his lunch on the floor, (23) has two readings. (24) has four readings, two of which are *crossed* in the sense that the two occurrences of ‘tossed down his lunch’ are not both interpreted to have the same meaning. On the crossed readings of (24), one of Morton and Oliver ate his lunch quickly and the other threw his lunch on the floor. (25), however, has only two readings, as the crossed readings are both eliminated by the reduction of (24) to (25). When the targeted expression is not actually ambiguous, all four readings remain available. But using CONJUNCTION REDUCTION to test the present ambiguity hypothesis for ‘because’ does not work as we would expect it to, if ‘because’ were in fact ambiguous.

To begin with, we have to be careful to find examples that, like (23), have multiple readings. The standard causal uses of ‘because’ do not lend themselves to epistemic or metaphysical readings.

(26) He likes her because she’s nice to him.

(27) It’s reputed to be valuable because estimates of its worth exceed \$10m.

Both of (26) and (27) are causal, in the sense explained in §3.1. (26) is true just in case her being nice to him is (part of) the reason he likes her. (27) is true just in case the estimates of its worth are (part of) the reason it’s reputed to be valuable. (If the object in question is reputed to be valuable only because its owner lies to gossips about its value, the sentence is false.) But since (26) and (27) lack comma intonation, they do not have epistemic or metalinguistic readings. Unlike (23), then, they don’t themselves have two readings, and so we cannot use them to compare a conjunction with four readings like (24) to a reduced conjunction like (25), to see if the reduced conjunction has the expected two readings.

The situation is more promising with respect to epistemic uses of ‘because’.

(28) He likes her, because he brought her moss.

The natural reading of (28) is epistemic, in the sense explained in §3.1: his bringing her moss is offered as the justification for the speaker’s saying that he likes her. But it does also have a causal reading, even when uttered with comma intonation, which is much the same as the sole reading of (26).²⁸ Further, the conjunction in (29) has

²⁸‘Much the same’ because not exactly the same: aside from the differing explanantia, the causal reading of (28) and the sole reading of (26) plausibly differ on whether the proposition expressed by the prejacent is presupposed. (Recall fn. 14 above.)

four readings and its reduction, (30), has the expected two readings, neither of which is crossed.

(29) He likes her, because she's nice to him, and he likes her, because he brought her moss.²⁹

(30) He likes her, because she's nice to him and he brought her moss.

To avoid any potential difficulties related to hearing obviously false readings, focus on the quite natural crossed reading of (29) where the first 'because' is interpreted causally and the second 'because' is interpreted epistemically. Such an interpretation will be true where her being nice to him is (partially) causally responsible for his liking her, and where the speaker's justification for asserting that he likes her is that he brought her moss. (30) does not have this crossed reading, nor the crossed reading that interprets the first 'because' epistemically and the second causally. (30) does have a very natural epistemic reading, on which the 'because' clause says that the speaker's justification for asserting the prejacent is that she's nice to him and he brought her moss. (30) also has a causal reading, though of course it's false in any psychologically ordinary scenario. So (30) has two meanings where (29) had four, which is what CONJUNCTION REDUCTION tells us to look for as evidence of ambiguity.

But there's a rub. There are differences between (29) and (30) aside from how many times 'because' occurs. The prejacent also has to be reduced to get (30). If the elimination of crossed readings in (30) were traceable to an ambiguity in 'because', then the partially reduced conjunction (31) should still have four readings.

(31) He likes her, because she's nice to him and because he brought her moss.

But it does not. (31) has a natural epistemic reading, according to which her being nice to him and his bringing her moss are both offered as justifying the speaker's assertion that he likes her. It also has a causal reading, according to which her being nice to him and his bringing her moss explain his liking her. As with the causal reading of (30), the causal reading of (31) can only be true if the sentence's subject is somewhat psychologically peculiar. The absence of crossed readings of (31) sug-

²⁹If the explanation of the necessity of comma intonation in terms of presuppositional differences (see again fn. 14 above) is correct, (29) should only be felicitous if the second utterance of 'he likes her' is intoned in a way that doesn't require it to be presupposed, despite the fact that it's already been said earlier in the sentence. I think this is actually the only way to intone (29) so that it is felicitous: try reading it aloud with the second occurrence of 'he likes her' uttered in a knowing but confidential tone, as if only then to try to convince your audience that he really does like her.

gests that the ambiguity exposed by (30) is not an ambiguity of ‘because’, but rather an ambiguity elsewhere in the sentence. In particular, CONJUNCTION REDUCTION tells us to suspect an ambiguity in the material reduced to produce (31). This is effectively what those theories that tell us that the prejacent in epistemic uses of ‘because’ have hidden operators like ‘it must be the case that’ or ‘I know’ in them say, but I think their conclusion is not quite the right one to draw. Rather, I think the right conclusion to draw is that we are dealing here with a syntactic ambiguity: the crossed readings of (29) arise from interpretations of its ‘because’ clauses on which they are not coordinate. I spell this claim out in §3.3.

But for now, we can add to our stock of evidence that CONJUNCTION REDUCTION fails to predict that ‘because’ is ambiguous between the meanings of the linguists’ taxonomy when we look at metalinguistic and causal uses of ‘because’. Here it is fairly obvious that apparent ambiguities can be explained without attributing any ambiguity to the word ‘because’ itself. I take it that nobody will dispute that manipulating the sentences in (3) and (10) so that they have causal readings involves substantial syntactic rearrangement of the sentences. I also take it that nobody will be able to hear a causal reading of (15). But consider (32), an example along the lines of (11)–(14).

(32) ‘It’s reputed to be valuable’, because nobody knows its actual value.³⁰

The natural reading of (32) is metalinguistic, in the sense explained in §3.1: it offers the fact that nobody knows the object’s actual value as an explanation of the mentioned phrase in the prejacent. (Note that the mentioned phrase has to have been used previously for (32) to be felicitous—the mention is an echo.) In fact, it only has a metalinguistic reading, because the explanandum is just a mentioned expression. If we use the explanandum phrase instead of mentioning it, we get a sentence with a causal reading but without a metalinguistic reading, like (33). (It does have an epistemic reading, but we can safely ignore that here.)

(33) It’s reputed to be valuable, because estimates of its worth exceed \$10m.

As far as I can tell, there is just no overlap between the prejacent of metalinguistic uses of ‘because’ and the prejacent of causal uses of ‘because’. So non-reduced conjunctions like (34) have only one relevant reading to begin with. (Again, we should here set aside any epistemic readings as irrelevant to the present discussion.)

(34) It’s reputed to be valuable, because estimates of its worth exceed \$10m, and

³⁰Adapted from an example of Yukio Hirose discussed in Kanetani (2012).

‘it’s reputed to be valuable’, because nobody knows its actual value.

The obvious use/mention difference between the occurrences of the phrase ‘it’s reputed to be valuable’ in (34) means that we can’t form a grammatical reduced conjunction targeting the prejacent, much less a grammatical reduced conjunction targeting ‘because’. So we can’t even try to apply CONJUNCTION REDUCTION here.

Let’s take stock. The cross-linguistic evidence for the ambiguity of ‘because’, considered in connection with LEXICAL ENCODING, is controversial. Most importantly, even French, which is often claimed to have distinct words for the different uses of ‘because’, has a single word, ‘parce que’, that itself has the same range of causal, epistemic, and metalinguistic uses as ‘because’. The truth-conditional evidence that the different uses of ‘because’ reflect differences in the semantic contribution of the word itself, considered in connection with CONTRADICTION, fails to be confirmed by a careful consideration of reduced conjunctions. What CONJUNCTION REDUCTION rather suggests is that we should take a closer look at the prejacent of ‘because’ sentences and their relationship with ‘because’ clauses. The next section takes that closer look.

3.3 SYNTACTIC DIFFERENCES

When we consider the relationship between ‘because’ clauses and their prejacent in causal, epistemic, and metalinguistic uses, we find that the different cases are marked by different grammatical or syntactic relations.³¹ There are two different sources of evidence for this claim. The first source of evidence is uncovered by considering the range of constructions in which epistemic and metalinguistic uses of ‘because’ can occur. The second source of evidence involves ordering restrictions on stacked ‘because’ clauses. Once we understand the differences in the syntactic roles of the ‘because’ clause in its causal, epistemic, and metalinguistic uses, we’ll be ready for the arguments of §3.4 to the effect that ‘because’ makes the same semantic contribution in all of them.

First for the constructions. I focus here on six kinds of constructions—represented by (35-b)–(35-g) below—in which causal-explanatory ‘because’ can appear, some of which do not admit epistemic or metalinguistic readings.³² The possibility of ap-

³¹Copious thanks are due to Ezra Keshet for discussion of and advice about the matters discussed in this section, especially with respect to the ordering restrictions on stacked ‘because’ clauses that I discuss in the latter half of the section, though I’m uncertain whether he’d endorse my exposition of the material or my conclusions.

³²The examples in (35) are adapted from Quirk et al. (1985), §8.25.

pearing in all of these constructions is characteristic of what Quirk et al. (1985) call *adjuncts*, a grammatical subcategory of adverbial phrases. The failure of epistemic and metalinguistic uses of ‘because’ to appear in any of them, then, would be evidence that those uses are somehow grammatically or syntactically distinct from the causal uses of ‘because’ in (35).³³

- (35)
- a. Hilda helped Tony because he was injured.
 - b. It was because he was injured that Hilda helped Tony.
 - c. Did Hilda help Tony because he was injured or because she wanted to please her mother?
 - d. Hilda didn’t help Tony because he was injured but because she wanted to please her mother.
 - e. Hilda helped Tony only because of his injury.
 - f. Hilda helped Tony because of his injury and so did Grace.
 - g. Why did Hilda help Tony? Because of his injuries.

In (35-b)–(35-g), we see the ‘because’ clause being the focus of a cleft sentence, being the basis of contrast in alternative interrogation or negation, being focused by ‘only’, coming within the scope of the pro-form ‘so did’, and being elicited by a question.³⁴ Epistemic and metalinguistic uses of ‘because’ are in fact not possible in some of these constructions.

Consider an epistemic use of ‘because’.³⁵

- (36)
- a. He likes her, because he brought her moss.
 - b. ?It was because he brought her moss that he likes her.
 - c. (i) Does he like her because he brought her moss or because she’s nice to him?
 - (ii) Does he like her, because he brought her moss or because she’s nice to him?
 - d. (i) He doesn’t like her because he brought her moss but because she’s nice to him.
 - (ii) #He doesn’t like her, because he brought her moss but because she’s nice to him.

³³According to Quirk et al. (1985), §15.21, the epistemic uses of ‘because’ fall in a distinct grammatical category of *style disjuncts*, which coheres with the story I tell here.

³⁴The description of the constructions given here is minimally adapted from Quirk et al. (1985), §8.134.

³⁵I am indebted to Eric Lormand for pressing me to be clear about the influence of comma intonation and about the resulting complexity of the discussion in the following paragraphs.

- (iii) He doesn't like her, because he won't bring her moss and because she's mean to him.
- e. (i) ?He likes her only because he brought her moss.
- (ii) He likes her, only because he brought her moss.
- f. (i) ?He likes her because he brought her moss and so does Grace.
- (ii) *He likes her, because he brought her moss and so does Grace.
- (iii) #He likes her, because he brought her moss and so did Grace.
- (iv) He likes her, because he brought her moss, and so does Grace.
- g. Why does he like her? Because he brought her moss.

