



How why-interrogatives work

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Abstract

How do why-interrogatives work? How do they express the questions they express, in the contexts in which they express them? In this essay, I argue that, at a fundamental level, why-interrogatives work just like other wh-interrogatives, particularly other adjunct wh-interrogatives, and they express the questions they express, in the contexts in which they express them, by the same means that other wh-interrogatives do. These conclusions go against a trend in recent work on why-interrogatives, which holds that they are syntactically and semantically unlike other wh-interrogatives. Since the claim that why-interrogatives are unlike other wh-interrogatives has been taken to support various philosophical theses about the nature of why-questions and explanation, showing that why-interrogatives are just like other wh-interrogatives undermines this line of support for these theses.

Keywords Why-interrogatives · Why-questions · Context sensitivity · Contrastivism · Bas van Fraassen · Sylvain Bromberger

1 Introduction

How do why-interrogatives work? In particular, how do they express the questions they express, in the contexts in which they express them?

These are difficult questions. The syntax and semantics of interrogatives are far less well understood than the syntax and semantics of declaratives, and there is no widely agreed upon philosophical or linguistic framework for discussing competing theories of interrogatives.¹ Moreover, why-interrogatives are among a class of interrogatives, namely, adjunct wh-interrogatives, which are the least understood of all interrogatives.

But some of the difficulties here are unique to why-interrogatives. Perhaps the most central difficulty concerns the widely observed context-sensitivity of why-

¹ See Groenendijk and Stokhof (2011), p. 1060 for discussion.

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interrogatives. Why-interrogatives seem to be context-sensitive in ways that go beyond the context-sensitivity of other wh-interrogatives. Indeed, why-interrogatives seem to be unique among wh-interrogatives in exhibiting a particular kind of context-sensitivity, namely contrast-sensitivity. And it has seemed to many theorists that in order to account for this kind of context-sensitivity, why-interrogatives must be, at a fundamental level, both syntactically and semantically unlike other wh-interrogatives. For instance, considerations like these have led Bas van Fraassen to claim that “there are several respects in which why-questions introduce genuinely new elements into the theory of questions” (van Fraassen 1980, p. 141). And for reasons relating directly to the syntax and semantics of why-interrogatives, Hintikka and Halonen write: “the general theory of the semantics of questions and answers does not automatically accommodate why- and how-questions” (Hintikka and Halonen 1995, p. 638).²

Call the thesis that why-interrogatives are, fundamentally, unlike other wh-interrogatives *exceptionalism* about why-interrogatives. Exceptionalism is widespread in linguistics and philosophy, and it has been used to motivate philosophical claims about the nature of why-questions and explanation.³ For instance, it has been used to argue that why-questions and explanations are contrastive in nature, in ways that other questions are not (van Fraassen 1980). According to such contrastive theories of why-questions, something is an answer to a why-question, and so bears the relation of explanatory relevance to the explanandum associated with the question, only relative to a contrast-class.⁴ Moreover, exceptionalism has been used to argue that there is no single relation of explanatory relevance involved in why-questions, but, rather, many relations of explanatory relevance, some of which are relevant in some contexts, others of which are relevant in other contexts. It has even been suggested that why-interrogatives themselves put no substantive linguistic constraint on what counts as a relation of explanatory relevance, and no constraint on what would count as an answer to a particular why-question (van Fraassen 1980). As Nuel Belnap writes: “it seems clear that much can only be said about answerhood on the contextual level. This is notoriously true for *why*-questions ...” (Belnap 1982, p. 171). And exceptionalism has been used to argue that, in the case of why-questions, we are often in the difficult rational predicament of not being in a position to know what the possible answers to the question are and, indeed, of not being in a position to know whether the question

² As this quotation from Hintikka and Halonen demonstrates, exceptionalism has also been defended for how-interrogatives. Indeed, how-interrogatives have been the subject of much recent debate. See the essays in Bengson and Moffett (2011), for instance. The view that how-interrogatives are filler-gap constructions is widely assumed in these debates, however. So, how-interrogatives are at least treated as syntactically like other wh-interrogatives. The debates primarily concern ascriptions of know-how and whether these ascribe propositional knowledge or not.

³ The claim that why-interrogatives are syntactically unlike other wh-interrogatives is widespread in mainstream generative grammar. See Rizzi (2001), Ko (2005, 2006), Thornton (2008) and Tsai and Stepanov (2008). Other linguists and linguistically oriented philosophers treat why-interrogatives as fundamentally syntactically like other wh-interrogatives. See Groenendijk and Stokhof (1982), Koura (1988), Collins (1991), Haegeman (1994), Higginbotham (1993, 1997), Asher and Lascarides (1998), Ginzburg and Sag (2000), Stanley and Williamson (2001), Sag (2010), George (2011), Shlonsky and Soare (2011) and Stanley (2011).

⁴ Contrastive theories of why-questions and explanation are widespread. See van Fraassen (1980), Ruben (1987, 1992), Temple (1988), Lipton (1990, 1991, 2004) and Sandborg (1998).

even has an answer (Bromberger 1992). Exceptionalism has even been used to argue for a version of the covering law theory of explanation (Hintikka and Halonen 1995).

The aim of this essay is to argue against exceptionalism and to argue that why-interrogatives are, fundamentally, both syntactically and semantically just like other wh-interrogatives. My answers to the opening questions of this essay will be that, at a fundamental level, why-interrogatives work like other wh-interrogatives and that, at a fundamental level, they express the questions they express in the contexts in which they express them by the same means that other wh-interrogatives do. What I mean when I say that why-interrogatives are, fundamentally, both syntactically and semantically just like other wh-interrogative is that, syntactically speaking, they are *filler-gap constructions*—a notion that will be explained below—and, semantically speaking, they involve, at some level, something like the operation of variable binding by a variable binding operator whose associated domain can be contextually restricted. There are various ways in which why-interrogatives are unlike other wh-interrogatives, but exceptionalism denies that why-interrogatives are like other wh-interrogatives in these fundamental syntactic and semantic respects, and it must do this in order to provide motivation for the philosophical theses just mentioned.

The discussion proceeds as follows. Section 2 introduces two kinds of context-sensitivity in why-interrogatives which any theory must account for: contrast-sensitivity and domain-sensitivity. Section 3 introduces the baseline theory of wh-interrogatives according to which wh-interrogative are filler-gap constructions whose semantics can be formally modelled, to a first approximation, using restricted lambda abstraction. The aim of Sect. 4 is to extend the baseline theory to why-interrogatives. Some motivation is offered for the baseline theory, and it is defended against some well-known objections. This section ends with the observation that, while the theory accounts for domain-sensitivity, it does not seem to be able to account for contrast-sensitivity. Section 5 discusses alternatives to the baseline theory and argues that while they can account for contrast-sensitivity, they seem to be unable to account for domain-sensitivity without incurring significant linguistic costs. Section 6 reconsiders the baseline theory in light of these problems and argues that when it is coupled with a *prima facie* plausible pragmatic theory of the role contrasts play in fixing domains of interrogation, it may be able to explain the contrast-sensitivity of why-interrogatives after all. I give a brief sketch of what such a pragmatic theory would look like, and offer some initial motivation for thinking that it is correct.

Before beginning, let me be clear about the scope of the discussion. What follows is a discussion of what we might call the theory of why-interrogatives. It is concerned, in the first instance, with broadly linguistic questions about why-*interrogatives*, considered as linguistic entities. The theory of why-interrogatives bears formally on the theory of why-*questions*, but is importantly distinct from it. The theory of why-questions is the theory of the semantic entities why-interrogatives express, and a large part of the theory of why-questions involves trying to spell out exactly what it takes for something to be an answer to a why-question, so conceived. Of course, a theory of why-questions must be constrained by a plausible account of what it is possible for a why-interrogative to express. A theory of why-questions which held that they were something why-interrogatives couldn't possibly express would be implausible for just this reason. But a theory of why-interrogatives need not come with an complete account

of what it is for something to be an answer to a why-question, it can content itself with claims like: for something to be an answer to a why-question is for it to stand in the relation of explanation to the explanandum of that question. Nonetheless, a theory of why-interrogatives will plausibly have something to say about the abstract features of the relation, for instance, whether it is a binary, ternary, or quaternary relation, and whether it is plausible to think that one and the same relation is at issue across various domains of inquiry, or whether different relations are involved. A theory of why-questions attempts to say exactly what it is for something to stand in the relation of explanation to the explanandum of a why-question. The latter is, of course, the holy grail for philosophers of explanation. One of the central upshots of the discussion to follow is that a theory of why-questions must take the following form: for something to be an answer to a why-question is for it to stand in so and so *binary* relation to the explanandum and for it to meet some further condition generated by the relevant contrasts. This rules out a common kind of theory which takes the form: for something to be an answer to a why-question is for it to stand in such and such a *ternary* relation to the explanandum and a contrast class. In this way, the theory of why-interrogatives has a direct formal bearing on the theory of why-questions. Of course, the two projects, that of giving a theory of why-interrogatives and that of giving a theory of why-questions, have often been pursued together, most influentially in the work of Sylvain Bromberger, and also, under the influence of Bromberger, in the work of van Fraassen.⁵ This paper follows this tradition.

2 Why-interrogatives in context

This section examines two kinds of context-sensitivity concerning why-interrogatives. An adequate theory of why-interrogatives must account for both kinds of context-sensitivity or explain away the appearances.

2.1 Contrast sensitivity

The claim that why-interrogatives are semantically contrast-sensitive—that is, that they can express different questions relative to contexts with different salient contrasts to the explanandum—is widely accepted.⁶ Since the claim that why-interrogatives are semantically contrast-sensitive is so central to our discussion, we will not take it for granted, but will carefully consider the arguments for it.

⁵ See Bromberger (1992). Bromberger was, of course, reacting to the influential work of Hempel (1965). Bromberger's approach to explanation via abnormic laws has been taken in new directions by Winiewski (1999).

⁶ van Fraassen attributes the observation that why-interrogatives are contrast-sensitive to Bengt Hansson (van Fraassen 1980, p. 127). In a footnote he traces it to Hansson's "Explanations-of-What?", mimeographed and circulated, Stanford University, 1974. He adds that "[t]he idea was independently developed, by Jon Dorling in a paper circulated in 1976, and reportedly by Alan Garfinkel ..." (van Fraassen 1980, p. 224, fn. 34). Garfinkel's work was unpublished at the time, but was published as Garfinkel (1981). See also Achinstein (1983) and Bromberger (1992) for seminal discussions.

A simple context shifting argument can be used to make the case that why-interrogatives are contrast-sensitive. Consider the following context. Eve hands Adam an apple, a pear, and an orange. Adam deliberates for a while, trying to decide whether to eat one of the fruits, or whether to give them back to Eve. Adam decides to eat the apple. Now suppose we ask:

- (1) Why did Adam EAT the apple?

Contrastive stress on the word ‘eat’—marked here with capitals—brings a particular contrast to salience in the context, the contrast being with Adam’s giving the apple back to Eve, let’s say. In this context, this interrogative could be used to express the question of why Adam ate the apple rather than handing it back to Eve. Now suppose we ask:

- (2) Why did Adam eat the APPLE?

Contrastive stress on the word ‘apple’ brings a different contrast to salience in the context, the contrast being with Adam’s eating the orange, and with Adam’s eating the pear. In this context, this interrogative could be used to express the question of why Adam ate the apple rather than the orange or the pear.

We have a difference in salient contrasts in these contexts. And, on the face of it, we have a difference in the question that these interrogatives can be used to express in these contexts with these different salient contrasts. It follows that the same interrogative sentence ‘Why did Adam eat the apple?’ can be used to express different questions in different contexts, where these contexts differ with respect to salient alternatives to the explanandum. Why-interrogatives, it seems, are *contrast-sensitive*.

This argument will probably be enough to convince most that why-interrogatives are contrast-sensitive.⁷ We have pretty clear intuitions that these interrogatives can be used to express different questions in these different context, where the contexts differ only with respect to the different contrasts to the explanandum. More can be done, however, to make the case, if you are not convinced. Consider the following question-answer pairs, for instance:

- (3) a. Why did Adam EAT the apple?
b. Because he was hungry.
- (4) a. Why did Adam eat the APPLE?
b. # Because he was hungry.

The same proposition, namely, the proposition expressed by ‘because he was hungry’ is an answer to the question expressed by the interrogative ‘Why did Adam eat the apple’ in one context, but not in another. If questions determine answerhood conditions (and they plausibly do), then the same interrogative, namely, ‘Why did Adam eat the apple?’, must be able to be used to express different questions in the two different contexts. A difference in answers entails a difference in questions. In this example, rather than relying on our intuitions about the questions expressed by the interrogatives

⁷ For a defence of such context-shifting arguments see Szabó (2006) and for criticism see Cappelen and Lepore (2005).

themselves, we rely on our intuitions about answerhood conditions, which are widely taken to be the primary source of evidence in the theory of interrogatives.

Considerations like these have convinced many that why-interrogatives are semantically contrast-sensitive. However, there is a serious objection to the line of argument involved. The objection concedes that our intuitions are tracking a semantic difference here, but denies that the examples given are examples where the *same* interrogative is used to express *different* questions in each context. According to this objection, these are examples where *different* interrogatives are used to express *different* questions in each context. The objection is raised by Bromberger. According to Bromberger: "...different placement of stress...creates different grammatical objects" (Bromberger 1992, p. 14). So our example is not "...an example of a sentence whose form underspecifies the question it can express ..." rather it is "an example of an orthographic structure that underspecifies which sentence it encodes" (Bromberger 1992, p. 14). If Bromberger were right about this, then our argument would be undermined. However, Bromberger's position cannot be maintained. The problem with this response is that the resulting view is not fine-grained enough. There are interrogatives with the *same* placement of stress, and so the *same* focus, which nonetheless express different questions in different contexts, depending on the contrasts in those contexts. In a context where the salient contrast to Adam eating the apple is his eating the pear, 'why Adam ate the APPLE' will express one question, while in a context where the salient contrast to Adam eating the apple is his eating the orange, 'why Adam ate the APPLE' will, intuitively, express another question (to see this, notice that 'because he doesn't like oranges' is a possible answer to the latter but not the former). Bromberger's approach will not allow him to say that *these* are different interrogatives with different structures, because each has the same focus. So, even if Bromberger is right about differences in placement of stress making for a difference in interrogatives, it would still follow that why-interrogatives are contrast-sensitive in the relevant sense.

We have good reasons, then, for thinking that why-interrogatives are contrast-sensitive. As I said earlier, why-interrogatives seem to be unique among wh-interrogatives in exhibiting this kind of context-sensitivity, and this is part of what makes it so difficult to explain how why-interrogatives work, and part of what motivates exceptionalism. This uniqueness claim has been denied in the literature, however. Charles Cross, for instance, writes that "[t]he phenomenon of explanatory *contrast* is also exhibited by *how* questions" (Cross 1991, p. 247). He motivates this claim with the following examples:

- (5) a. How did Joe paint the barn RED?
b. He used red paint.
- (6) a. How did Joe paint THE BARN red?
b. He used long ladders and wide brushes.

If Cross were right, then why-interrogatives would not be uniquely contrast sensitive. But these examples do not withstand scrutiny. There is no sense, as there is in the case of why-interrogatives, that 'He used long ladders and wide brushes' would not be a *true* answer to the former question—Joe *did* paint the barn RED by using longer ladders and wide brushes—and there is no sense that 'He used red paint' would not

be a *true* answer to the latter question—Joe *did* paint THE BARN red by using red paint. To drive the point home, we can consider the following paradigm.

- (7) a. How did Adam eat the apple?
 b. How did ADAM eat the apple?
 c. How did Adam EAT the apple?
 d. How did Adam eat THE APPLE?

It strikes me that each of these interrogatives expresses exactly the same question. Stress plays much the same role here as it does in when-interrogatives. So, for instance, ‘How did ADAM eat the apple?’ implicates that others also ate the apple, ‘How did Adam EAT the apple?’ implicates that Adam did something else with the apple, etc. This is exactly the pattern Bromberger identifies in the case of when-interrogatives and concludes that “different placements of emphatic stress do not impose different conditions on what counts as an answer” (Bromberger 1992, p. 161). Thus we agree with the linguistic and philosophical consensus expressed by Partee that “WHY-questions are focus-sensitive in a way that other WH-questions are not” (Partee 1991, p. 171).⁸

In light of the fact that why-interrogatives are uniquely contrast sensitive, a question any theory of why-interrogatives will have to answer is this: by what means do why-interrogatives express different questions relative to contexts with different salient contrasts to the explanandum?

2.2 Domain sensitivity

The context-sensitivity of why-interrogatives does not seem to be exhausted by their contrast-sensitivity. On the face of it, why-interrogatives can be used to express *different* questions in different contexts with the *same* salient contrasts to the explanandum. In his discussion of the context-sensitivity of why-interrogatives, van Fraassen astutely observes that “In a given context, several questions agreeing in topic but differing in contrast-class, or conversely, may conceivably differ further in what counts as explanatorily relevant” (van Fraassen 1980, p. 142). In other words, salient contrasts in a context, together with the standing linguistic meaning of why-interrogatives, do not determine what they can be used to express. The context-sensitivity of why-interrogatives seems to go beyond contrast-sensitivity.

Again, rather than simply assuming that this is correct, let’s briefly examine the arguments for thinking that why-interrogatives are context-sensitive in a way that goes beyond contrast-sensitivity. Consider the following context. Eve observes Adam eat the apple and wonders why he did it. She asks another witness of Adam’s eating the apple why he ate it. The following question-answer pair seems appropriate in this context.

⁸ I recognise that these judgements about how-interrogatives may be controversial. This is certainly an area that deserves further investigation. If it turns out that how-interrogatives are also contrast sensitive, then the question arises as to whether this motivates a kind of exceptionalism about how-interrogatives or whether such contrast sensitivity can be accommodated on the usual syntax and semantics of how-interrogatives. My view is that *if* how-interrogatives are contrast-sensitive, this can be accommodated on the usual syntax and semantics and that something along the lines of the account given for why-interrogatives in the final section of this paper might be modified to accommodate how-interrogatives.