(36-a) has a felicitous epistemic reading. But no epistemic reading is available in some of the transformations that are characteristically possible for adjuncts. The only reading of the construction in (36-b), for example, is causal: the construction itself grammatically excludes its being uttered with comma intonation, so no epistemic reading of its 'because' clause is available. (I mark the example with a question mark to highlight the implausibility of the causal reading.) (36-c-i) again has only a causal reading, though it is not pragmatically bad because the question can be answered by adducing a plausible reason for his liking her (namely, that she's nice to him). However, comma intonation does make a difference: (36-c-ii), uttered with comma intonation, has an epistemic reading on which the speaker is offering an interlocutor reasons to affirm that he likes her. (36-d-i) again has only a causal reading. But with this construction comma intonation does not exactly help: only the preajacent of (36-d-ii) comes within the scope of the negation. Its first 'because' clause thus cannot be the focus of alternative negation, so 'and' should be used instead of the contrastive 'but' to conjoin the two 'because' clauses, as in the felicitous example (36-d-iii). That example, though, is just a different construction than (35-d). The takeaway from (36-d) is thus that alternative negation is a construction in which epistemic 'because' cannot appear. (36-e-i) has only a causal reading—again an implausible one, as it happens. (36-e-ii) admits an epistemic reading of its 'because' clause, on which the speaker offers a thin justification for his assertion that he likes her. (36-f-i), which can only be uttered without comma intonation, has only a causal reading. (I mark it with a question mark because it is only true in those bizarre contexts where both he and Grace are psychologically abnormal, so that they both like her because they brought her moss.) (36-f-ii), uttered with comma intonation, is flatly ungrammatical: the pro-form 'so does' is within the scope of the 'because', rather than the other way around, and so its tense must match the tense of 'brought'. Fixing the tense mismatch results in the grammatical but extremely implausible (36-f-iii), the epistemic reading of which is true only if the conjunctive fact

that he and Grace both brought her moss somehow justifies the speaker’s assertion that he likes her. The ungrammaticality can also be repaired by forcing the pro-form ‘so does’ to take scope over only the prejacent, as I have attempted to represent with the additional comma in (36-f-iv). The epistemic ‘because’ clause in (36-f-iv) is then merely parenthetical. But the takeaway from (36-f) is just that we have a construction in which epistemic ‘because’ cannot appear, namely, within the scope of the pro-form ‘so did’.³⁶ Finally, (36-g) is felicitous, provided that the interrogative is an echo question. (Otherwise, the response will be infelicitous unless we are again in the psychologically abnormal but now familiar context where his reason for liking her is that he brought her moss.) To sum up, the discussion of (36-b), (36-d), and (36-f) conclusively establishes that epistemic uses of ‘because’ are not adjuncts. This might, however, just be a quirk of Quirk et al.’s definition of ‘adjunct’. The fact that epistemic uses of ‘because’ fail to meet their definition of adjunct does not immediately prove that we are dealing with a real grammatical difference here. But our second source of syntactic evidence—ordering restrictions on stacked ‘because’ clauses—will confirm that indeed we are.

But first we should confirm that metalinguistic uses of ‘because’ also cannot be adjuncts. Here our paradigm metalinguistic use of ‘because’ will be (37-a). I use the foreshortened echo ‘reputed’ as the prejacent to bring out the ungrammaticality of (37-b-i); using an echo of a full sentence as the prejacent can make the ungrammaticality less apparent but no less real, provided only that we attend properly to the use/mention distinction.

- (37)
- a. ‘Reputed’, because I have never seen it.
 - b. (i) *It was because I have never seen it that ‘reputed’.
 - (ii) It was because I have never seen it that I said ‘reputed’.
 - c. (i) ?‘Reputed’ because I have never seen it or because no one alive has seen it?
 - (ii) ‘Reputed’, because I have never seen it or because no one alive has seen it?
 - d. (i) Not ‘reputed’ because I have never seen it but because no one alive has seen it.
 - (ii) #Not ‘reputed’, because I have never seen it but because no one alive has seen it.
 - (iii) Not ‘reputed’, because I’ve seen it and because others have, too.

³⁶Readers should not be worried by the difference in tense between ‘Hilda helped Tony’ and ‘He likes her’. I am just exploiting the difference in tense between ‘He likes her’ and ‘he brought her moss’ to show that ‘because’ has wider scope than the pro-form in (36-f-ii) and (36-f-iii).

- e. (i) #‘Reputed’ only because I have never seen it.
- (ii) ‘Reputed’, only because I have never seen it.
- f. (i) *‘Reputed’ because I have never seen it and so is the other secret collection.
- (ii) *‘Reputed’, because I have never seen it and so is the other secret collection.
- (iii) *‘Reputed’ because I have never seen it, and so is the other secret collection.
- (iv) *‘Reputed’, because I have never seen it, and so is the other secret collection.
- g. Why ‘reputed’? Because I have never seen it.

(37-b-i) is ungrammatical: it does not even have a causal reading. The ungrammaticality can be repaired by supplementing the mentioned material with a subject and a verb of saying, as in (37-b-ii), which is grammatical but has only a causal reading. I don’t have especially clear intuitions about the example in (37-c-i), though I am inclined to think that it should be read causally with an understood subject ‘I’ and a verb of saying, along the lines of (37-b-ii). Given that reading of (37-c-i), it’s pragmatically bad in most contexts. We typically don’t ask others why we said something. But it is felicitous as a rhetorical question in order to draw an interlocutor’s attention to the question why the speaker chose ‘reputed’, or when uttered privately to oneself. (37-c-ii) does have a metalinguistic reading, on which the speaker asks why ‘reputed’ was chosen (presumably by someone else). (37-d) is precisely analogous to (36-d): (37-d-i) has only a causal reading; (37-d-ii) is pragmatically bad because the scope of its negation does not include the conjoined ‘because’ clauses and so does not license the contrastive connective ‘but’; and (37-d-iii) is felicitous but just a different construction than the adjunct construction in (35-d), where the ‘because’ clause is the basis of alternative negation. (37-e-i) has a causal reading, but its meaning is interestingly different than the meaning of the rather more plausible metalinguistic reading of (37-e-ii). If (37-e-i) is true, then whoever said ‘reputed’ holds me personally responsible for gathering evidence that could confirm reputations. But for the metalinguistic reading of (37-e-ii) to be true, it is enough for my lack of evidence to explain why I said ‘reputed’. I don’t have to be the arbiter of confirmation for the metalinguistic reading of (37-e-ii) to be true, in the way that I do have to be the arbiter of confirmation for the causal reading of (37-e-i) to be true. With (37-f), we do not have to worry about tense mismatches as we did for (36-f). But no matter how we manipulate the scope of the pro-form ‘so are’, the sentences are ungrammatical, as long as the use/mention distinction is kept clearly

in view. What (36-a) explains is the use of the word ‘reputed’, and that is not a property that could apply to other secret collections, even if being reputed to be a certain way is a property that they might share with whatever it is I haven’t seen. Finally, (37-g), like (36-g), is felicitous as long as the question is an echo. Otherwise the question itself is infelicitous. This is a small difference from (36-g), where the question has a clear causal interpretation even if it isn’t an echo. But the important point to draw from this elaborate consideration of (37) is just that the discussions of (37-b), (37-d), and (37-f) conclusively show that metalinguistic uses of ‘because’ are not adjuncts.

What it means for causal-explanatory ‘because’ to be an adjunct, but for epistemic and metalinguistic ‘because’ not to be adjuncts, is basically that the different uses of ‘because’ in the linguists’ taxonomy are syntactically different. That difference is, in technical terms, a difference in what the ‘because’ clause attaches to. In slightly less technical terms, epistemic and metalinguistic uses provide explanatory comments on an entire sentence or act, while causal uses explain the content of the main clause. This syntactic or grammatical ambiguity explains the absence of crossed readings that we observed for (31) in the discussion of CONJUNCTION REDUCTION.

(31) He likes her, because she’s nice to him and because he brought her moss.

We’ll build up to that explanation from a simpler case. Chomsky observed long ago that, for the most part, we can form reduced conjunctions when and only when we have two constituents of the same type, and that we can therefore use the possibility of forming reduced conjunctions to help determine syntactic structure.³⁷ Consider the syntactically ambiguous sentences (38) and (39).

(38) Johan kicked the ball on the floor.

(39) Johan kicked the ball between the cones.

These sentences are ambiguous because the prepositional phrases ‘on the floor’ and ‘between the cones’ could specify either the location of the ball before Johan kicked it or where it went after he kicked it; they exhibit a classic syntactic ambiguity.³⁸ (40) thus has four readings.

(40) Johan kicked the ball on the floor and Johan kicked the ball between the cones.

³⁷See his 1957, §5.2. (He qualifies the claims there with ‘generally’ but does not say what, if any, exceptions there are. Fortunately it won’t matter for present purposes.)

³⁸The SEP article Sennet (2011) discusses a similar example at §3.2.1.

For illustrative purposes, here is a description of one of its crossed readings: (40) could mean that Johan kicked the ball that was on the floor so that it went between the cones. But the reduced conjunction (41) has only two readings: both crossed readings disappear.

(41) Johan kicked the ball on the floor and between the cones.

But ‘Johan kicked the ball’ is not ambiguous. Rather, the ‘and’ in (41) conjoins the prepositional phrases and thereby forces them to attach to the rest of the sentence at the same level. (To adopt a suggestive technical metaphor, they are merged with one another before merging with the rest of the sentence.)

I claim that the same sort of thing is happening in (31). The ‘and’ conjoins the ‘because’ phrases and forces them to attach to the rest of the sentence at the same level. Moreover, and crucially, the level at which epistemic and metalinguistic ‘because’ clauses attach differs from the level at which causal ‘because’ clauses attach. (I claim that the difference persists even between causal and epistemic or metalinguistic readings of utterances with comma intonation, but I’ll wait until later to argue for that claim.) The fact that epistemic and metalinguistic uses of ‘because’ do not meet Quirk et al.’s criteria to be categorized as adjuncts suggested that we were dealing with this kind of grammatical difference. But we need not rely on their characterization cutting the syntactic world at its joints. We have an independent source of evidence of the difference in attachment height.

Restrictions on the order in which ‘because’ clauses can be stacked is that source of independent evidence.³⁹ Let’s start again with an easy case.

(42) Johan kicked the ball on the floor between the cones.

The prepositional phrases in (42) are stacked so that the interpretation of ‘on the floor’ can restrict the interpretation of ‘between the cones’. If we interpret ‘on the floor’ as modifying the NP ‘the ball’, then ‘between the cones’ can modify either the NP ‘the ball on the floor’ or the VP ‘kicked the ball on the floor’. But if we interpret ‘on the floor’ as an adjunct modifying the VP ‘kicked the ball’, then ‘between the cones’ has to modify the VP ‘kicked the ball on the floor’. That is, it’s not possible for ‘between the cones’ to modify the NP ‘the ball’ or the NP ‘the ball on the floor’ if ‘on the floor’ modifies the VP ‘kicked the ball’. To put this in terms of attachment height, if ‘on the floor’ attaches above ‘kicked’ by modifying the VP ‘kicked the

³⁹See Bhatt and Pancheva (2006), §5.3 for an application of this kind of test to different varieties of ‘if’ clauses.

ball', then 'between the cones' cannot get back below 'kicked the ball on the floor' to modify an NP (namely, 'the ball' or 'the ball on the floor'). It is instead forced higher in the tree.

This example in mind, consider stacked 'because' clauses.

(43) You went to the casino because you're addicted to gambling, because I saw you.

The first 'because' phrase in (43) has to be interpreted causally, since there's no indication of comma intonation leading into it. The second 'because' phrase is most naturally interpreted as an epistemic use of 'because', given the content of its explanans phrase ('I saw you'). But given that the first, causal 'because' clause attaches low in the tree, there is no grammatical reason that a second 'because' clause can't also attach low enough to receive a causal interpretation.

(44) You went to the casino because you're addicted to gambling(,) because your addiction is compelling.

The availability of a causal interpretation of the second 'because' clause in (44), on which it explains the explanatory connection between the preajacent and the first 'because' clause, makes this clear. Notice that the presence of comma intonation is irrelevant to the possibility of interpreting the second 'because' clause as causal. All that comma intonation does is make epistemic and metalinguistic readings possible. Of course, if the second 'because' clause of (44) is uttered with comma intonation, it can be read epistemically or metalinguistically. (Readers may find the truth-conditions to have stopped being very intuitive at this level of complexity, but the reading is grammatically available.) However, if a first 'because' clause is interpreted epistemically or metalinguistically, a second 'because' clause can only get above it if it, too, is interpreted epistemically or metalinguistically.

(45) You went to the casino, because I saw you because you're addicted to gambling.

On the only grammatical interpretations of (45), 'because you're addicted to gambling' modifies the S 'I saw you'. (The parallel to this for (42) would be for 'between the cones' to modify 'on the floor' directly, and then for the resulting complex prepositional phrase to modify either the NP 'the ball' or the VP 'kicked the ball'.) But causal 'because' cannot take scope over an epistemic use of 'because'. In particular, the second 'because' clause of (45) cannot modify the S 'You went to the casino, because I saw you'. Now, using comma intonation does allow a second 'because'

clause to scope outside a first epistemic or metalinguistic ‘because’ clause, but the second ‘because’ clause cannot then get a causal interpretation.

- (46) You went to the casino, because I saw you, because I am in the habit of reporting my reasons for saying things.

The second ‘because’ clause in (46) is, as far as I can tell, metalinguistic. It does not seem to be possible for a causal ‘because’ clause to take scope outside an epistemic or metalinguistic use of ‘because’. In fact, I think the right thing to say here is that the metalinguistic ‘because’ just is the causal ‘because’ when it gets high enough in the tree, and I argue to that effect in the next section. But for now what is important is that this is dispositive evidence of a difference in attachment height.

I said earlier that the difference in attachment height established here would explain the absence of crossed readings for (31).

- (31) He likes her, because she’s nice to him and because he brought her moss.