- (8) a. Why did Adam EAT the apple?
 b. Because he was hungry.

Now consider another context. Looking back on the event of Adam eating the apple, those who have suffered God's wrath wonder why Adam ate the apple. The question is explicitly raised. The following question-answer pair seems to be inappropriate in this context.

- (9) a. Why did Adam EAT the apple?
 b. # Because he was hungry.

Why isn't this answer any good? Because in this context what is wanted is an answer like this 'Because God wanted to test Adam'. In this context, what is wanted is a reason which puts Adam's eating the apple in a broader historical context. The answer 'Because he was hungry' doesn't do this. On the face of it then, these interrogatives express different questions in different contexts even though they involve the same contrasts.

Admittedly, these examples carry less conviction than the examples of contrast-sensitivity. I nonetheless agree with van Fraassen that they reveal a further kind of context-sensitivity in why-interrogatives. But I will not pursue the case here, since I think that this kind of context-sensitivity is predicted and explained by an independently motivated linguistic mechanism involved in why-interrogatives, which I will introduce in the next section.

How shall we describe this kind of context-sensitivity? In describing the kind of context-sensitivity at issue in this section, I said that in one context "what is wanted is a reason which puts Adam's eating the apple in a broader historical context". I could have said about the first context that "what is wanted is a proximal reason for Adam's eating the apple". Reasons from different *domains* are wanted in different contexts. Or, as van Fraassen puts it, the contexts differ in regard to "the respect-in-which a reason is wanted" (van Fraassen 1980, p. 142). If what is wanted is a reason which puts something in a broader historical context, then the salient domain is that of historically relevant reasons. If what is wanted is a proximal reason, then the salient domain is that of proximal reasons. In light of this, let's say that in addition to being contrast-sensitive, why-interrogatives are *domain-sensitive*.⁹

We have seen, then, that why-interrogatives are, plausibly, semantically contrast-sensitive. A theory of why-interrogatives will have to explain this. We have also seen that why-interrogatives are, plausibly, semantically domain-sensitive. A theory of why-interrogatives will also have to explain this. Our question now is whether a theory of why-interrogatives which treats why-interrogatives as fundamentally just like other wh-interrogatives can explain these facts.

3 The baseline theory of wh-interrogatives

In this section I present what I will call the baseline theory of wh-interrogatives. As I said in the introduction, there is no widely agreed upon philosophical or linguistic

⁹ A suggestion along these lines is made in Skow (2016), p. 63.

framework for discussing competing theories of interrogatives. The baseline theory of wh-interrogatives will provide us with a minimal model to work with. I do not intend for it to be anything like a complete theory of wh-interrogatives. Rather, I take it to provide us with a very plausible first pass at a model for understanding wh-interrogatives. The baseline theory of wh-interrogatives has three components: (i) a syntactic component (ii) a compositional semantic component and (iii) a contextual semantic component. We will discuss each of these in turn.

3.1 Syntax

There are, on the face of it, three main kinds of interrogatives: *yes/no* interrogatives like ‘Will Adam eat the apple’, *alternative* interrogatives like ‘Will Adam eat the apple, the pear, or the orange’, and *wh*-interrogatives like ‘What did Adam eat?’. We will focus exclusively on wh-interrogatives here.

Wh-interrogatives can be defined in terms of the following list of wh-words:

who, whom, whose, what, which, when, where, how, why.

Typically a wh-interrogative will have one of these words, or a phrase with one of these words at the front, or a prepositional phrase involving one of these words at the front. Wh-words on their own, and phrases which contain them, are called wh-phrases. A wh-interrogative clause, then, is a clause which begins with a wh-phrase—e.g. ‘What did Adam eat?’ or ‘Which fruit did Adam eat?’ or with a prepositional phrase involving one of these words at the front—e.g. ‘To whom did Eve give the apple?’ Minor kinds of interrogatives include stand-alone interrogative phrases like ‘Who?’ and interrogative clauses where the wh-word appears elsewhere in the clause—or as linguists say ‘in situ’—like ‘Eve gave the apple to whom?’ In speaking of wh-interrogatives we initially focus on interrogative *clauses* which begin with wh-words or which begin with prepositional phrases containing such wh-words.

Wh-interrogatives are a kind of *unbounded dependency construction*. In particular, they are a kind of *filler-gap construction* (Sag 2010). A wh-interrogative like ‘what Eve gave to Adam’ is said to contain a ‘gap’ in the position following the verb ‘gave’ and the wh-phrase ‘what’ bears a syntactic relation to this position. We can represent this informally as follows:

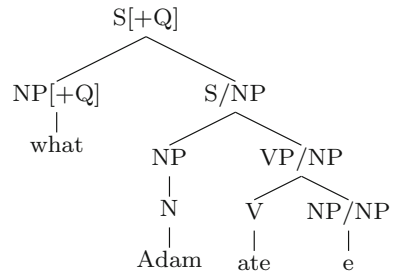
(10) [what]_i Eve gave ___i to Adam

Here the subscripts represent the syntactic relation between the wh-phrase and the gap. The syntactic relation between the filler and the gap is ‘unbounded’ in the sense that the syntactic dependency between the filler and the gap can span an unbounded number of clausal boundaries, hence the label ‘unbounded dependency construction’.¹⁰ To see this, consider:

(11) a. [what]_i [Eve gave ___i to Adam]

¹⁰ This label isn’t meant to have too much theoretical significance. See Gazdar et al. (1985), Chap. 7 for discussion. See also Engdahl (1986), Chap. 2, Pollard and Sag (1994), p. 157, Borsley (1996), Chap. 9, Huddleston and Pullum (2002), p. 914 and Sag (2010), p. 505.

Fig. 1 Phrase structure of ‘what Adam ate’



- b. [what]_i [the serpent said [Eve gave _i to Adam]]
 c. [what]_i [Adam said [the serpent said [Eve gave _i to Adam]]]

The syntactic dependency between the filler and the gap puts certain constraints on the category of the filler and the gap along with other syntactic properties such as case, person, and number. For instance, the following demonstrates the constraints on syntactic category:

- (12) a. [PP to whom]_i Eve gave the apple [PP _i
 b. *[PP to whom]_i Eve gave the apple to [NP _i
 c. *[NP whom]_i Eve gave the apple [PP _i
 d. [NP whom]_i Eve gave the apple to [NP _i

While *wh*-interrogatives are widely assumed to be filler-gap constructions, there is little agreement over the proper theoretical treatment of filler-gap constructions. In order to state our semantics for *wh*-interrogatives explicitly, however, we will need to make some concrete assumptions about the syntax of *wh*-interrogatives. For our purposes, we will assume that filler-gap constructions can be accounted for on a modern phrase structure grammar.¹¹ We will assume that the phrase structure of an interrogative like ‘what Adam ate’ is something like the following (Fig. 1):

On a modern phrase structure grammar, such a phrase structure is generated by a grammar with complex category labels of the form *S/NP*, *VP/NP*, and *NP/NP*, where these are to be understood informally as ‘a clause with a noun-phrase gap’, ‘a verb-phrase with a verb-phrase gap’, and ‘a noun phrase gap’.¹² We also assume a feature [+Q] for interrogatives, which marks interrogative phrases and interrogative clauses. We will leave further details of the grammar aside for now. For simplicity, we assume that the following phrase structure rule which admits a *wh*-interrogative clause with a NP filler *wh*-phrase and *S/NP* gap clause:

$$\text{SYN1: } S[+Q] \rightarrow NP[+Q] S/NP$$

¹¹ The phrase structure approach has been developed in various ways. In addition to Gazdar (1981) and Gazdar et al. (1985), see Pollard and Sag (1994), Hukari and Levine (1995), Bouma et al. (2001), Culicover and Jackendoff (2005) and Ginzburg and Sag (2000). Much of the discussion to follow can be recast in terms of the GB theory of Chomsky (1988). See also Chomsky (1977) and Chomsky (1986). For an overview of the GB syntax of *wh*-interrogatives in a philosophical setting see Higginbotham (1997), Sect. 2.

¹² For more detail, see Gazdar (1981) and Gazdar et al. (1985) or Culicover and Jackendoff (2005), pp. 330–331.

We will provide a corresponding semantic rule for *wh*-interrogatives with NP gap clauses below.

The syntax just sketched will account for *wh*-interrogatives involving interrogative noun-phrases like ‘who’, ‘what’, and ‘which fruit’. Although we have given only the barest outline of a syntactic theory, it is widely agreed that something along these lines provides the basis for *wh*-interrogatives involving interrogative noun-phrases. However, our theory needs to be extended to account for ‘*wh*’-interrogatives involving ‘when’, ‘where’, and ‘how’. We will assume that a *wh*-interrogative like ‘where Adam ate the apple’ contains a gap in the position of a verb-phrase adjunct, and that the *wh*-phrase ‘where’ bears a syntactic relation to this position. We can represent this informally as follows:

(13) [where]_i Adam ate the apple _i

The syntactic evidence for the claim that ‘where’-interrogatives are filler-gap constructions is indirect. One argument for thinking that they are filler-gap constructions is an argument to the best explanation of the fact that the following interrogative is ambiguous:

(14) where Eve said Adam ate the apple

On one reading, this is asking for the location of the event of Eve saying that Adam ate the apple, and on another reading it is asking for what Eve said the location of the event of Adam’s eating the apple was.