Recall that (31) is uttered with comma intonation leading into the first ‘because’ clause. That intonational pattern forces the ‘and’ to conjoin the two ‘because’ clauses before they attach to the S ‘He likes her’. The ConjP ‘because she’s nice to him and because he brought her moss’ then attaches to the S ‘He likes her’ at some height or other. The fact that it can only attach at one such height suffices to explain the absence of crossed readings of (31), precisely because crossed readings require different attachment heights.

The difference in attachment height established above also explains the need for comma intonation in epistemic and metalinguistic uses of ‘because’. Epistemic and metalinguistic uses of ‘because’ are so high in the tree that we might well think of them as not even part of the same utterance as their prejacent. (More on this in §3.4.2 below.) Comma intonation, then, is required to separate what we might think of as an utterance of a prejacent and a second utterance that comments on it. But rather than attempting to develop the right syntactic account of how this works here, I want to turn my attention back to semantics, and offer some reasons to think that epistemic and metalinguistic uses of ‘because’ really are semantically causal.

3.4 UNIFYING THE LINGUISTS’ TAXONOMY

In this section, I argue that causal, epistemic, and metalinguistic uses of ‘because’ are not distinguished by an ambiguity in ‘because’. A better explanation is that

metalinguistic and epistemic ‘because’ clauses are explanatory comments on salient preceding acts or representations. Epistemic ‘because’ clauses explain, in particular, how the speaker was in the position, at the time of her assertion, to make it. Since metalinguistic ‘because’ can also be used to explain how the speaker was, at the time of doing something, in the position to do it, epistemic uses of ‘because’ are just a particular kind of metalinguistic use of ‘because’. So the difference between epistemic and metalinguistic ‘because’ has nothing to do with the lexical entry or related semantic facts for ‘because’ (§3.4.1).

Further, metalinguistic ‘because’ just is causal ‘because’ when it appears above a certain height in a syntactic tree. The difference between these uses is thus in their explananda. That is, metalinguistic and causal ‘because’ are in *complementary distribution*, which is to say that they are found in mutually exclusive environments, and this will be enough to unify them (§3.4.2).

3.4.1 EPISTEMIC ‘BECAUSE’ IS METALINGUISTIC ‘BECAUSE’

Consider the metalinguistic ‘because’ clauses in (3) and (15).

(3) What are you doing tonight?—because there’s a movie on.

(15) (After knocking softly) Because I don’t want to wake their baby.

In these examples, what is being explained is (a feature of) the preceding act—the speech-act in (3), and the manner of knocking in (15). The ‘because’ clauses are thus comments on what has just occurred. The variety of metalinguistic uses to which ‘because’ clauses can be put, reflected also in (11)–(14) above, shows that ‘because’ clauses can be used to give explanations for a wide range of features of salient preceding acts.

But explaining a feature of a salient preceding act is just what the epistemic ‘because’ clause in (2) does, as well.

(2) He likes her, because he brought her moss for her terrarium.

In particular, it explains how the speaker is in a position to make the assertion. Of course, metalinguistic ‘because’ can explain how the speaker is in the (non-epistemic) position to do something, too.⁴⁰

⁴⁰‘Metarepresentational’ would probably be terminologically happier than ‘metalinguistic’ here; see fn. 17 above.

(47) (After making a half-court shot) Because I've practiced a lot.

The metalinguistic 'because' of (47) explains how the speaker was in the position to make the half-court shot, at the time that he did it.

What makes the difference in (2)'s counting as epistemic rather than metalinguistic is just that the speaker of (2) is explaining her being in a position to make an assertion.⁴¹ There are many features of a speech-act that might require explanation: its relevance, the speaker's motivation and justification, etc. In a case where it's not common ground that the speaker is justified in making an assertion, an explanation of the speech-act is thus naturally interpreted as explaining why the speaker believes what she said. Imagine trying to explain, with an epistemic 'because' clause, an imperative.

(48) Look for a man with a limp, because that's what the evidence says we should look for.

The 'because' clause in (48) explains how the speaker was in the position to make the recommendation to look for a man with a limp. But its 'because' seems to me to be metalinguistic. In general, on my view, epistemic uses of 'because' are metalinguistic uses of 'because', where the explanandum is an assertion. Whatever it is that accounts for metalinguistic 'because' clauses in sentences like (3), (15), and (48) should also be able account for epistemic 'because' clauses. In the next section, I argue that what accounts for the semantic contribution of 'because' in its metalinguistic uses, and therefore also in its epistemic uses, is just the contribution of its literal causal meaning.

3.4.2 METALINGUISTIC 'BECAUSE' IS CAUSAL 'BECAUSE'

Imagine trying to explain, with a causal 'because' clause, some feature of a speech act you have just made.

(49) What are you doing tonight? I'm asking you because there's a movie on.

The 'because' clause of (49) explains why the speaker asked the question. But this is just what utterances of (3) do.⁴² So here, where the explanandum of a metalinguistic 'because' clause is explicitly represented, the 'because' clause becomes causal. I claim this is a general feature of metalinguistic 'because' sentences.

⁴¹Knowledge is, after all, much-discussed as the norm of assertion, so to be in a position to assert something is to know it. (But see Williamson (2000), Ch. 11 for discussion.)

⁴²In fact, (49) is modeled on what Sweetser (1990) claims the meaning of (3) is.

- (13) ‘*Mongeeese*’, because it sounds better than ‘*mongooses*’.
- (50) I said ‘*mongeeese*’ because it sounds better than ‘*mongooses*’.
- (15) (After knocking softly) Because I don’t want to wake their baby.
- (51) I knocked softly because I don’t want to wake their baby.

Apparent differences between causal ‘because’ and metalinguistic ‘because’, if this is right, can be attributed to the linguistic contexts in which they appear. This is not polysemy—at least, it is not the kind of polysemy that correlates with any semantic complexity of ‘because’—in that the sense of ‘because’ used is precisely the same in both cases. What accounts for the apparent difference in meaning is rather a difference in what is being explained.

That difference in what is being explained reduces, I claim, to the difference in attachment height established in §3.3. I said there that I would later explain why a difference in attachment height persists even between the different readings of utterances with comma intonation. Recall (28), which has both epistemic and causal readings, as described in §3.1.

- (28) He likes her, because he brought her moss.

I just claimed in §3.4.1 that all epistemic readings are really metalinguistic readings, and I claimed in the introductory paragraphs of §3.4 that causal and metalinguistic readings are complementarily distributed. So the epistemic (i.e., metalinguistic) and causal readings of (28) had better have different explananda. I do not, however, think that the difference between their explananda is a matter of some ambiguity in the explanandum phrase ‘He likes her’. Rather, the difference is a matter of the grammatical or syntactic structure that gives rise to the two readings. In the causal reading, ‘because he brought her moss’ attaches directly to the S ‘He likes her’. But in the epistemic (i.e., metalinguistic) reading, I now claim, it attaches even higher. That is, I claim there are two non-isomorphic syntactic trees for (28). This might be surprising, as it’s not immediately obvious that there could be a syntactic tree for (28) with something higher than the S ‘He likes her’ to which the ‘because’ clause could attach. But there are a number of ways that a syntactic account with this feature might work out. If epistemic and metalinguistic ‘because’ clauses are part of the same syntactic tree as their prejacent, they are plausibly modifying a speech-act operator. Some philosophers may regard speech-act operators as dubious theoretical entities. Those philosophers might prefer a view on which epistemic and metalinguistic ‘because’ clauses do not attach to the tree for their prejacent at all, instead

constituting separate utterances and attaching to elided material like ‘I know that’ or ‘I said that’.⁴³ Or they might rather attach to a free variable that gets saturated by context.⁴⁴ For present purposes, the details of the right syntactic account don’t really matter.

What does matter is that causal uses of ‘because’ are in complementary distribution with metalinguistic uses of ‘because’. The move I want to make here—explaining away apparent differences in meaning by appealing to differences in what is being explained—is reminiscent of Quine’s argument that ‘exist’ is monosemous.⁴⁵ ‘Exist’ need not be treated as ambiguous between predicating spatiotemporal existence, as of chairs in (52), and predicating non-spatiotemporal existence, as of numbers in (53).⁴⁶

(52) Chairs exist.

(53) Numbers exist.

Rather, material objects and numbers exist in a single sense. The fact that “some very unlike things” exist is not evidence undermining the semantic unity of ‘exist’.⁴⁷ Instead, Quine claims, apparent differences in the meaning of ‘exist’ are due solely to differences in the things to which it applies themselves. And this is precisely analogous to what I am now claiming about the apparent differences in the meaning of ‘because’ as it appears in its causal, epistemic, and metalinguistic uses.

Let’s apply this analysis to an example from the wild.

⁴³I should note that I doubt that any account in terms of elided material will work, because tag questions like ‘don’t I?’, which should pick up elided material when uttered after a ‘because’ clause attached to the elided material, fail to be felicitous. Thanks to Rich Thomason for the idea here. An additional complication for this sort of view will be explaining examples like (15), where nothing at all has been said prior to the ‘because’ clause.

⁴⁴The syntactic suggestions made here and in §3.3 mirror the view of the relationship between epistemic and root modality championed by Hacquard (2010) and endorsed by Kratzer (2012): an epistemic modal is distinguished from the corresponding root modal in that a single uniform lexical entry, written so as to be able to appear at multiple levels of a phrase tree, appears higher in the phrase tree in the epistemic case than in the root case. So working out the technical details of one of the present suggestions about ‘because’ looks to be a tractable syntactic project.

⁴⁵It is also reminiscent of the argument in Goodenough (1956) from complementary distribution to underlying semantic unity, which he advances by analogy with the cases of allophones in phonology and allomorphs in morphology: see *op. cit.*, 197. Schmerling (1978), 310, fn. 9 also alludes to this kind of argument. See the discussion of ‘sort specific readings’ at Pinkal (1995), 94-97 for an overview of the terrain here.

⁴⁶Quine (1960), §27.

⁴⁷Quine (1960), 130.

- (54) **Jann S. Wenner:** Did you know [“I can’t get no satisfaction from the judge” was a line from Chuck Berry’s “30 Days”] when you wrote [“Satisfaction”]?
Mick Jagger: No, I didn’t know it, but *Keith might have heard it back then, because it’s not any way an English person would express it.* I’m not saying that he purposely nicked anything, but we played those records a lot.⁴⁸

The italicized text in (54) is a real-life example of a metalinguistic use of ‘because’. The basic idea behind my view is that Jagger is there giving a causal explanation of why he uttered the prejacent ‘Keith might have heard it back then’. That this is what Jagger is doing is confirmed by his continuation in the last sentence of (54), where he further clarifies the purpose of his utterance. But try to recover a straightforward causal reading of the ‘because’ clause in the italicized text in (54). The sentence would then be rather odd, as the fact that English people didn’t say ‘I can’t get no’ seems like it could have played no explanatory role at all in making it possible for Keith Richards to have heard the Chuck Berry song at the relevant time in the past. But that’s the reading of the sentence to which we are forced when we try to interpret the ‘because’ clause as what we have been calling a causal use of ‘because’. That is, we are forced to interpret the prejacent of causal ‘because’ clauses differently than the prejacent of epistemic and metalinguistic ‘because’ clauses. Given the syntactic differences between the different kinds of uses of ‘because’ we have been discussing, there is simply no reason to posit, in addition, any lexical ambiguity for ‘because’ itself.

By this point, I hope to have convinced you that epistemic and metalinguistic uses of ‘because’ plausibly involve the literal, causal sense of ‘because’, the very same sense that is operative in all of its standard causal uses. But this does not mean that all uses of ‘because’ are causal. The next section considers some possible exceptions.

3.5 THE EVIDENTIAL OBJECTION TO FULL GENERALITY

In this section I discuss a potential residue of cases not covered above or elsewhere in this dissertation. In particular, examples whose prejacent contains epistemic modals are a plausible source of non-causal ‘because’ sentences. The word ‘because’ as it occurs in these sentences would express not a causal explanatory relation, but a relation of evidential support between the content of the prejacent and the content of the ‘because’ clause.⁴⁹

⁴⁸Wenner (1995). Emphasis added. Thanks to Sara Aronowitz for the example.

⁴⁹The class of examples I want to isolate here is distinct from the class treated under the heading ‘evidential *because*-clauses’ by Declerck et al. (2006), §10.6.4. He gives the following three examples:

To be clear, many examples with non-epistemic modals in their prejacent are accounted for elsewhere in this dissertation.⁵⁰

(55) It's possible that the vase will break because it's fragile.

If the modal in (55) takes widest scope, the sentence says that it's possible that a certain causal explanatory relationship between the vase's current fragility and its future breaking holds. That reading requires only a standard causal use of 'because'. If instead the modal scopes over only the prejacent, then the sentence instead says that the fragility of the vase explains the fact that it's possible that the vase will break. Fronting the 'because' clause, as in (56), isolates this reading against interference from scopal ambiguities.⁵¹

(56) Because it's fragile, it's possible that it will break.