The following structure, which treats where-interrogatives are filler-gap constructions, straightforwardly explains the ambiguity.

(15) a. [where]_i [S/PP Eve [VP/PP said [S/PP Adam ate the apple _i]]]
 b. [where]_i [S/PP Eve [VP/PP said [S Adam ate the apple] _i]]

In the first structure the gap is within the lower clause and is associated with the verb ‘ate’, giving us one reading, and in the second structure, the gap is within the next higher clause and is associated with the verb ‘said’, giving us the other reading. So the assumption that where-interrogatives are filler-gap constructions gives us a straightforward explanation of this ambiguity, and it is difficult to see how we could explain it otherwise.¹³

Another reason comes from the fact that some of these *wh*-words occur in argument *wh*-interrogatives. Consider:

(16) [where]_i Eve put the apple _i

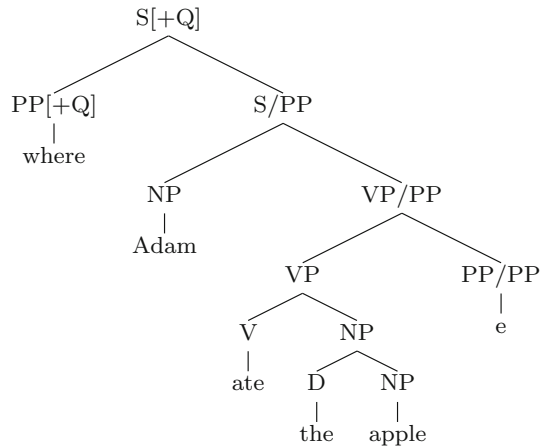
There is a missing obligatory constituent here. So ‘where’ is a filler *wh*-phrase in this construction. On the assumption that ‘where’ isn’t ambiguous between ‘where Eve put the apple’ and ‘where Adam ate the apple’ we should assume that the latter is also a filler gap construction (Bouma et al. 2001, p. 50).

A final reason comes from considering so-called in-situ interrogatives. Consider:

(17) a. Eve put the apple where?

¹³ Such an argument is given in Haegeman (1994) for thinking that adjunct *wh*-interrogatives are filler-gap constructions. See also Borsley (1996), p. 161.

Fig. 2 Phrase structure of ‘where Adam ate the apple’



b. Adam ate the apple where?

Here ‘where’ occurs in the position that a canonical answer to a where-interrogative would occur. This suggests that in where-interrogatives, where ‘where’ occurs at the front of the clause, this position is occupied by a gap.

We will assume, then, that ‘where Adam ate the apple’ has the following phrase structure (Fig. 2):

This wh-interrogative will be admitted by a phrase structure rule like the following:

$$\text{SYN2: } S[+Q] \rightarrow PP[+Q] S/PP$$

And SYN1 and SYN2 may be subsumed by a more general phrase structure rule admitting wh-interrogatives, like the following:

$$\text{SYN3: } S[+Q] \rightarrow XP[+Q] S/XP$$

We now have a concrete proposal for the syntax of wh-interrogatives on the table, one which is fully general with respect to a range of wh-interrogatives. The syntactic rule SYN3 captures the idea that there is a fundamental syntactic similarity to a wide range of wh-interrogatives. It should be relatively uncontroversial that wh-interrogatives are filler-gap constructions and that this is what unifies them syntactically speaking, whatever other differences they may exhibit.

3.2 Compositional semantics

We now turn to the compositional semantics of wh-interrogatives. We will adopt an off-the-shelf possible-worlds semantics for wh-interrogatives. According to this semantics, the semantic value of an interrogative is just its propositional answerhood conditions, where propositional answerhood conditions are functions from possible worlds to sets of propositions.¹⁴ And the theory will take the restricted lambda abstrac-

¹⁴ Here I am drawing on Hamblin (1958, 1973), Karttunen (1977), Belnap (1982) and Groenendijk and Stokhof (1984). The theory I offer is closest to the theory of Hamblin (1973).

tion familiar from formal languages as its model for the compositional semantics of *wh*-interrogatives. The semantic value of an interrogative like ‘which fruit Adam ate’, on this view, is taken to be something like the following:

$$\lambda w[\lambda p[\exists x[p = \lambda x:\text{fruit}(w)(x)[\lambda w[\text{ate}(w)(x)(\text{adam})]]]]]$$

This is a function from possible worlds to sets of propositions. It captures the intuitive idea that the set of possible answers to the question, in some world, of ‘which fruit Adam ate’ is just the set of propositions, whether true or false, of the form ‘Adam ate *x*’, where ‘*x*’ is a fruit in that world.

We assume that the gap clause ‘Adam ate’ has the following propositional function as its semantic value:

$$\lambda x[\lambda w[\text{ate}(w)(x)(\text{adam})]]$$

That is, we assume that the semantic value of the gap clause ‘Adam ate’ is a function which takes the apple to the proposition that Adam ate the apple, and takes the pear to the proposition that Adam ate the pear, and so on. The assumption that the semantic value of a gap clause is a function from things to propositions is a central assumption of many approaches to the semantics of *wh*-interrogatives, and it is at the core of propositional function views of the semantics of *wh*-interrogatives.¹⁵

We assume that ‘which fruit’ has the following function from propositional functions to propositional functions as its semantic value:

$$\lambda f[\lambda x:\text{fruit}(w)(x)[f(x)]]$$

This function takes a propositional function like the one above, and returns another propositional function whose domain has been restricted those things which are fruits. If we were to apply this function to our propositional function, and simplify, we would get the following propositional function:

$$\lambda x:\text{fruit}(w)(x)[\lambda w[\text{ate}(w)(x)(\text{adam})]]$$

This is the semantic core of our *wh*-interrogative. It is worth dwelling on it for a moment. Ignoring the free world variable for a moment, it is a function from things which are fruits to propositions which say that Adam ate those things. If we abstract over the free world variable then we get the following:

$$\lambda w[\lambda x:\text{fruit}(w)(x)[\lambda w[\text{ate}(w)(x)(\text{adam})]]]$$

This is now a function which, given a world, returns a function from things which are fruits in those worlds to propositions which say that Adam ate those things. These propositions are what we intuitively think of as the possible answers to the question in those worlds.

As a final step, then, we will want a function which takes us from the two semantic values above and returns a function from worlds to sets of these propositions. The following semantic rule gives us what we want.

¹⁵ Propositional function views have a venerable history. See Cohen (1929), p. 353 and Hull (1975), p. 35.

SEM1: If α is an NP[+Q] and β is an S/NP, and if γ is a S[+Q] with α and β as its immediate constituents, then $\llbracket \gamma \rrbracket^{c,g} = \lambda w[\lambda p[\exists x[p = (\llbracket \alpha \rrbracket^{c,g}(\llbracket \beta \rrbracket^{c,g}))(x)]]]$

This rule takes our propositional function and our function from propositional functions to propositional functions and returns a function from possible worlds to sets of propositions.

According to the baseline theory, then, gap-clauses have unrestricted propositional functions as their semantic values. Wh-phrases serve to introduce a restriction on those propositional functions. The semantic value of the gap clause is given to the semantic value of the wh-phrase as an argument to form a propositional function which forms the semantic core of the semantic value of the wh-interrogative.

An important consequence of the way we have set up the semantics of wh-interrogatives is that it is a contingent matter whether some set of propositions are the possible answers to an interrogative or not. The idea that possible answers are contingent in this way is demonstrated by interrogatives like ‘Which men in the room are wearing hats?’. This interrogative has different answers in different worlds depending on which men are in the room in those worlds.¹⁶ Our semantics says that the possible answers to this interrogative in a world are the set of propositions of the form ‘ x is wearing a hat’, where ‘ x ’ is in the room in that world. Since it is a contingent matter who is in the room, the set of possible answers may differ from world to world. (I make use of this fact in an argument for my analysis of contrast-sensitivity in the final section of the paper).

According to the baseline theory, to give the semantics of a wh-phrase, then, is just to give an account of the restriction it introduces. In the case of complex wh-phrases like ‘which fruit’, the restriction is introduced by the nominal element ‘fruit’. A similar account can be given of simple wh-phrases like ‘who’ and ‘what’. We might have the following semantic value for ‘who’:

$$\lambda f[\lambda x:\text{person}(w)(x)[f(x)]].$$

And we might have the following for ‘what’:

$$\lambda f[\lambda x:\text{thing}(w)(x)[f(x)]].$$

Arguably, syntactically simple wh-phrases are built up in a similar way as syntactically complex wh-phrases at the level of morphology.

The baseline theory, as we have developed it so far, handles a wide range of simple wh-interrogatives. As it stands, however, it does not account for simple wh-interrogatives involving ‘when’, ‘where’, and ‘how’. These wh-interrogatives raise a problem since the gap is not in an argument position. Consider:

(18) [where]_i Adam ate the apple _i

The gap here is in a modifier position, so the baseline theory, as we have developed it so far, cannot accommodate these. Nonetheless it is clear that what we want here is something like the following:

(19) Adam ate the apple in location l

¹⁶ This observation is made by Belnap (1982), pp. 172–174.