But the 'because' of (56) seems to me to be just the sense of 'because' used to communicate metaphysical explanations, namely, the metaphorical sense of 'because' discussed in chapters 2 and 4.

Evidential 'because' sentences with epistemic possibility modals in their prejacent are not clearly felicitous.

(57) Your keys might be in the drawer(,) because I haven't checked yet.

(58) Because I haven't checked yet, your keys might be in the drawer.

-
- (i) There must be someone in the house, because there is a light on on the second floor.
 - (ii) Next year the results will be somewhat better, because the economic climate will have improved.
 - (iii) John will be caught, because he will set off the alarm.

But the second and third examples are causal: they say what will cause what. Declerck et al. are misled by what I think is a badly misguided attempt to individuate uses of 'because' by an associated tense. What they call 'utterance-explaining *because*-clauses', for example, need not, contra their claims, use future tense: just see (3). The simple fact is that none of the categories of uses tracks or is tracked by tense.

⁵⁰I think the only such examples not accounted for have non-indicative prejacent: see fn. 6.

⁵¹Incidentally, fronting is also sometimes claimed to eliminate epistemic and metalinguistic readings. See, e.g., Hirose (1991) and Kanetani (2006). This might also have been invoked above as yet another piece of evidence that it is syntactic ambiguities that explain the differences between the kinds of uses of 'because' in the linguists' taxonomy. But I am not sure that the claim is true. As I am about to say in the body, I think (58) has a metalinguistic reading despite having sentence-initial 'because'.

Both of these sentences have causal readings. (Depending on how good your imagination is, those causal readings may be false in all the contexts you can imagine. But they're still accessible.) (57), uttered with comma intonation, and (58) do have detectable metalinguistic readings. On those readings, on the view defended above, the sentences causally explain the speaker's uncertainty about whether the keys are in the drawer by adducing her not having checked yet.⁵² But I don't detect what I've called an evidential reading of either sentence, and it's relevant that native speakers typically don't produce sentences like (57) or (58) anyway. (59) and (60) are much more natural.

(59) Your keys might be in the drawer, but I haven't checked yet.

(60) I haven't checked yet, but your keys might be in the drawer.

Lest we be led astray by some artifact of the examples in (57) and (58), consider the following plausible examples of evidential 'because' sentences.

(61) It might rain(,) because the sky is gray.

(62) Because we eliminated the alternative hypotheses, there must be water on Mars.

(63) The butler must have done it because nobody else was home at the time.⁵³

Depending on whether (61) is uttered with comma intonation, it sounds either causal or metalinguistic to me. I detect no evidential reading either way. (62), which sounds more natural, feels metalinguistic to me. That is, it feels to me like the 'because' clause functions to explain why the speaker says that there must be water on Mars, rather than expressing a relation of evidential support between the elimination of alternative hypotheses and (the epistemic necessity of) there being water on Mars. We can eliminate this metalinguistic reading by embedding the 'because' sentence in the antecedent of a conditional, thereby forcing the 'because' clause low in the tree.⁵⁴

(64) If there must be water on Mars because we eliminated the alternative hypotheses, then there is water on Mars.

⁵²On Swanson (2006)'s understanding of epistemic 'might', what is explained by the metalinguistic 'because' clause is the speaker's giving the doxastic advice she gave.

⁵³Thanks to Ezra Keshet for the example.

⁵⁴Thanks to Boris Kment for suggesting this kind of example to me. Embedded epistemic modals are rare—see the corpus study and its discussion in Hacquard and Wellwood (2012)—but it seems to me clearly possible for us to interpret them.

But the only obvious reading of the ‘because’ in (64) is causal. (Of course, the sentence is false on that reading, but it’s still the only reading that’s available.) Uttering the antecedent with comma intonation just revives the metalinguistic reading, by allowing the ‘because’ clause to be understood as a parenthetical comment reminding the audience why they might think that the antecedent is true.

(65) If there must be water on Mars, because we eliminated the alternative hypotheses, then there is water on Mars.

The best kind of evidential example, to my knowledge, is (63). It has a causal reading, on which it says that the butler seized his opportunity to do it when he did. (On that reading, ‘must have’ takes scope over ‘done it [when he did it] because nobody else was home at the time’.) But it strikes me as also having a reading on which the ‘because’ expresses a relation of evidential support between the content of the ‘because’ clause and the content of the prejacent. (On that reading, ‘must have’ takes scope only over ‘done it’.) It thus has what I’ve been calling an evidential reading. Now, the goal of this section was to isolate a residue of examples not covered by the various discussions of ‘because’ elsewhere in the dissertation. This has proved difficult, but not impossible. I suspect that we don’t actually standardly use ‘because’ to express evidential connections. That is not to say that we can’t do it; (63) seems to show that we can. I suspect that we are able to access evidential readings via a (thus far non-conventionalized) metaphor. But the difficulty of finding a large class of felicitous examples in which ‘because’ clearly expresses an evidential connection might just reveal how very central causal explanation is to our practice of asking ‘why’-questions and answering them with ‘because’ sentences.

CHAPTER 4

A Causal Metaphor Account of Metaphysical Explanation

Many metaphysical explanations involving grounding relations—the kinds of relations expressed by ‘in virtue of’ and similar phrases—are widely accepted, though the intelligibility and utility of our grounding talk and concepts have been questioned.¹ Attending to some linguistic and conceptual facts can shed light on this dispute by showing how to make sense of metaphysical explanation, regardless of the metaphysical legitimacy of grounding and fundamentality relations. A crucial fact is that our explanatory language is not univocal: ‘why’ and ‘because’ have distinct causal and metaphorical senses. Metaphysical explanations are expressed using the latter, metaphorical senses of these words. They thereby exploit different concepts than causal explanations. But this does not mean that our causal concepts are of no help in illuminating metaphysical explanation. The metaphorical status of our metaphysical explanatory terminology rather puts causal explanation, the basis of the metaphor, in a central role. So while our explanatory concepts are not fully general, they are unified by a common structure, paradigmatically exemplified by causal explanatory relations.

Making clear the paradigmatic status of causal explanation for explanation in general is a major benefit of the causal metaphor account of metaphysical explanation, but what we want ultimately to know is what relations correspond to our explanatory concepts. The facts about those concepts clearly matter here, but what is needed are methods that directly reveal our conceptual structure together with an account of how conceptual structure constrains metaphysical theorizing. This paper argues against the common misconception that the exhibition of metaphysical difference

¹See Hofweber (2009), Daly (2012), and J. Wilson (2014). Criticism of grounding is sometimes logical positivist in spirit, though tempered by advances in our understanding of modal notions: compare Carnap (1931) and Ayer (1940), §18 with Daly (2012), §2.4.

is enough to reveal conceptual structure. Some differences just aren't marked in our thought. But it also assays a route in the other direction, from conceptual distinctness to metaphysical difference. The causal metaphor account of metaphysical explanation traverses that route to put defeasible constraints on our metaphysical theory vis-a-vis grounding-causation unity: if grounding were causal, we shouldn't have needed to resort to metaphor.²

This paper is structured in the following way: §4.1 introduces the polysemy of 'because' and reviews the relationship between metaphor and polysemy in natural languages. Since the polysemy account of 'because' requires treating the causal sense of 'because' as relatively unified, §4.2 justifies that treatment in light of the causal pluralism debate. The justification turns on some methodological observations about the relationship between words and concepts. Since the polysemy account of 'because' requires understanding the sense of 'because' that is used to express metaphysical explanations as derivative from the causal sense, §4.3 exploits recent work by others to describe the metaphor linking metaphysical explanation with causal explanation. The main innovation here is to notice that extant accounts of the similarities between causal explanations and metaphysical explanations fit into the framework of metaphor-generated polysemy, though the section ends with a bonus by offering a proprietary explanation of the persistence of grounding skepticism. §4.4 discusses the relationship between conceptual structure and metaphysical theory, and argues that the semantic facts about 'because' lead us to a reason to prefer metaphysical theories that do not treat grounding as a kind of causation. §4.5 wraps up by noting that the result is a novel theory of explanation, according to which causal explanation is explanation par excellence but not explanation per se.

4.1 METAPHOR AND POLYSEMY

Some comments on polysemy and the status of metaphorical senses are in order. Polysemy is to be distinguished from univocality or—to introduce my preferred terminology—monosemy, on the one hand, and homonymy, on the other. Monosemes have only one meaning, while polysemes have more than one meaning. Homonyms have unrelated meanings—cases of homonymy are really cases of distinct words that happen to be articulated by the same syntactic strings and phonetic sequences—while the meanings of polysemes are related to one another. A standard way of thinking

²The paper thus flirts with what Jackson (1998), 42-44 calls “immodest” conceptual analysis. But it only flirts: in particular, I do not appeal to Moorean facts to argue that some metaphysical view is false. I claim merely that annihilating distinctions we actually make is a cost of a theory that does so.

about the relatedness criterion is in terms of priority relations between the senses.³ On this standard view, one sense is basic, and the others are somehow derived from it.⁴ To settle terminology, I use ‘ambiguity’ and related terms for a general category that includes both polysemy and homonymy.

I argued in chapter 2 that ‘because’ is polysemous. To say that ‘because’ is polysemous is to say that it has multiple related meanings, and the meanings I distinguished in chapter 2 were a causal sense and a metaphorical sense. The causal sense of ‘because’ is quite natural, in several respects. It is etymologically natural: the etymology of ‘because’ suggests causation. It is psychologically natural: we represent events to ourselves with causal structure.⁵ It is metaphysically and semantically natural: the world plausibly contains objective causal structure that carves the world at its joints and is the most magnetic of possible referents.⁶ The metaphorical sense of ‘because’, however, seems to be psychologically, metaphysically, and semantically gerrymandered. It certainly cannot be read off of the etymology of ‘because’. Consider the broad range of different non-causal explanatory and dependence relations that seem to have little in common other than their non-causality.

- (1) The pious is pious because it is loved by the gods.⁷
- (2) . . . we are infallible only because we are final.⁸
- (3) There’s a table in the room because there are simples arranged tablewise here.
- (4) Bill is in pain because his C-fibers are sensitized.
- (5) It was a foul because the referee called it.
- (6) Michigan beat Kansas because the final score was 87-85 in Michigan’s favor.

³Some theorists (Apresjan (1974), Pustejovsky (1998)) understand the relatedness criterion rather in terms of definitional similarities, though this approach has no way of accounting for polysemy in cases where one of a polyseme’s meanings is semantically primitive (see Fodor and Lepore (2002b) and the discussion in Rakova (2003), §9.4).

⁴Rakova (2003), ch. 1 surveys the appearance of this idea in major theories of metaphor since the 1930’s. The standard view is not without its critics—including Rakova (2003)—but pursuing the debate would take us too far afield. Suffice it here to say that the arguments Rakova (2003) presents in favor of her “no-polysemy view” for polysemous adjectives do not transfer over to the case of ‘because’.

⁵See Hilton (1990) and Hilton (1995) on the causal structure of our representations and the conditions under which ‘why’-questions arise.

⁶See Lewis (1983, 1984) for the underpinnings of reference magnetism and, e.g., Sider (2011), §3.2 for discussion.

⁷Derived from Plato, *Euthyphro* 10a.

⁸*Brown v. Allen*, 344 U.S. 443, 540 (1953) (Jackson, J., concurring).

- (7) Ajax won because they finished with a better goal differential than PSV Eindhoven.
- (8) ‘Dog’ means *dog* because $dog \rightarrow animal$ is valid.⁹
- (9) That paper has a polysemous title because its title contains a polysemous term.
- (10) This is square because it’s a regular quadrilateral.
- (11) This is red because it’s crimson.
- (12) Holes in blocks of cheese exist because blocks of cheese exist.
- (13) The singleton of Zutty exists because Zutty exists.

The explanantia named in these sentences variously make their explananda the case ((1), (2)); materially constitute their explananda ((3), (4)); provide necessary ((5)) or sufficient ((6)) or INUS ((7)) conditions for their explananda; are that partially ((8)) or fully ((9)) in virtue of which their explananda are true; are genus/differentia characterizations of the species named in the explanandum ((10)); are determinates of the determinable named in the explanandum ((11)); and are that on which their explananda are feature ((12)) or constituent ((13)) dependent.¹⁰ What unifies this broad range of non-causal dependence relations into a single sense of ‘because’, this paper argues, is that causation provides a model via the same metaphor for each of these dependence relations.

Metaphor is but one of a variety of mechanisms linguists posit for the derivation of additional senses.¹¹ The idea that metaphor can be the basis for conventionalized meaning has long been familiar to philosophers of language.¹² A metaphor gives way to literal meaning as the metaphor dies.¹³ To see how metaphor gives rise to distinct

⁹The antecedent of a conditional at Fodor and Lepore (2002b), 90.

¹⁰On INUS conditions, see Mackie (1974) and Strevens (2007). (*Pace* Mackie and Strevens, the explanans of (7) can be an INUS condition but not a cause of Ajax’s winning Eredivisie.) On the distinction between feature and constituent dependence, see Koslicki (2012).

¹¹See Traugott (1989) for historically documented cases of semantic change that seem best explained by the conventionalization of conversational implicatures rather than by metaphorical processes; Dirven (1985) and Bartsch (2002) for discussions of metaphor and metonymy as productive of polysemy; Fauconnier and Turner (2003) for conceptual blending; and Aitchison and Lewis (2003) for bleaching.

¹²Nerlich (2003) documents this idea—and its widespread acceptance—in early modern figures including Locke and Leibniz.

¹³See Goodman (1968), II.5 and Traugott (1985). Even Davidson, who was famously skeptical about assigning semantic content to metaphors, recognized that dead metaphors yielded ambiguity: see Davidson (1984b), 252-253. (Davidson argues that, in dying, the metaphor loses its force.)

conventionalized meanings, consider ‘leg’. Its basic sense, let us suppose, is anatomical. Parts of tables are not in the intension of that anatomical sense, so ‘leg’ in the anatomical sense cannot be used literally to refer to parts of tables. It is somehow too specific to apply literally to table legs. Nevertheless, someone who is familiar only with the anatomical sense of ‘leg’ could nevertheless be expected to make sense of talk about table legs. In order to do so, she would retain as much of the anatomical sense of ‘leg’ as is consistent with its application to tables.¹⁴ Thus, while anatomical legs are what support and move the bodies of animals equipped with them, she would take table legs to be the parts of tables that support them. (Features of a basic sense abstracted away in order to interpret a metaphorical use can still exert their force, long after a metaphor dies. Imagine an animation of a table that can move. Of course you imagine it walking on its legs.) Moreover, if our speaker found herself in a community of speakers that habitually used ‘leg’ to refer to table legs, she’d soon hear a furniture-related sense of ‘leg’. That is, ‘leg’ for her would take on a second literal meaning. Thus metaphorical sense extension generates polysemy when a word becomes conventionally applied to referents that its literal sense does not cover.

To see how metaphorical sense extension applies to our case, we have to see (i) what the basic sense is and (ii) how it applies to the new area. Dealing with (i) will occupy us in the next section, and then we will be able to turn to (ii) by indicating the similarities exploited by the metaphor in §4.3.

4.2 HOW NOT TO BE A CAUSAL AMBIGUIST

I take there to be a unified causal sense of ‘because’. But it is not obvious that all causal explanations have much in common. In fact, Weber et al. (2005) advance a pluralism for causal explanation, according to which there are multiple different forms of causal explanation, each relating to a different kind of “underlying causal structure” backing the explanation. An argument from this difference in forms of causal explanation to distinct causal senses of ‘because’ would not be entirely novel. It would rather recall the causal pluralism debate, where causal pluralists have characterized multiple distinct causal concepts, which are then (sometimes) taken as

Thus it can fail to occur to us, for example, that ‘table legs’ might once have been evocatively metaphorical.) According to Lakoff and Johnson (1980), who argue that the vast majority of our concepts are metaphorically derived from a sharply limited stock of experiential concepts, conventionalization of a metaphorically extended sense is consistent with the metaphor continuing to live.

¹⁴Some metaphor theorists take this quite literally: for them, metaphor is precisely a matter of deleting semantic features of literal senses. See Levin (1977) and Cohen (1993).

grounds for believing that ‘cause’ is ambiguous.¹⁵ Readers familiar with the causal pluralism literature might even worry that the existence of multiple distinct causal senses of ‘because’ would follow from the ambiguity of ‘cause’. I’m not sure the worry is well-placed—why isn’t it just a root fallacy?—but I’m happy to grant the entailment to my opponent. It’s safe for me to do so because, despite what some causal pluralists might have you believe, ‘cause’ isn’t ambiguous.¹⁶

This is not to say that causal pluralism, taken as the thesis that causal relations are not metaphysically uniform and therefore require multiple distinct analyses, is false. Indeed I take it that causal pluralists have in at least some cases correctly distinguished different causal notions. But ‘cause’ doesn’t denote any particular one of those notions to the exclusion of the others. Our ability to make conceptual distinctions in general does not require our words to pick out more specific concepts to the exclusion of less specific concepts. Theoretically precisified concepts are only in special cases the meanings of the words of natural languages.¹⁷ Proper attention to our use of ‘cause’ shows that none of the precise concepts of cause on offer in the causal pluralism literature qualifies as one of its disambiguations in the sense relevant to its meaning. Proper attention instead vindicates monosemy accounts.¹⁸

¹⁵The conceptual waters are muddied here by what are, by my lights, rampant category errors. Hall (2004) borrows the Scholastic and Deleuzian phrase ‘univocal concept’, whereas it is linguistic items (e.g., words) that can be the bearers of univocality and related properties. The category error breeds confusion, as the following list of examples amply demonstrates: Longworth (2006), §4.4 attributes a polysemy thesis to Hall (2004). Hitchcock (2007) provides a taxonomy of positions in the causal pluralism debate while taking “the central tenet of causal pluralism to be the claim that ‘cause’ and its cognates have multiple senses” (op. cit., 201). Godfrey-Smith (2009) claims that ‘cause’ is univocal and emphasizes the distinction between pluralism in our “thought and talk” and pluralism in “the phenomena that our thought and talk is about,” but assumes that ambiguity would follow from our having distinct causal concepts. Thus op. cit., §3 criticizes Hall’s two concept view by contrasting our use of ‘cause’ with our use of the polysemes ‘mad’ and ‘funny’.

¹⁶This might sound contentious to readers of the semantics literature. Lakoff (1970), one of the first presentations of the method employed in chapter 2 to show that ‘because’ is polysemous, applied that method to argue for the recognition of distinct intentional and non-intentional senses of various verb phrases. Mel’čuk (2012), ch. 5 explicitly claims that ‘cause’ is ambiguous between agential and non-agential meanings. But the tests simply don’t support the ambiguity claim.

¹⁷Cf. Tarski (1944), §14, where it is presupposed that concepts have clear, sharp boundaries despite the vagueness and ambiguity of natural language. Concepts, I think, can be just as indeterminate as the words that express them.

¹⁸The causal pluralism literature itself suggests multiple kinds of monosemy account, including the ‘amiable jumble’ account of Skyrms (1984) (see also Healey (1994), section VIII), the thin concept account of Cartwright (1999, 2004) (building on Anscombe (1971)), the epistemic account of Williamson (2006), and the ‘essentially contested concept’ account of Godfrey-Smith (2009). The disjunctive account of Longworth (2010) would seem to qualify as well, though Longworth seems to endorse the inference from plurality of concepts to ambiguity (compare the denial of the ambiguity suggested by Hitchcock (2001) at Longworth (2006), 90 with the assertion that Hall (2004) is a polysemy account at Longworth (2006), 93).

After I make this argument, I will present a parallel argument that causal explanation pluralism provides us with no reason to think there are multiple causal senses of ‘because’, either.

Causal pluralists make a variety of distinctions between kinds of causation.¹⁹ For the moment I propose to take Hall (2004) as my representative causal pluralist, since the relevant issues can be made quite clear in discussing his view. According to Hall, we do not have a “univocal concept” of causation; rather, there are distinct concepts of production and counterfactual dependence. The production concept is (non-exhaustively) characterized by a number of intuitive theses about causation.

- (14) TRANSITIVITY: If event c is a cause of d , and d is a cause of e , then c is a cause of e .
- (15) LOCALITY: Causes are connected to their effects via spatiotemporally continuous sequences of causal intermediates.
- (16) INTRINSICNESS: The causal structure of a process is determined by its intrinsic, non-causal character (together with the laws).²⁰

The counterfactual dependence concept is simple counterfactual dependence: c causes e just in case, had c not occurred, e would not have occurred.²¹ Hall argues that counterfactual dependence comes into conflict with TRANSITIVITY, LOCALITY, and INTRINSICNESS, the theses that characterize production, concluding that counterfactual dependence and production are simply different causal concepts.

Hall seems to accept that his claim about the existence of two causal concepts would entail that ‘cause’ is ambiguous.²² He directly commits himself to there being a coun-

¹⁹To provide some examples not discussed in the text, Sober (1984) and Eells (1991) distinguish (probabilistic) type causation from (probabilistic) token causation. Hitchcock (2001) distinguishes having ‘component’ effects from having ‘net’ effects and claims that causal claims are ambiguous between the two.

²⁰These theses are given at Hall (2004), 225.

²¹Counterfactual dependence was thought, from the time of Lewis (1973), to be the heart of an analysis of causation. But simple counterfactual dependence is not, by itself, adequate to the analysis, as cases of overdetermination and preemption show. In fact, preemption also turns out to undermine any hope that distinguishing between production and simple counterfactual dependence yields an exhaustive, if disjunctive, treatment of event causation, as Hall himself recognizes in connection with the escort plane case discussed below.

²²See *op. cit.*, 255-256, where Hall acknowledges a connection between multiplicity of concepts and ambiguity. He introduces Tim Maudlin’s example of various kinds of biological and adoptive mothers which can be conceptually distinguished despite the apparent univocality of ‘mother’. But rather than taking the opportunity to foreswear any ambiguity claim about ‘cause’ or get clearer about the relationship between conceptual distinctions and ambiguity, he excuses himself from

terfactual dependence sense of ‘because’.²³ It is unclear, though, what the claimed possibility of distinguishing different kinds of causation has to do with the semantics of ‘cause’ or related terms. Our ability to distinguish different breeds of dogs does not establish that ‘dog’ is ambiguous. The fact that we can kick with our left and right feet does not mean ‘kick’ is ambiguous between a sense for right-footed kickings and a sense for left-footed kickings. Rather, when we call something a dog or say somebody kicked something, we are not making maximally specific statements. We can convey more information about what exactly is the case by saying something more precise, by calling the dog a miniature dachshund or saying the person kicked a soccer ball with her left foot. But to say something less than maximally precise is not to say something ambiguous, at least not as linguists or semanticists understand that term. To return to Hall’s causal pluralism, the counterfactual dependence “sense” of ‘because’ is at best a *precisification* of a broad causal sense, as are the counterfactual dependence and production “senses” of ‘cause’.²⁴

If Hall’s production and counterfactual dependence are two concepts of causation, the broad causal sense is a third. But this third, I claim, is the concept expressed by the unambiguous English word ‘cause’. That none of the precise concepts described in the causal pluralism literature is a genuine sense of ‘cause’ can be seen from our linguistic practice. I will mention two features of our linguistic practice that support the monosemy of the English noun ‘cause’ here, though the stock of evidence to follow can be reproduced for the English verb ‘cause’, and could easily be enlarged for both the noun and the verb.²⁵ First, an ambiguity hypothesis along the lines of Hall’s distinction makes predictions about truth-conditions that are not borne out by the facts. To see this, consider first the truth-conditional behavior of a genuinely ambiguous term. Following Godfrey-Smith (2009), I’ll use ‘mad’. Imagine (17) and (18), said of an insane philosopher who is happily laughing.

adjudicating the issue.

²³Op. cit., 269: “Even when you choose to avoid a certain course of action because it would result in *your* having helped produce the evil deed, the sense of ‘because’ is clearly that of dependence.”

²⁴Hall’s conflation of precisifications with senses is not limited to his paper’s main causal plurality claim. Early on, he assumes “that there is a clear and central sense of ‘cause’... in which causes and effects are always events” (op. cit., 227). But this too is a mere precisification of a sense: see Jenkins (2008) on the semantic generality of ‘cause’ with respect to ontological category.

²⁵I do not discuss translational evidence because, to my knowledge, none of the distinctions described by causal pluralists have been explored cross-linguistically, though I’d be more than a bit surprised to learn that different languages had different words for, e.g., production and counterfactual dependence. (Kripke (1977) counts that hypothetical surprise as evidence of monosemy, though I would be equally surprised if anyone were bowled over by this kind of evidence.) I also do not discuss reduced conjunctions here, but any reader not convinced by the indicators discussed here may see the second chapter for a blueprint that could be followed to test ‘cause’.

(17) That gleeful philosopher is mad.

(18) That gleeful philosopher is mad, but he's not insane.

(17) has a reading on which it's false, since angry people aren't gleeful. It also has a reading on which it's true, since, as we are imagining, the philosopher in question is insane. On the angry reading of 'mad', (18) is again false—angry people still aren't gleeful. But on the insane reading of 'mad', it's straightforwardly self-contradictory. Now consider a case of production without counterfactual dependence, say, where Billy throws a rock that shatters a vase, though Suzy also threw a rock that would have shattered the vase had Billy not thrown his rock.