More formally, then, assuming a simple underlying event analysis of verb-phrase modification (Parsons 1990) the suggestion for the semantics of the gap clause is the following:

$$\lambda l[\lambda w[\exists e[\text{eating}(w)(\text{the-apple})(\text{adam})(e) \wedge \text{in}(l)(e)]]]$$

So the semantic value of the gap clause ‘Adam ate the apple’ in ‘where Adam ate the apple’ is a function from locations to propositions. It is a function which takes the location which is the semantic value of ‘under the tree’ to the proposition that Adam ate the apple under the tree.

We then assume that the wh-phrase ‘where’ has the following semantic value:

$$\lambda f[\lambda l:\text{location}(w)(l)[f(l)]]$$

The following rule will then put these semantic values together to give us the semantic value of ‘where Adam ate the apple’:

SEM2: If α is an PP[+Q] and β is an S/PP, and if γ is a S[+Q] with α and β as its immediate constituents, then $\llbracket \gamma \rrbracket^{c.g} = \lambda w[\lambda p[\exists x[p = (\llbracket \alpha \rrbracket^{c.g}(\llbracket \beta \rrbracket^{c.g}))(x)]]]$

Like the syntactic rules SYN1 and SYN2, the semantic rules SEM1 and SEM2 may be subsumed by a more general rule for the semantics of wh-interrogatives, like the following:

SEM3: If α is an XP[+Q] and β is an S/XP, and if γ is a S[+Q] with α and β as its immediate constituents, then $\llbracket \gamma \rrbracket^{c.g} = \lambda w[\lambda p[\exists x[p = (\llbracket \alpha \rrbracket^{c.g}(\llbracket \beta \rrbracket^{c.g}))(x)]]]$

As SEM3 shows, a wide range of wh-interrogatives can be treated in a unified semantic manner.

3.3 Contextual semantics

The final component of the baseline theory of wh-interrogatives concerns the restriction on the domain of interrogation associated with wh-phrases.

So far we have treated the restriction as something which is fixed by the semantic values of the relevant wh-phrases. So the domain of interrogation associated with ‘who’ will be the set of people and the domain of interrogation associated with ‘which fruit’ will be the set of fruit. But wh-interrogatives can be used to express different questions in different contexts where these questions are associated with different domains of interrogation. To see this, consider the question expressed by the following interrogative uttered in a context where we know that Eve has just offered Adam an apple, an orange and a pear:

(20) Which fruit did Adam eat?

The possible answers to this question do not concern all the fruits in the world. Indeed, we can list the possible answers: Adam ate the apple, Adam ate the orange, and Adam ate the pear. The domain of interrogation associated with ‘Which fruit did Adam eat?’ is severely restricted in this context.

We will adopt an off-the-shelf account of domain restrictions, and assume that *wh*-phrases are associated with free domain variables which serve to further restrict the domain of interrogation when the phrase is used in a particular context.¹⁷ In doing so, we are simply choosing one concrete proposal for the semantic treatment of domain restrictions among others. The baseline theory is officially neutral among these proposals. We give the following semantic value for ‘which fruit’, where the value of *C* is provided by the context of use:

$$\lambda f[\lambda x:\text{fruit}(w)(x) \wedge C(w)(x) [f(x)]]$$

Then we get the following semantic value for ‘which fruit Adam ate’ with domain restrictions:

$$\lambda w[\lambda p[\exists x[p = \lambda x:\text{fruit}(w)(x) \wedge C(w)(x)[\lambda w[\text{ate}(w)(x)(\text{adam})]]]]]]$$

This straightforwardly explains why ‘which fruit Adam ate’ can be used to ask different questions in different contexts: the free variable *C* receives different values relative to different contexts of use.

Unfortunately, this brief discussion of the contextual semantics of *wh*-interrogatives raises more questions than it answers. For how are we to think about the contextual variable? Does it correspond to a syntactic constituent or is it an unarticulated constituent? Moreover, how does it come to have the value it does in the contexts in which it does? We can distinguish the question of what value it has in a particular context from that in virtue of which it has that value in that context. The latter is an exceedingly difficult matter. For all the shortcomings of this model, however, it provides us with enough to go on. One thing we can say, however, is that it is very plausible that the correct treatment of domains of interrogation is going to be related to the correct treatment of domains of quantification. Consider, the following paradigm:

- (21) a. Which fruit did Adam eat?
 b. Adam ate every fruit.
 c. Adam ate some fruit.
 d. Adam ate no fruit.

In order to maintain discourse coherence between the question and any of the possible answers, the domain of interrogation associated with the interrogative and the domain of quantification associated with the quantificational expressions must be the same. We can plausibly assume that the linguistic mechanisms at work at the interface between the syntax and the semantics here are the same. So we can assume that whatever the correct treatment of domains of quantification and domains of interrogation turns out to be, we can incorporate that into the baseline theory. The question then is whether any theory along these lines can be used to explain the contrast sensitivity and domain sensitivity of *why*-interrogatives.

¹⁷ This approach is taken in Stanley and Szabó (2007), Stanley (2007, 2011), Groenendijk and Stokhof (2011) and George (2011).

4 The baseline theory of why-interrogatives

In this section, I explicate the baseline theory of why-interrogatives. The baseline theory of why-interrogatives treats why-interrogatives just like the wh-interrogatives we have discussed so far. The baseline theory of why-interrogatives has three components: (i) a syntactic component (ii) a compositional semantic component (iii) a contextual semantic component. According to the baseline theory of why-interrogatives, why-interrogatives are just like other wh-interrogatives with respect to each of these components. We will discuss each component in turn.

4.1 Syntax

According to the baseline theory, why-interrogatives are filler-gap constructions. As in the case of other adjunct wh-interrogatives, however, the evidence for this claim is indirect. The case for the claim that why-interrogatives are filler-gap constructions exactly parallels the case for the claim that other adjunct wh-interrogatives are filler-gap constructions.

Before presenting the case for the claim that why-interrogatives are filler-gap constructions, I should note that the hypothesis that they *are* filler-gap constructions, if the other adjunct wh-interrogatives, has a strong default status: absent any good reason for thinking that why-interrogatives are *not* filler-gap constructions, we should conclude that they *are* filler-gap constructions. The theoretical virtue of treating all wh-interrogatives, including adjunct wh-interrogatives, alike in this respect is, indeed, a significant virtue. It is relatively uncontroversial that the other adjunct wh-interrogatives are filler-gap constructions. So, given that why-interrogatives are a kind of adjunct wh-interrogative, it is, antecedently, very plausible that they are filler-gap constructions too.

That said, there famously *is* purported evidence to the contrary, that is, purported evidence for the claim that why-interrogatives are *not* filler-gap constructions. In his seminal discussion of the issue Bromberger speaks of a ‘well-known argument’ for the conclusion that ‘why’ does not bind mid-sentence traces—that is, that why-interrogatives are not filler-gap constructions (Bromberger 1992, p. 158).¹⁸ And Bromberger contributes an argument of his own. Bromberger’s discussion has had a profound influence on the philosophical and linguistic literature on why-interrogatives. Bromberger’s arguments are cited by almost everybody who accepts exceptionalism about why-interrogatives.¹⁹ After presenting the case for thinking that why-interrogatives are filler-gap constructions, I will consider Bromberger’s arguments to the contrary.

One main reason for thinking that why-interrogatives are filler-gap constructions, a reason which is exactly analogous to the reason given above for thinking that the

¹⁸ Unfortunately, Bromberger doesn’t provide any details about the source of this ‘well-known argument’.

¹⁹ In the philosophical literature, both van Fraassen (1980) and Hintikka and Halonen (1995) take their cue directly from Bromberger without mentioning his arguments. Tsai and Stepanov (2008) is a representative example in the linguistics literature where Bromberger’s arguments are wheeled out and slightly modified in support of exceptionalism.

other adjunct *wh*-interrogatives are filler-gap constructions, is related to the fact that *why*-interrogatives like the following are ambiguous:

(22) *why* Eve said Adam ate the apple.

This has two readings, one which concerns Adam's reason for eating the apple and one which concerns Eve's reason for saying that Adam ate the apple. These readings are straightforwardly predicted and explained on the hypothesis that *why*-interrogatives are filler-gap constructions, and that there are two possible positions for the gaps in these constructions. Consider the following possibilities:

- (23) a. [*why*]_i [_{S/PP} Eve [_{VP/PP} said [_{S/PP} Adam ate the apple _i]]]
 b. [*why*]_i [_{S/PP} Eve [_{VP/PP} said [_S Adam ate the apple] _i]]

In the former case the gap is in the lower clause and is associated with the verb 'ate', giving us one reading, and in the latter case the gap is associated with the higher clause and is associated with the verb 'said', giving us the other reading. Everyone agrees that in order to get the first reading of 'why Eve said that Adam ate the apple', that is, the reading associated with Adam's reason for eating the apple, we must allow for the possibility of some *why*-interrogatives being filler-gap constructions. The question, then, is whether they are filler-gap constructions on the other reading. Absent any good reasons for denying this, we should conclude that they are.²⁰

Once we have noticed examples like (23a), we can see that *why*-interrogatives exhibit the kind of unboundedness characteristic of filler-gap constructions. Consider:

- (24) a. [*why*]_i [Eve said [Adam ate the apple _i]]
 b. [*why*]_i [John said [Eve said [Adam ate the apple _i]]]
 c. [*why*]_i [Mark said [John said [Eve said [Adam ate the apple _i]]]]

Another reason for thinking that *why*-interrogatives are filler-gap constructions comes from considering so-called in-situ interrogatives. Consider:

(25) You left the heater on again *why*?