(19) Billy's throwing of the rock was the cause of the shattering of the vase.

(20) Billy's throwing of the rock was the cause of shattering of the vase, but it would've been shattered even if he hadn't thrown it.²⁶

If there were a specific counterfactual dependence sense of 'cause', there would be a reading of (19) on which it's false, and a reading of (20) on which it's contradictory. But there are no such readings, precisely because there is no specific counterfactual dependence sense of 'cause'.

Second, we do not need to disambiguate causal claims before we understand them. We might attempt to precisify a causal claim, even (colloquially) asking what our interlocutor *means* by her causal claim.²⁷ But when we do so, we are typically seeking the grounds of her claim rather than trying to disambiguate it. At best, Hall has isolated, in his notions of production and counterfactual dependence, ways of making causal claims true.²⁸ It may be relevant to our dialogue whether the cause she cites produced the effect in question or is merely something on which it depends. But finding out what makes it the case that the cause cited is a cause is not the same thing as finding out that it is a cause in one sense or another. Of course, there may be natural language expressions corresponding to the production or counterfactual dependence concepts, and if there aren't, nothing would prevent us from coining terms for the concepts. But 'cause' expresses a more general concept that counts among its paradigm cases not one or the other of paradigm cases of production and

²⁶This example is inspired by the discussion of disambiguation through cooccurring material in Sadock (1972).

²⁷Godfrey-Smith (2009), §3 also makes this point in discussing Hall (2004).

²⁸Hall himself is open to this possibility (recall fn. 22). Strevens (2013) takes Hall's invitation to reformulate his view as distinguishing between kinds of causation instead of concepts of causation, and adopts talk of kinds of causation as ways our causal assertions are 'made true'. See also Leitgeb (2013), §5 for a discussion of explication that treats it as an obviously revisionary project.

paradigm cases of counterfactual dependence, but both.

Metaphysical heterogeneity does not in general underwrite ambiguity. We can distinguish four categories of words with respect to the metaphysical heterogeneity of their referents and ambiguity. Some words are polysemous (or homonymous), having distinct senses that denote metaphysically different kinds of things.²⁹ ‘Book’ falls in this category. It is polysemous between concrete object and abstract text senses. The different senses track metaphysically different kinds of things. Other words are monosemous, having a single sense that denotes just one kind of thing. ‘Electron’ falls in this category. It univocally denotes electrons. Yet other words are monosemous but disjunctive, having a single sense that denotes metaphysically different kinds of things. ‘Jade’, as philosophers commonly think of it, falls in this category. To be jade is to be jadeite or nephrite, but ‘jade’ requires no disambiguation. Its single sense is just disjunctive.³⁰ This third category of words is enough to give the lie to any form of causal pluralism that infers ambiguity from metaphysical difference. But still further words are monosemous and have a metaphysically heterogeneous intension but a non-disjunctive sense. ‘Jade’ in an imagined pre-discovery history where nobody knew jadeite and nephrite were different substances falls in this category.³¹ So, I claim, does ‘cause’.

‘Cause’ does not fit neatly into any of the first three categories described above. As Hall and other causal pluralists have argued, ‘cause’ can denote different kinds of things, like ‘book’ and ‘jade’, but unlike ‘electron’. It is nevertheless monosemous, like ‘electron’ and ‘jade’, but unlike ‘book’. But ‘cause’ is not just disjunctive in the way that we might think ‘jade’ is. A case described by Hall suggests that ‘cause’ is not restricted to denoting relations of either production or simple counterfactual dependence. In the case, one of two fighter planes escorting a successful bombing mission shoot down an enemy fighter. Had the enemy fighter not been shot down, the bombing mission would not have succeeded. We judge that the escort plane’s shooting down of the enemy fighter is among the causes of the mission’s success. The escort plane’s shooting down of the enemy fighter does not, however, produce the success of the mission: it is too far away from the site of the bombing to do that

²⁹Strictly speaking, I should deny that some words are homonymous; only pluralities of words can be homonymous. I’ll stick to polysemes in the body for ease of exposition.

³⁰For confirmation that disjunctive senses are compatible with monosemy, see Roberts (1984). Roberts argues that the difference between ambiguity and monosemy is the scope of a disjunction.

³¹Philosophers sometimes talk as though people at some point didn’t know—or still don’t know—that ‘jade’ applies to two different substances: see, e.g., Putnam (1975b), 160. This is implausible, since jadeite and nephrite are different colors, are found in different places, have different hardnesses, etc.: see LaPorte (2004), 94-100; Hacking (2007); and Oderberg (2007), 164-165.

(recall LOCALITY). Further, the description of the case goes on to specify that, had the escort plane not shot down the enemy fighter, the other escort plane would have. So the success of the mission does not counterfactually depend on the escort plane's shooting down of the enemy fighter. To sum up, the escort plane's shooting down of the enemy fighter is a cause of the success of the mission without producing it and without the success of the mission counterfactually depending on it. So 'cause' cannot just denote the relation that holds whenever there is production or counterfactual dependence. (Any such account of 'cause' would be intensionally, even extensionally, inadequate.) So 'cause' is not just disjunctive like 'jade', at least not along the joint mapped by Hall's distinction between production and counterfactual dependence.

The stronger claim that 'cause' is not disjunctive like 'jade' along any such joint may also be defended. I take it that the meaning of 'jade' is really the disjunction *jadeite or nephrite*. Competent speakers of English may not know that there are two kinds of jade, just as many of them do not know exactly what it takes for something to be an elm tree. Semantic externalism comes into play here for 'jade' as it does for 'elm'.³² But semantic externalism does not seem to justify the identification of some disjunction as the meaning of 'cause'. Speakers do not become more competent with 'cause' through acquaintance with the causal pluralism literature in the way that speakers gain real mastery of 'elm' or 'jade' through acquaintance with the relevant botanical or mineralogical facts. (Metaphysicians do not, in virtue of anything in the causal pluralism literature, get to correct native speakers on when to use 'cause'.) Further, it is unclear what would privilege any particular disjunction identified through the causal pluralism literature to be the disjunctive meaning of 'cause'. Nothing said in that literature obviously makes *production or counterfactual dependence* a better candidate disjunctive meaning of 'cause' than *type causation or token causation*. It seems that any such disjunction will get the meaning of 'cause' right only intensionally. In at least this respect, then, 'cause' is more like 'electron' or 'jade' during the imagined pre-discovery period than like 'jade' now: it just means *cause*.

I suspect what is really going on with 'cause' as a monoseme with a metaphysically heterogeneous intension is that it has a collection of metaphysically heterogeneous paradigm or prototype cases. This collection includes, presumably, productive causes, causes on which their effects counterfactually depend, type causes, token causes, and all the rest of the kinds of causes distinguished in the causal pluralism

³²See Putnam (1975b).

literature. (Actually, given that production and counterfactual dependence often go together, it may just be that the collection includes paradigms that exemplify both of Hall’s precisified concepts.) What makes the action of the escort plane in Hall’s example count as causal is that it is close enough to paradigm cases of causation. For one thing, it bears a close resemblance to causes on which their effects counterfactually depend, since the success of the mission does counterfactually depend on the enemy fighter being shot down somehow or other, and the escort plane’s action is one way for the enemy fighter’s being shot down to happen. For another, the escort plane produces an omission on which the success of the mission counterfactually depends. Ideally, the class of constellations of prototype causes with which competent speakers of English are familiar would be specifiable in a way that explains not only the metaphysically heterogeneity of the intension of ‘cause’ already noted, but also the host of normative and other considerations that many psychologists think influence our causal judgments. That agents are magnets for causal attribution, that temporal order of events matters to causal attribution, and that various normative considerations play a role in causal attribution might all be explained this way.³³ Perhaps this is too great an explanatory burden for a class of constellations of prototypes to bear. I certainly have no intention of defending a prototype theory of concepts here. I am just registering the suspicion.

To return to the dialectic, we have seen with ‘cause’ that monosemy is no bar to metaphysical heterogeneity in kinds of causes. It is now time to apply this lesson to pluralism about causal explanation. I make the point with respect to two notions of causal explanation, which I will call (i) etiological explanation and (ii) evolutionary explanation.³⁴ Etiological explanations say how some state of affairs happened. Evolutionary explanations say why a system evolves to a state. The precise definition of each kind of explanation is not of any particular importance for present purposes, so many details will be glossed over in what follows. In particular, I rely on an intuitive grasp of notions of causal interactions, interference, and triggering. Particular spellings out of these notions may have consequences for the exhaustiveness of the

³³Causal attribution is an enormous field of research in social psychology, but the classic works for the sliver of that literature relevant here are Heider (1958) and Kelley (1967). On agents as magnets for causal attribution, see Hart and Honoré (1959) (an entry from the philosophy literature) and Brickman et al. (1975). On temporal order, see Brickman et al. (1975). On the role of normativity, see for example Hilton and Slugoski (1986), Alicke (1992), Knobe and Fraser (2008), Alicke et al. (2011), and Sripada (2011). Note, however, that some philosophers think that at least some of these effects are just performance errors: see Pinillos et al. (2011) and Dunaway et al. (2013).

³⁴The terminology (viz., ‘etiological’ and ‘evolutionary’) is due to Weber et al. (2005). Note that what I am calling ‘etiological explanation’ differs from how Salmon (1989), §3.8 uses that label. ‘Evolutionary’, for its part, is intended in the sense in which state spaces evolve rather than as a reference to the explanations of evolutionary biology.

classification of causal explanations considered here.³⁵ But I hope that the discussion here will have already provided the blueprint to deal with any remaining cases.

Etiological explanations, then, explain an object x 's having a property P at a time t by adducing a causal interaction at an earlier time t' in which x took on the property P and noting that no causal interactions interfere with x 's having P between t' and t .³⁶

(21) The window is broken now because a baseball crashed through it earlier.

The sentence in (21) communicates an etiological explanation. The window's being broken now is explained by the causal interaction during which it was broken. The window's not having been fixed in the interim is not mentioned in (21), as it is characteristic of 'because' sentences that they do not need to mention the omission of interference to be true.³⁷

Evolutionary explanations explain an object x 's having a property P at time t by adducing a causal interaction at an earlier time t' in which x took on a suite of properties Q_1, \dots, Q_n which jointly triggered an evolution resulting in x having property P at time t .³⁸

(22) The vessel contains a homogeneous mixture of fluid A and fluid B now because heated fluid B was added to the vessel earlier.

The sentence in (22) communicates an evolutionary explanation. The vessel's containing a homogeneous mixture now is explained by its having had a heated (relative to fluid A) fluid B added to the vessel earlier. It is worth spelling out how the sentence in (22) qualifies as providing an evolutionary explanation. The suite of properties

³⁵The proper definition of 'causal interaction', for example, has been subject to much debate. See, e.g., the debate carried across Salmon (1984a, 1994, 1997) and Dowe (1992, 1995). Weber et al. (2005), for their part, adopt a definition of causal interaction which has, as a consequence, the ruling out of beliefs as playing an etiological explanatory role for actions, which then requires them to treat such explanations under the heading 'causal explanations without descriptions of causal interactions'. But with respect to any plausible precisification of 'causal interaction', semantics is like the honey badger: it don't care.

³⁶This is a simplification of a definition at Weber et al. (2005), §2.2.4, though my talk of 'interference' replaces Weber et al.'s talk of 'spontaneous preservation', of which they give a formal definition at §2.2.3.

³⁷This is not to say that it is not characteristic of fully spelled out explanations that they include the specification of such omissions. See, e.g., Weber et al. (2005), §2 as well as Strevens (2008), ch. 3.

³⁸This is a simplified and generalized version of a definition at Weber et al. (2005), §3.2 of what they call 'spontaneous evolution explanations'. I drop the spontaneity condition, which would rule out the stock market example I discuss below, as irrelevant for present purposes.

Q_1, \dots, Q_n taken on by the vessel when the fluid was added includes the property of containing liquid with a particular temperature gradient and, if fluid A and fluid B have different densities, the property of containing a liquid with a particular density gradient. The liquid with those temperature and density gradients then evolved into a homogeneous mixture. (22) can only be understood to be true by someone who is aware of the connection between combining liquids of different temperatures at one time and homogeneity of the mixture at a later time.

For a slightly more complicated example, consider how to explain price changes in markets. Typically an event occurs that results in a mismatch between the current price and the equilibrium price. We can think of such an event as a causal interaction in which the market takes on a suite of properties. Such events include changes in production costs and all the other typical causes of changes in supply or demand curves listed in introductory economics textbooks. The suite of properties taken on includes, most importantly, a difference in the levels of supply and demand at the current price. This sets in motion an almost arbitrarily complex process that issues in the establishment of a new price: sales and warehouse inventories are tracked, meetings are held, decisions are made.³⁹ Again, ‘because’ sentences expressing this kind of evolutionary explanation typically adduce the causal interaction responsible for the initial suite of properties, but not the causal pathways of the subsequent evolution.