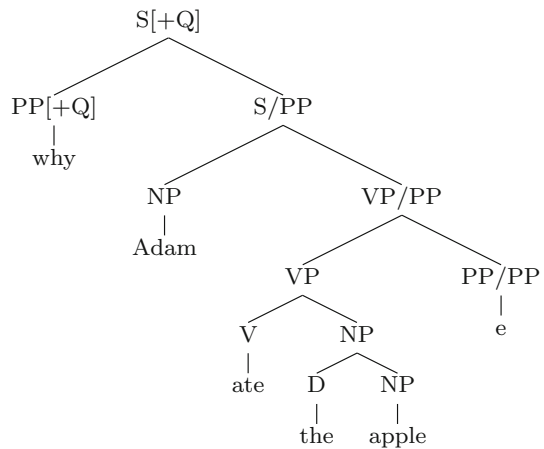
Here 'why' occurs in the position that a canonical answer to a *why*-interrogative would occur. This suggests when 'why' is at the front of the clause this position is occupied by a gap.

Finally, as in the case of other adjunct *wh*-interrogatives there is interesting morphosyntactic evidence that In arguing that *why*-interrogatives are filler-gap constructions, and arguing, therefore, that, fundamentally, they are like other *wh*-interrogatives, I am aware that *why*-interrogations may well be unlike other *wh*-interrogatives in other respects. I will briefly consider some of the respects in which *why*-interrogatives differ from other *wh*-interrogatives and argue that these differences do not show that *wh*-interrogatives are fundamentally unlike other *wh*-interrogatives. filler-gap constructions. However, discussing this evidence here would take us too far afield.²¹

²⁰ See Cattell (1978) for some critical discussion of this line of argument.

²¹ See Hukari and Levine (1995), pp. 206–207 for discussion of the data from McCloskey (1979), pp. 171–172.

Fig. 3 Phrase structure of ‘why Adam ate the apple’



So there are good reasons for thinking that ‘why’-interrogatives are filler-gap constructions. And, indeed, many philosophers and linguists assume that this is so. In the philosophical literature, Stanley and Williamson explicitly claim that why-interrogatives are filler-gap constructions (Stanley and Williamson 2001, p. 422). In the linguistics literature, Ginzburg and Sag explicitly claim that why-interrogatives are filler-gap constructions (Ginzburg and Sag 2000, pp. 184, 218).²² Indeed, the null hypothesis must surely be that why-interrogatives are syntactically like other wh-interrogatives, especially adjunct wh-interrogatives. We’d need a good argument to shift us away from this assumption.

According to the baseline theory, then, why-interrogatives have the following phrase structure (Fig. 3):

Such wh-interrogatives will be admitted by the same rule which admits other adjunct wh-interrogatives, namely SYN2. So, in an important respect, why-interrogatives are syntactically just like other wh-interrogatives, in particular other adjunct wh-interrogatives.

Given that there are good reasons for thinking that why-interrogatives are filler-gap constructions, why do so many philosophers and linguists assume otherwise? One reason is due to the influence of Bromberger’s arguments to the contrary. Another reason comes from the fact that the baseline theory of wh-interrogatives seems to be unable to explain contrast sensitivity, so it is thought that something more radical is needed. I will examine Bromberger’s arguments now. We will examine the claim that the baseline theory of why-interrogatives is unable to explain contrast sensitivity in Sect. 4.4 and the motivation it gives to alternatives in Sect. 5.

Bromberger’s first argument appeals to the contrast between pairs like the following (Bromberger 1992, pp. 158–159):

- (26) a. who left when
b. * who left why

²² See also Huddleston (1984), Haegeman (1994), pp. 517–518, Higginbotham (1997), Sect. 3, Asher and Lascarides (1998), p. 268, Stanley and Williamson (2001), Stanley (2011), Pietroski (2006), p. 834 and Sag (2010), p. 533.

Bromberger observes that in a language like English only one *wh*-phrase can ever occur at the front of the clause, and other *wh*-phrases must remain in the position they are assumed to be in a D-structure. (Bromberger is working with a grammatical theory which distinguishes between D-structure, S-structure, and LF. He assumes that gaps occur when a constituent is ‘moved’ from a position in one structure to another structure.) Given the ungrammaticality of (26b), Bromberger argues that the best explanation of this is that ‘why’ never occurs in this position in a D-structure, and so does not move to the front of the clause between D-structure and S-structure in simple *wh*-interrogatives.

Bromberger’s argument raises a number of issues, but for now it suffices to point out that he does not explore alternative explanations of the ungrammaticality of (26b). And, moreover, as we noted above, there seem to be examples where ‘why’ is in the position it is predicted to be in at D-structure, contrary to Bromberger’s assertion. Consider (repeated from above):

(25) You left the heater on again why?

Here ‘why’ occurs in a position which Bromberger asserts that it cannot occur. So, a crucial premise in Bromberger’s argument is false.

Bromberger’s second argument involves the assumption that focused constituents move to the front of the clause at LF. So we have the following LF for ‘when ADAM ate the apple’:

(27) [[Adam]₁[[when]₂[e₁ ate the apple e₂]]]

According to Bromberger, this is grammatical because ‘when’ fronts the clause which contains the corresponding gap.

Now, according to Bromberger we would have to have the following LF for ‘why ADAM ate the apple’ in order to explain the interaction between ‘why’ and focus (he assumes that the focused constituent must be within the scope of ‘why’ at LF):

(28) [[why]₂[[Adam]₁[e₁ ate the apple e₂]]]

But according to Bromberger, this is ungrammatical, since ‘why’ does not front the clause which contains the corresponding gap. This argument of Bromberger’s is easier to evaluate. For one, the LF movement theory of focus is highly controversial, but in any case, his argument overgeneralises. ‘For which reason’-interrogatives show a kind of association with focus. So, according to Bromberger, ‘For which reason Adam ate the apple’ would have to have the following LF:

(29) [[for which reason]₂[[Adam]₁[e₁ ate the apple e₂]]]

And, according to Bromberger’s line of reasoning, this could not be a grammatical construction, since ‘for which reason’ does not front the clause containing the corresponding gap. But, we know that ‘for which reason’-interrogatives are filler-gap constructions. So, Bromberger’s argument must go wrong somewhere. (And the obvious place it goes wrong is in assuming the LF movement theory of focus). Of course, Bromberger could deny that ‘for which reason’-interrogatives are filler-gap constructions too. But this observation should be enough to soften the force of his argument.

I have given Bromberger’s arguments for the alternative syntax and argued that the arguments are not conclusive. Nonetheless, we can think of the alternative syntax which Bromberger’s arguments motivate as part of a package which includes the alternative semantics. And we should evaluate the alternative theory and the baseline theory as overall packages. We will do this in Sect. 5.

Finally, before leaving the syntax of why-interrogatives, I want to briefly discuss some evidence concerning the uniqueness of certain interrogatives involving the wh-word ‘why’ which might be taken to undermine the baseline syntax.²³ Jonathan Ginzburg has recently discussed some peculiarities of stand-alone uses of the wh-word ‘why’ (Ginzburg 2012, pp. 308–316). Ginzburg is primarily concerned with what he calls metacommunicative uses of ‘Why?’ (Ginzburg 2012, pp. 5, 308–316). Such a use is demonstrated by the following:

- (30) A: Are you going to eat that?
B: Why?

As Ginzburg notes, ‘Why?’ is effectively used here to mean ‘Why do you ask if I am going to eat it?’ (Ginzburg 2012, p. 309). Ginzburg points out that this use is unlike the use of other wh-words in that it out-scopes the nucleus to query at the illocutionary level (Ginzburg 2012, p. 309). Consider, by way of contrast, how stand-alone ‘Who?’ is used to query a constituent of the nucleus:

- (31) A: Adam ate the apple.
B: Who?

This use is indeed something peculiar to stand alone ‘Why?’. Indeed, as Ginzburg notes, not even the closely related ‘for what/which reason?’ can be used this way.

- (32) A: Are you going to eat that?
B: * For what reason?

Ginzburg suggests that this contrast may even hold cross-linguistically, with only the analogues of ‘why’, and not the analogues of ‘for what reason’, in other languages having a meta-communicative use. As Ginzburg points out, the analogues of ‘why’ and ‘for what/which reason’ in Hebrew and German exhibit the same contrast, for instance (Ginzburg 2012, p. 313).

Here is why this observation might be thought to pose a challenge to the view that why-interrogatives are syntactically and semantically just like other wh-interrogatives. Suppose, for the sake of argument, that ‘for what reason’ is syntactically and semantically just like other wh-interrogatives (as we will see below, I think that it is syntactically and semantically just like other wh-interrogatives). Then *one* explanation of the fact that ‘Why?’ has a metacommunicative use and ‘For what reason?’ does not, is that there is something syntactically or semantically special about ‘Why?’ as opposed to ‘For what reason?’, which makes it suited to taking on this metacommunicative use. If this were the *best* explanation, then it would pose a challenge to the thesis that why-interrogatives are syntactically and semantically just like other wh-interrogatives.

²³ I’d like to thank a reviewer for *Synthese* for bringing the following evidence to my attention.

But there are good reasons for thinking that this is not the best explanation. An alternative explanation, which, does not require the why interrogatives be syntactically or semantically special, is that it is the canonical reason-requesting expression in a language which takes on this additional grammaticized metacommunicative use. After all, ‘why’ is by far the most favoured reason-requesting expression in English, so it is not surprising that it would take on this additional use. So the thought is that the canonical reason-requesting expression began being used in a metacommunicative manner, and eventually this use become grammaticized. That this use has become grammaticized is something Ginzburg himself suggests: “I argue that ‘Why?’ has a grammaticized class of uses dubbed ‘metacommunicative “Why?”’” (Ginzburg 2012, p. 5). This would seem to be a better explanation of the fact that ‘Why’, but not ‘For which reason?’ has a metacommunicative use. Ginzburg himself characterises the fact that ‘Why?’ but not ‘For what reason?’ has a metacommunicative use as a lexical idiosyncrasy (Ginzburg 2012, p. 313). Moreover, Ginzburg concludes that one cannot give a unified account of the metacommunicative use of stand-alone ‘Why?’ and direct ‘Why?’, that is, an account which takes direct ‘Why?’ as given and tries to explain the metacommunicative use in terms of general communicative principles. One reason he thinks this can’t be done is because of the lexical idiosyncrasy of the metacommunicative use. He seems to think that if such an account could be given, then ‘For which reason?’ should also have a metacommunicative use. So, Ginzburg ultimately posits a distinct construction in his grammar for the metacommunicative use (Ginzburg 2012, p. 313).

In sum, then, the fact that ‘Why?’ has a meta-cognitive use and ‘For what reason?’ does not does nothing to show that why-interrogatives are not syntactically and semantically just like other wh-interrogatives. There is nothing syntactically and semantically special about why which makes it particularly well suited to taking on this additional meta-communicative use.

But this is not the only problematic data raised by Ginzburg in his discussion. In passing Ginzburg points to some data which would raise a more direct threat to the thesis that why-interrogatives are just like other wh-interrogatives.²⁴ Ginzburg notes that ‘why’, unlike other wh-words, can take fragments and ‘not’ (Ginzburg 2012, p. 309, fn. 24). Consider:

- (33) A: I am going to London.
 B: Why London?
 B: * When London?
 B: ? For what reason London?
- (34) A: Adam didn’t eat the apple.
 B: Why not?
 B: *Where not?
 B: ? For what reason not?

These examples are examples of why-interrogatives formed from the word ‘why’ and a fragment. If the corresponding examples using the phrase ‘for what reason’ are not grammatical, then this shows that ‘for what reason’ is not substitutable *salva*

²⁴ Again, I am thankful to a reviewer from *Synthese* for this point.

congruitate for ‘why’. And this would be direct evidence that ‘why’ is not syntactically like ‘for what reason’.

Fortunately, I do not think that either example survives scrutiny. I am most confident in the case of ‘For what reason London?’. It is telling that Ginzburg himself does not draw attention to this contrast when drawing attention to the data. He merely contrasts ‘Why London?’ with ‘When London?’. To my ears, ‘For what reason London?’ is perfectly grammatical, if a little unusual. Admittedly, it is harder to hear ‘For what reason not?’ as grammatical. But if we bear in mind that, like ‘Why not?’ which means ‘Why did Adam not eat the apple?’ in the example above, ‘For what reason not?’ means ‘For what reason did Adam not eat the apple?’ then we can hear ‘For what reason not?’ as expressing exactly this.

In neither case do I think that my response is decisive. Insofar as the best explanation of the fact that only ‘Why?’ has a metacommunicative use involves appealing to some special feature of the syntax or semantics of ‘why’, and insofar as there are cases where ‘for what reason’ cannot be substituted *salva congruitate* for ‘why’, we will have reasons against the hypothesis that why-interrogatives are just like other wh-interrogatives. But these reasons will need to be weighed against the reasons *for* thinking that they are just like other wh-interrogatives. And I think that the reasons clearly favour the hypothesis that why-interrogatives are just like other wh-interrogatives.

4.2 Semantics

When we turn to the semantics of why-interrogatives, we face a similar problem to the problem we are faced with of adjunct wh-interrogatives, since the gap is in a modifier position. Nonetheless it is clear that what we want here is the following:

(35) Adam ate the apple for reason r

More formally, assuming a simple underlying event analysis of verb-phrase modification, the suggestion is the following:

$$\lambda r[\lambda w[\exists e[\text{eating}(w)(\text{the-apple})(\text{adam})(e) \wedge \text{for}(r)(e)]]]$$

So the semantic value of the gap clause ‘Adam ate the apple’ in ‘why Adam ate the apple’ is a function from reasons to propositions. It is a function which takes the reason which is the semantic value of ‘because he was hungry’ to the proposition that Adam ate the apple because he was hungry. It is a function which takes the reason which is the semantic value of ‘in order to impress Eve’ to the proposition that Adam ate the apple in order to impress Eve.²⁵

According to the baseline theory the wh-phrase ‘why’ has the following semantic value:

$$\lambda f[\lambda r:\text{reason}(w)(r)[f(r)]]$$

²⁵ The main advantage this theory has over the similar proposal in Higginbotham (1993) is that it does not assume that why-interrogatives are ambiguous with respect to ‘because’ and ‘in order to’.

Importantly, the baseline theory treats ‘why’ exactly on the model of ‘for what/which reason’, thereby capturing the widespread view that ‘why’ basically means ‘for which reason’. The assumption that ‘why’ means roughly ‘for which reason’ is widespread in the literature.²⁶ Moreover, there are good etymological grounds for thinking that ‘why’ means ‘for which reason’, or at least that it incorporates ‘for’. The word ‘why’ derives from the Old English word ‘hwy’ (Hogg 2002, p. 71).²⁷ And the word ‘hwy’ was used interchangeably with ‘forhwy’ and ‘for hwy’ in Old English, and is therefore morphologically related to the preposition ‘for’.²⁸

According to the baseline theory, then, ‘why Adam ate the apple’ has the following semantic value:

$$\lambda w[\lambda p[\exists r[p = \lambda r:\text{reason}(w)(r)\dots \\ \dots[[\lambda w[\exists e[\text{eat}(w)(\text{the-apple})(\text{adam})(e) \wedge \text{for}(w)(r)(e)]]]]]]]]]$$

This will be provided by the semantic rule for other adjunct wh-interrogatives, namely SEM2, or the more general SEM3. So, in an important respect, why-interrogatives are semantically just like other wh-interrogatives, in particular adjunct wh-interrogatives.

In all its formal glory, this captures the intuitive idea that the possible answers to the interrogative ‘Why did Adam eat the apple?’ in a world are the set of propositions of the form ‘Adam ate the apple for *r*’ where ‘*r*’ is a reason in that world.²⁹

4.3 Context-sensitivity

Like all other wh-interrogatives, why-interrogatives are associated with contextually restricted domains of interrogation. Adopting the earlier account, we have the following semantic value for ‘why’:

$$\lambda f[\lambda r:\text{reason}(w)(r) \wedge F(w)(r)[f(r)]]$$

We are now in a position to explain the domain sensitivity of why-interrogatives. It is because why-interrogatives are filler-gap constructions and have an operator-variable semantics that they are associated with contextually restricted domains of interrogation. And it is because they are associated with contextually restricted domains of interrogation that they are domain-sensitive. In a context where the salient property of reasons is the property of being a proximal reason, the interrogative can be used to express one question, and in a context where the salient property of reasons is the property of being a historical reason, the interrogative can be used to express a different question. So the baseline theory predicts and explains the fact that why-interrogatives are domain sensitive. And it can explain this fact without appealing to resources not already needed to account for the context-sensitivity of wh-interrogatives

²⁶ See, for instance, Skow (2016), p. 26, Huddleston and Pullum (2002), p. 725, Huddleston and Pullum (2005), p. 166, Stanley (2011), p. 45, Achinstein (1983), p. 30, and George (2011), p. 29.

²⁷ It is related to the Old English ‘hw’-words ‘hwa’ (who) and ‘hwæt’ (what). ‘Hwy’ is in the instrumental case (Hogg 2002, p. 71).

²⁸ See Traugott (1992), p. 253.

²⁹ For statements of this intuitive idea see Huddleston (1984), p. 366 and Stanley and Williamson (2001), p. 422.

in general. This is the final respect in which why-interrogatives are just like other wh-interrogatives.

4.4 Context-sensitivity beyond domain sensitivity

Although the baseline theory can explain the fact that why-interrogatives are domain-sensitive, it does not seem to be able to explain the fact that they are contrast-sensitive. Nothing in the baseline theory predicts that why-interrogatives will be sensitive to differences in contrasts between contexts. It seems that van Fraassen was right after all when he wrote that why-interrogatives introduce new elements into the theory of why-interrogatives.