(23) The stock price is \$50 now because the earnings report was good.

The event responsible for the initial causal interaction that produced the difference in supply and demand is cited in (23). Earnings reports move stock prices, we may suppose, by moving the supply and demand curves for stocks. But the causal details of the process by which the stock price moves to \$50 are not mentioned in (23), even though the process might unfold in an incredible variety of ways. This is a general feature of evolutionary explanation, then, and not one confined to evolutionary explanations with relatively predictable paths of evolution like the one communicated by (22). It can suffice to cite events that set a process in motion in order to explain a later state of the process.⁴⁰

The foregoing comments suffice to draw a distinction between etiological and evolu-

³⁹See Strevens (2008), §7.41.

⁴⁰The indifference of evolutionary explanations to causal details renders them difficult to incorporate in theories of causal explanation—see Strevens (2008), §7.41 and §12.3 and Weatherston (2012), §§4-5—but we’ll see that there is no associated ambiguity in ‘because’ presently.

tionary explanation. No careful analysis of the two notions has been attempted here, but it should now be possible to see that ‘because’ is not ambiguous between them. Consider first the truth-conditional behavior of ‘because’. Holding fixed the facts that make at least one reading of (21) true, there’s no alternative ‘disambiguation’ of (21). The same holds of (22) and (23). If, moreover, ‘because’ had a specific etiological explanation sense, there would be a reading of (22) on which the vessel takes on the property of containing a homogeneous mixture of fluid A and fluid B when the heated fluid B is added to the vessel. Given that reading of (22), there should be a contradictory reading of (24).

- (24) The vessel contains a homogeneous mixture of fluid A and fluid B now because heated fluid B was added to the vessel earlier, but the vessel did not take on the property of being a homogeneous mixture when the heated fluid B was added.

But of course there is not a contradictory reading of (24). Further, cross-linguistic evidence does not support an ambiguity claim for ‘because’ along the lines of the etiological explanation-evolutionary explanation distinction.⁴¹ As with ‘cause’, we find here a unified causal sense of ‘because’.⁴²

⁴¹I discuss the cross-linguistic evidence for ‘because’ in chapter 3.

⁴²Astute readers will have noticed I have avoided the controversial class of equilibrium explanations. The following example, inspired by Sober (1983), is representative of the class.

- (i) The sex ratio in many species at reproductive age is 1:1 because any departure from that ratio would induce reproductive advantages for the minority sex.

Unlike the evolutionary explanations discussed in this section, (i) does not proceed by citing an event that set a process in motion. It explains the obtaining of an equilibrium condition by appeal only to laws governing the dynamics of the system in equilibrium. So not only are the causal details of the process leading from some initial conditions to an equilibrium state neglected by such explanations, but even the initial conditions from which the system evolved are neglected by these explanations.

Whether equilibrium explanations are causal explanations is controversial. Sober (1983) argues that they are just not causal, though Strevens (2008), §7.41 defends the causality of equilibrium explanations against Sober’s criticisms. (See Weatherston (2012) for a critical appraisal of the success of Strevens’s account.) But note that such explanations are only acceptable as answers to indicative ‘why’-questions (as opposed to ‘why should’-questions) if the explanandum actually came about through causal influences connected to the putative explanans. If in the actual world the sex ratio in many species is 1:1 because an omnipotent God made it that way and is keeping it that way, then (i) is false even if it’s true that, should God stop keeping it that way, forces of natural selection would.

This is something like an argument that equilibrium explanations are causal, although I am uncertain whether it is the causal sense of ‘because’ that covers equilibrium explanations. The judgments that have to be made using my preferred strategies for individuating senses are elusive. For example, since there is no time attached to the explanans phrase, the strategy of checking

The dialectical purpose of the extended discussion of pluralism and the relationship between metaphysical heterogeneity and ambiguity in this section was to establish that there's a unified causal explanatory sense of 'because' to serve as the basis for the causal metaphor that gives rise to the polysemy of 'because' by extending its meaning to cover metaphysical explanations. We are now ready for the metaphor.

4.3 THE CAUSAL METAPHOR

What it takes to describe the metaphor depends in part on the theory of metaphor adopted.⁴³ But on standard views of metaphor there must be some substantial similarity between what is denoted by a basic sense and the phenomena to be comprehended under a metaphorical sense. What I want to do in this section is to exhibit that there is enough similarity between the senses for metaphor to be a plausible explanation of the extension of 'because' to the sense that covers metaphysical explanation, on standard views of metaphor. The important point will be that the similarities described here suffice to illuminate how the sense of 'because' covering metaphysical explanation fits the story according to which metaphor gives rise to polysemy.

To begin with, it's worth noting that we deploy terminology from our causal discourse in our discourse about metaphysical dependence. We have already seen that we use 'because' to communicate metaphysical explanations. We also use other causal idioms to talk about metaphysical dependence and metaphysical explanation.

(25) The pious being loved by the gods *makes it the case* that it is pious.

whether something analogous to (24) is self-contradictory is not open to us. However, if there were a sense of 'because' that required any kind of citation of initial conditions or causes, there would be a reading on which (i) is not true even on the condition that the equilibrium explanation is true. I certainly don't detect such a reading. The question is actually of some independent interest, since what it takes for an explanation to count as a causal explanation is itself a matter of some controversy: compare the comments about trivializing the notion of causal explanation at Sober (1983), 202-203 with Skow (2013b). So it would not be entirely unwelcome to have a demonstration that the 'because' of (i) is not the causal 'because' of (21), (22), and (23).

The uncertainty here does not affect anything substantive in this paper, since it's possible for polysemes to have more than two senses. It's also possible that the metaphorical sense of 'because' that covers metaphysical explanations will turn out to cover equilibrium explanations (as well as, it may turn out, other explanations of or by laws).

⁴³Even the possibility of giving any precise specification of the semantic content of a metaphor is controversial. Davidson (1984b) famously argued that the literal meaning of a metaphor is the literal meaning of the words contained in it, and that any apparent metaphorical content is merely a matter of thoughts provoked in us by the metaphor.

- (26) Zutty's existence *explains* the existence of the singleton containing him.
- (27) That this is square *follows* from its being a regular quadrilateral.
- (28) This is red *by virtue of* being crimson.

It is not, however, necessary to use causal idioms to talk about metaphysical dependence, nor does every facet of causation apply to metaphysical dependence.

- (29) There being simples arranged tablewise here *is just what it is* for there to be a table here.⁴⁴
- (30) Bill's pain *is nothing over and above* his C-fiber sensitization.⁴⁵
- (31) That paper has a polysemous title *in virtue of* its title's containing a polysemous term.

The occurrence of a cause is not what it is for an effect to occur, and an effect is something over and above its cause. Further, while 'by virtue of' is a common causal idiom, 'in virtue of' is something of a philosopher's locution.⁴⁶ Still, the pattern of facts here suggests that there is at least a partial overlap in how we think about metaphysical explanation with how we think about causal explanation.⁴⁷

Recent entrants in the literature show that we can do better than this mere suggestion. We can elaborate in some technical detail a host of properties that causation and grounding, the relations respectively backing causal and metaphysical explanation, have in common.⁴⁸ Both relations are structurally similar: both are (claimed to be) partial orders to which we can apply the sophisticated formalism of structural equations models. Both relations have metaphysical bite: they back explanations, support counterfactuals, and frighten logical positivists. Both relations inspire the same kinds of suggestive description: they are 'generative', 'productive', 'building'

⁴⁴This sentence should be able to express a grounding claim if Rosen (2010) is right about the grounding-reduction link, but see Audi (2012), §V for dissent. (*Pace* Rayo (2013), I do not take the locution 'is just what it is' to express a symmetric relation.)

⁴⁵Here see Audi (2012), §VI for dissent about whether this sentence can express a grounding claim.

⁴⁶*Garner's Modern American Usage* even deems 'in virtue of' archaic: see Garner (2009), 845. As far as I can tell, its use is limited to legal, philosophical, and theological contexts.

⁴⁷The pattern of facts here is the pattern exhibited by what Lakoff and Johnson (1980) call *structuring metaphors*; a cognitive linguist confronted with this pattern of facts might say that causation *structures* our understanding of metaphysical dependence.

⁴⁸See A. Wilson (2013) and Schaffer (2014) for some of the elaborations. I just give the gist here.

relations.⁴⁹ Some even argue that grounding and causation are subsumable in a metaphysically important sense under some more general notion.

Causal explanation and metaphysical explanation also permit similar partial explanantia in ‘because’ sentences. Just as we can sometimes say that the match lit because there was oxygen in the room, we can sometimes say that Ajax won because the season is over. Just as the presence of oxygen is a background condition that makes it possible for striking the match to cause it to light, the season ending is a background condition that makes it possible for a goal differential to ground a league championship. In both cases, the relevant ‘because’ sentences can felicitously communicate the background conditions to an inquirer who lacks only the knowledge that the background condition obtained.

None of the foregoing similarities, however, could suffice to establish the metaphysical unity of metaphysical explanation and causal explanation in the face of the causal metaphor account of metaphysical explanation. Recall how metaphor gives rise to polysemy. When a word or a phrase is used metaphorically in a sentence, its conventional, literal meaning is somehow too specific to apply. But, as long as there are similarities between the literal intension of the word or phrase and the objects, properties, or relations the sentence is about, speakers are able to make sense of the resulting metaphor. With long enough exposure to such uses, the metaphorical use may become conventionalized. But the important thing for present purposes is that the metaphorical use is based on some discernible similarity between the objects, properties, or relations literally denoted by the word or phrase and those at issue in the metaphorical use, while also presupposing that there are differences between them. If it weren’t for the differences, there would be no need for a metaphor. In our case of interest, we saw in chapter 2 that the causal sense of ‘because’ does not denote metaphysical explanatory relationships. The host of shared properties mentioned above is nevertheless basis enough for a metaphorical extension of the causal meaning of ‘because’. We are thus able to make sense of ‘because’ sentences like (1)–(13).

The metaphorical status of the sense of ‘because’ that covers metaphysical explanation may provide ammunition for grounding skeptics.⁵⁰ Schaffer (2014) provides

⁴⁹Schaffer (2014) calls them ‘generative’ and ‘productive’. Bennett (forthcoming) classes causation with specific grounding relations under the heading ‘building relations’ (but cf. Bennett (2011), 93-94 for a less unifying discussion).

⁵⁰In particular, the considerations here might be taken as a supplement to the arguments that grounding is unintelligible in Daly (2012), §2.6.

paradigm cases of grounding, various suggestive analogies, and a formalism for handling grounding claims, and then challenges the skeptic to “say what more is needed” to clarify the notion.⁵¹ But if our only way of understanding the paradigm cases is via the suggestive analogies and via the formal similarities between grounding and causation, then grounding itself is understood only via a causal metaphor. Metaphor, of course, is just the sort of thing that eludes precise characterization—recall again the Davidsonian deflation of the semantic content of metaphors. What more is needed may just be the one thing we can’t have: a real definition.⁵²

4.4 FROM SEMANTICS TO METAPHYSICS

We have now seen the basis for the claim that the sense of ‘because’ that covers metaphysical explanation is metaphorical. That linguistic claim explains the polysemy observed in chapter 2. Further, if the polysemy claim and its explanation are right, it will be of special interest to the philosopher if it tells us something about the relationship between causal and metaphysical explanation. Insofar as words express concepts, we can take the linguistic difference between senses of ‘because’ to reveal an underlying conceptual distinction between causal explanatory concepts and metaphysical explanatory concepts. That conceptual distinction might be reflected by some metaphysical difference between causal explanation and metaphysical explanation, but it might equally be a distinction without a difference. For it to bear on metaphysical questions requires an account of the relationship between our conceptual structure and the world. The argument of §4.2 was that metaphysical differences related to distinct precisifications of our concepts did not guarantee semantic ambiguity. We are now trying to see how semantic ambiguity could lead us to believe in metaphysical differences.

Let’s see how the relationship between semantics and metaphysics works in some more ordinary cases. In some cases, we have distinct words for what are essentially the same kinds of things. Thus ‘astronaut’ and ‘cosmonaut’, at least as they were used during the Cold War, differ in extension. Their meanings incorporate intentional gerrymandering: astronauts were American, cosmonauts were Soviet. The distinction hung on through the end of the Cold War, with ‘cosmonaut’ being reserved for Russians (and other Roscosmos space-travelling personnel, like Latvian-born cosmonaut Aleksandr Kaleri). As other nations developed space programs, the

⁵¹Op. cit., 2.

⁵²Of course, if grounding is really a primitive, no real definition will be forthcoming. But then grounding skepticism should be no surprise, given the plausibility of our being able to interpret it only via a metaphor.

gerrymandering exerted its force. Thus we now have ‘taikonaut’, ‘spationaut’, and ‘vyomanaut’. The terms ‘ruby’ and ‘sapphire’ mark similarly gerrymandered distinctions within the natural kind corundum: rubies are the red ones, while a piece of corundum of any other color is a sapphire. In neither case does metaphysically deep unity override patterns of use that follow metaphysically shallow joints. In other cases, we insist on semantic unity in the face of deep metaphysical difference. Consider again our example ‘jade’ (as it’s used now, not as it was used in an imagined pre-discovery past). We can assume the chemical differences between jadeite and nephrite are reflected by their metaphysical grounds, so ‘jade’ indeed covers very different sorts of things. These are all cases where semantics is misleading as a guide to metaphysics: we make distinctions without a deep difference when it comes to space travelers and corundum, but elide real differences in our talk about jade.

A more interesting kind of case involves metaphysical unity exerting its force to determine word meaning. Thus despite the fact that people might have used ‘mammal’ or ‘ape’ in a way they thought excluded whales and people, respectively, from their intensions, biological facts overrode those patterns of use. It took no change in the meaning of ‘mammal’ or ‘ape’ for us to recognize that whales are mammals and that people are apes, but only the discovery of certain evolutionary facts.⁵³ Legal cases also exhibit the resistance of word-meanings to gerrymandering. Justice Alito, for example, recently wrote that the admission that non-profit corporations can count as ‘persons’ suffices to require that the meaning that covers non-profit corporations also cover for-profit corporations:

This concession effectively dispatches any argument that the term “person” as used in RFRA does not reach the closely held corporations involved in these cases. No known understanding of the term “person” includes some but not all corporations. The term “person” sometimes encompasses artificial persons (as the Dictionary Act instructs), and it sometimes is limited to natural persons. But no conceivable definition of the term includes natural persons and nonprofit corporations, but not

⁵³See Kripke (1980), 138. Dupré (1993, 2006) and LaPorte (2004, 2010) claim that meanings do change in cases like this. According to LaPorte, for example, what Putnam, Kripke, and others would consider discoveries are in fact merely occasions for scientists to make decisions about how to stipulate meanings. This strikes me as neglecting the role of semantic intentions: if what we are trying to pick out with our use of a word is something scientifically natural, then indeed we can discover its intension to be something other than what we might originally have taken it to be. See here Putnam (1975b) and Burge (1979). But LaPorte does seem to have a point with respect to certain identity statements, like ‘water = H₂O’: whether or not we count heavy water (D₂O) as water is plausibly a matter of deference to stipulation by experts. The same goes for what we count as a planet.

for-profit corporations. Cf. *Clark v. Martinez*, 543 U. S. 371, 378 (2005) (To give th[e] same words a different meaning for each category would be to invent a statute rather than interpret one).⁵⁴

Justice Alito here notes a pressure not to interpret words as having gerrymandered meanings. But the legal meaning of ‘person’ according to which both ‘natural persons’ and corporations are persons is itself extremely gerrymandered. This gerrymandering is allowed, the story goes, only because it is made explicit in the law.

Under the Dictionary Act, “the wor[d] ‘person’ . . . include[s] corporations, companies, associations, firms, partnerships, societies, and joint stock companies, as well as individuals.” *Ibid.*; see *FCC v. AT&T Inc.*, 562 U. S. ___, ___ (2011) (slip op., at 6) (“We have no doubt that person, in a legal setting, often refers to artificial entities. The Dictionary Act makes that clear”). Thus, unless there is something about the RFRA context that “indicates otherwise,” the Dictionary Act provides a quick, clear, and affirmative answer to the question whether the companies involved in these cases may be heard.⁵⁵

This shows that any gerrymandering made sufficiently explicit in a linguistic intention can take hold.⁵⁶ Doubtless there are groups of speakers of English who insist on using ‘ape’ in a way that would make ‘men are apes’ false in their dialect if they could isolate themselves well enough. Doubtless Ishmael spurns Linnaeus and invokes Jonah sincerely enough that ‘whales are fish’ expresses a true proposition in his idiolect.⁵⁷ There is probably a possible world where Dupré succeeds in his campaign to revise our use of ‘fish’ so that it makes sense to call whales ‘mammalian fish’. But in the more usual case, where people use ‘ape’, ‘fish’, and ‘person’ in order to pick out biologically or legally natural kinds, considerations of naturalness can override our mistakes about the intensions of those terms.⁵⁸

What we’d really like, though, is an argument from semantic distinctness to metaphysical distinctness. It would be nice to have an argument that polysemy only occurs in cases of difference. After all, if a single meaning were adequate to the uses

⁵⁴*Burwell v. Hobby Lobby Stores, Inc.*, 573 U.S. ___ (2014), at 20.

⁵⁵*Ibid.*, at 19.

⁵⁶Eli Hirsch has been making an argument to this effect in his exchanges with Ted Sider for years: see, e.g., Hirsch (2005, 2008).

⁵⁷See *Moby Dick*, Ch. 32 for the spurning and invoking, and Hirsch (2005), 94-95 for discussion. Thanks to Gordon Belot for pressing me on the relationship between the considerations about ‘because’ I have been pursuing here and how we learn about fish, with apologies for the possibility that the approach may have turned out to be just what he feared it was.

⁵⁸Manley (2014) puts this point in terms of more or less provisional referential intentions.

to which a word is put, polysemy should not arise. There are a few different classes of polysemes against which to test this idea. The different senses of synaesthetic adjectives, which apply across multiple sense modalities—think here of ‘bright’ and ‘hot’—denote distinct properties. Our best explanations of at least some synaesthetic adjectives do find an underlying neurophysical similarity responsible for their multi-modal uses. The culinary use of ‘hot’, for example, may well be grounded in the fact that capsaicin, the chemical responsible for sensations of spicy tastes, activates a receptor that is also activated by painful heat.⁵⁹ But nevertheless capsaicin and high kinetic energy are quite different sorts of things. The different senses of double-function adjectives, which have both physical and psychological meanings—think here of ‘soft’, ‘sweet’, and ‘bitter’—also denote distinct properties.⁶⁰ Polysemous nouns like ‘book’, which has abstract and concrete senses, and ‘chicken’, which has animal- and meat-specific senses, again denote distinct kinds of things. The pattern holds for words that get used metonymically despite the fact that their metonymic uses are not encoded in the lexicon: here I am thinking of ‘the ham sandwich’, used to refer to the person who ordered the ham sandwich, and the like. In all of these cases, polysemy reflects an actual metaphysical difference.

So the fact of polysemy (at least typically) suggests underlying difference. We might even say that mastery of a polysemous word requires distinguishing between what is denoted by its distinct meanings. A speaker really has not mastered our use of the word ‘book’ if she thinks it can only apply to concrete objects. (“I can’t read your book—it’s at your house!”) The world could nevertheless fail to cooperate with such distinctions: what is required by semantic competence is not guaranteed to track truth.⁶¹ It could happen that an extremely natural, joint-cutting kind of relation, or even an extremely natural, joint-cutting particular relation, turns out to back both metaphysical explanations and causal explanations. In that case, we should think that metaphysical explanation is a kind of causal explanation (or vice versa), that grounding and causation are species of the same genus, or even that we should identify metaphysical explanation with causal explanation, identify grounding with

⁵⁹See Caterina et al. (1997) and Clapham (1997). See Rakova (2003), Chs. 3, 4, and 10 for a polemical discussion of the implications of this kind of neurobiological fact on how we should account for polysemy.

⁶⁰It seems implausible that some underlying neurobiological similarity will unify the physical and psychological senses of these words, though Rakova (2003), Chs. 5-6 and pp. 148-149 takes an opposing view. But note that the distinctness of physical sweetness and psychological sweetness would withstand the discovery of such a similarity.

⁶¹Compare here the idea that sentences might be analytic but false in Tappenden (1993) and the idea that conceptual competence with vague predicates requires accepting ‘tolerance principles’ that lead to sorites paradoxes developed in Eklund (2002, 2005).

causation. But our default position should be to recognize the distinction encoded in the polysemy of our explanatory language.

We are overdue for a methodological reminder. The *causal metaphorist*, who thinks that causal explanation provides the basis for a metaphor used to talk about metaphysical explanation, and the *unificationist*, who thinks that metaphysical explanation just is a species of causal explanation (perhaps because grounding just is a species of causation) can agree that causation and grounding, the relations backing these kinds of explanation, are similar in lots of ways.⁶² Pointing to any particular similarity bolsters both cases equally. It adds to the stock of similarities the causal metaphorist can invoke. It also adds to the evidence of underlying sameness the unificationist can invoke. But to bolster both cases equally is to bolster neither at all as against each other. Further, insofar as the causal metaphorist can point to polysemy in our explanatory terminology of the kind I argued it exhibits in chapter 2, it looks like the unificationist is out of luck. Unless, that is, the unificationist can point to overriding metaphysical considerations, of the sort operative with ‘mammal’, ‘ape’, and ‘person’.

The reason metaphysical considerations were overriding in those cases is that the terms ‘mammal’, ‘ape’, and ‘person’ are used with an intention to refer to a relatively natural kind. The same applies, presumably, to ‘because’, ‘cause’, and ‘grounding’.⁶³ But it should now be clear that the unificationist bears the burden of showing that metaphysical considerations force us to unify causal explanation and metaphysical explanation. The linguistic facts make the alternative position—the position that distinguishes them and treats causation and causal explanation merely as the basis for our (now conventionalized, but once) metaphorical talk of grounding and metaphysical explanation—the view to hold in the absence of countervailing evidence. (It is relevant here that we do not, and cannot truly, say that grounds *cause* the entities

⁶²A. Wilson (2013) is the prime example of a unificationist. He argues that accepting the identity ‘grounding = metaphysical causation’ has simplicity on its side. But it’s unclear to me how simplicity considerations should favor his view. He may only have one primitive—causation—but he posits distinct kinds of it. If the distinction between the kinds is primitive, the resulting view isn’t simpler in any important sense than a view that posits two primitive relations: causation and grounding. If the distinction between the kinds is not primitive, the difference between his view and a view that just recognizes causation and grounding as different sorts of things seems terminological. It’s also unclear to me why it’s supposed to be plausible that it could make sense to think of grounding as metaphysical causation. The label ‘metaphysical causation’ suggests to me relations like God’s sustaining us through time on certain early modern views, or the relationship persons bear to God according to Spinoza, or Kantian noumenal affection. I can see no non-metaphorical reading of ‘causation’ on which it could make sense to think of, say, material constitution as metaphysical causation.

⁶³Perhaps only in virtue of our tacit quintessentialism: see Leslie (forthcoming).

they ground.)

It's unclear where the unificationist could find countervailing evidence. In fact, I think a case can be made for distinguishing grounding and causation, and so for distinguishing causal and metaphysical explanation. I don't, however, think the case can rest on differences between the restrictions imposed on relata of the relations.⁶⁴ The fact, if it is one, that grounding is a synchronic relation while causation is a diachronic relation does not establish that they more than nominally distinct. After all, if there were just one relation—call it 'generation'—we might just call generation 'grounding' when it relates entities at the same time and 'causation' when it relates entities at different times. We might also call identity 'Umer-identity' when it relates Umers and 'Jon-identity' when it relates Jons—but nothing follows about the primitives to which our metaphysical theory should be committed. There is, in general, no reason to think differences in relata reflect metaphysically significant differences in relations. Rather, grounding-causation unity would commit us to somewhat implausible semantic equivalences. If we use 'causes' and 'grounds' with the linguistic intention of picking out maximally natural relations, it could turn out that '*p* causes *q*' and '*p* grounds *q*' mean the same thing. But since intuitively they do not, we have reason to prefer a theory that distinguishes them.

4.5 CAUSAL EXPLANATION IN PROPER PERSPECTIVE

The last point I want to make concerns the relationship between causal explanation and metaphysical explanation, if everything I have said above is correct. If the sense of 'because' that covers metaphysical explanation is indeed based on a causal metaphor, then causal explanation really is explanation par excellence. Causal explanations are paradigms for non-causal, metaphysical explanations, and provide the basis on which we understand the latter kind of explanation. Their centrality to explanation, then, is not just a matter of their importance to science, but of their importance to our explanatory practices as a whole. I argued in chapter 3 that apparently non-explanatory uses of 'because' were causal-explanatory uses after all. I supplemented that argument here with an explanation of the polysemy established in chapter 2 that takes our very conceptual competence with metaphysical explanations to be parasitic on our understanding of causal explanation. This reveals the centrality of causal explanation to our explanatory practices as a whole. The semantic investigation of 'why' and 'because' thus brings into focus, in a new way, the truly paradigmatic status of causal explanation.

⁶⁴Here I side with Schaffer (2014) against Koslicki (forthcoming) on how to distinguish relations.

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