The thought that the baseline theory cannot explain contrast-sensitivity can be brought out by a simple example where the same why-interrogative can be used to express different questions in contexts with different salient contrasts, while holding the domain of interrogation fixed. Consider:

- (36) a. why, in historical terms, Adam ate the APPLE
 b. why, in historical terms, Adam ATE the apple

Suppose that the parenthetical ‘in historical terms’ serves to fix the domain of interrogation associated with these interrogatives. It seems that, even once the domain of interrogation is fixed, the question expressed by these interrogatives differs from context to context depending on the salient contrasts to the explanandum in these contexts. And it seems that nothing in the baseline theory, as we have stated it, would allow us to explain contrast sensitivity. It looks as though we had better look to the alternatives if we want to explain contrast-sensitivity.

5 Alternatives to the baseline theory

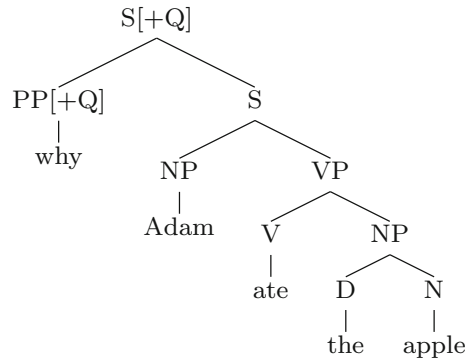
In this section, I will consider several alternatives to the baseline theory. Several of these alternatives have a feature in common: they make an explicit appeal to contrast classes in the semantics of why-interrogatives. I will argue that while these alternatives can explain contrast-sensitivity, they also do so at the cost of linguistic plausibility, and they all fail to explain domain-sensitivity.

5.1 Syntax

All of the alternatives to the baseline theory I will consider begin by adopting an alternative syntax to the baseline theory. According to these alternatives, why-interrogatives have the following simple syntactic structure (Fig. 4):

On this alternative, why-interrogatives are not filler-gap constructions. Rather, why-interrogatives simply consist of a wh-phrase and an ordinary clause.

Fig. 4 Alternative phrase structure of ‘why Adam ate the apple’



5.2 The simple theory

The most natural compositional semantics which accompanies the alternative syntax treats ‘why’ as a propositional operator rather than a variable binding operator. The semantic value of ‘why’ might simply be:

$$\lambda q[\lambda p[\text{explains}(w)(q)(p)]]$$

Here we have a function from propositions to a function from propositions to truth values. The latter function takes a proposition to the true (relative to a world) just in case the proposition which is the first argument given explains the proposition which is the second argument given (relative to a world). The semantic value of ‘Adam ate the apple’ will be the proposition:

$$\lambda w[\text{ate}(w)(\text{the-apple})(\text{adam})]$$

The resulting semantic value of ‘why Adam ate the apple’ will be:

$$\lambda w[\lambda q[\exists p[p = \lambda p[\text{explains}(w)(\lambda w[\text{ate}(w)(\text{the-apple})(\text{adam})])(p)]](p)]]]$$

The relevant semantic rule which derives this will be:

$$\text{SEM4: If } \alpha \text{ is 'why' and } \beta \text{ is an S, and if } \gamma \text{ is a S[+Q] with } \alpha \text{ and } \beta \text{ as its immediate constituents, then } \llbracket \gamma \rrbracket^{c,g} = \lambda w[\lambda p[\exists x[p = (\llbracket \alpha \rrbracket^{c,g}(\llbracket \beta \rrbracket^{c,g})(x)]]]]]$$

The simple theory is indeed simple. But it is also manifestly inadequate, since it neither predicts that why-interrogatives are domain sensitive nor that they are contrast-sensitive. It posits no semantic context-sensitivity at all.

5.3 The contrastive theory

In order to accommodate contrast-sensitivity on something like the simple theory, van Fraassen argues that the semantics of why-interrogatives makes an explicit appeal to contrast classes, where contrast classes are just sets of propositions. There are several ways the semantics could make an explicit appeal to contrast classes. We will discuss each of them now.

Perhaps the simplest approach is to have ‘why’ introduce a variable which takes contrast classes as its semantic value. If we let k be a variable ranging over contrast classes, we can represent van Fraassen’s proposal for the semantic value of ‘why’ as follows:

$$\lambda q[\lambda p[\text{explains}(w)(k)(q)(p)]]$$

Here we have a function from propositions to a function from propositions to truth values. The latter function takes a proposition to the true (relative to a world and a contrast class) just in case the proposition which is the first argument given explains the proposition which is the second argument given (relative to a world and a contrast class). The thought here is that why-phrases introduce free contrast-class variables which are assigned a value in a context of use. With this semantic value for ‘why’ we get the following semantic value of ‘why Adam ate the apple’:

$$\lambda p[\text{explains}(w)(k)(\lambda w[\text{ate}(w)(\text{the-apple})(\text{adam})])(p)]$$

This allows van Fraassen to explain contrast-sensitivity straightforwardly. On the assumption that the variable k takes different contrast classes as its value in different contexts, he can explain why ‘why Adam ate the apple’ can be used to express different questions in different contexts depending on differences in the salient contrast classes in those contexts.

A closely related approach treats ‘why’ as an indexical, whose semantic value differs as a function of a salient contrast class. This may be the linguistic implementation van Fraassen had in mind, especially given his discussion of indexicals like ‘I’ earlier in the chapter. If we let `contrast-class-in-c` be a constant which takes a different semantic value relative to different contexts, we can represent van Fraassen’s proposal for the semantic value of ‘why’, given some value for `contrast-class-in-c`, as follows:

$$\lambda q[\lambda p[\text{explains}(w)(\text{contrast-class-in-c})(q)(p)]]$$

This too would allow van Fraassen to explain contrast-sensitivity straightforwardly.

Notice that both of these ways of implementing van Fraassen’s suggestion introduce new components into the theory of wh-interrogatives, since no other wh-phrase is an indexical, and no other wh-phrase introduces a contrast-class variable. Both of these claims may raise linguistic eyebrows. So it is important to notice that there are two more ways of implementing van Fraassen’s suggestion.

One way is suggested by van Fraassen himself. One might argue that there is a hidden ‘rather than’-clause in why-interrogatives which takes a contrast class as its semantic value. Then one might hold that ‘why’ takes both a proposition and a contrast-class as its arguments. The semantic value for ‘why’ will then be:

$$\lambda q.k[\lambda p[\text{explains}(w)(k)(q)(p)]]$$

Then ‘why’ takes the value of the hidden ‘rather than’-clause as one of its arguments. We won’t pursue the question of where this argument comes from here. One might argue that the hidden ‘rather than’-clause is really there in the syntax of why-interrogatives, or one might argue that the semantic value of a why-interrogative is not

determined by the semantic values of its syntactic constitutions and their structure, but are rather partly determined by certain pragmatic facts like salient contrast classes. Both options seem costly, since—and this is the cost for the first option—there is little reason to think that there is a hidden syntactic constituent here, and—this is the cost of the section option—one shouldn't abandon the assumption of compositionally so easily.

Perhaps the most linguistically sophisticated way to implement the contrastive view is to appeal to the notion of focus-semantic values in addition to ordinary semantic values (Rooth 1985, 1992, 1996). If syntactic constituents have both focus-semantic values and ordinary semantic values, then some constituents might have semantic values which are determined, in part, by focus semantic values. Consider what the focus semantic value of 'ADAM ate the apple' would be. It would be a set of propositions which represent the alternatives to ADAM'S eating the apple. Consider what the focus semantic value of 'Adam ate THE APPLE' would be. It would be a set of propositions which represent the alternatives to Adam eating THE APPLE. Focus semantic values are the same kind of thing as contrast-classes: they are sets of propositions. Indeed, they are the same sets of propositions we have had in mind when discussing contrast-classes. Suppose now that the semantics of why-phrases appeals explicitly to focus-semantic values, then we would have a sophisticated explanation of contrast sensitivity.

The following semantic rule appeals to the focus semantic value of β , namely, $\llbracket \beta \rrbracket_{f^g}$, in stating the semantics of why-interrogatives.

SEM5: If α is 'why' and β is an S, and if γ is a S[+Q] with α and β as its immediate constituents, then $\llbracket \gamma \rrbracket^{c,g} = \lambda w[\lambda p[\exists x[p = (\llbracket \alpha \rrbracket^{c,g}(\llbracket \beta \rrbracket^{c,g}, \llbracket \beta \rrbracket_{f^g}))(x)]]]$

It is important that on this view the focus semantic value is partly determined by extralinguistic context, otherwise we wouldn't be able to account for the kind of minimal pairs observed earlier which do not differ with respect to the focused constituent.

Of all of the linguistic implementations we have discussed in this section, this is perhaps the most plausible, since it appeals to a linguistic mechanism which might be needed to explain other facts about the role of contrasts in determining semantic values. Nonetheless, it would still introduce a new element into the theory of wh-interrogatives, since no other wh-interrogatives are sensitive to focus semantic values.

Whichever linguistic implementation we adopt, we have a straightforward explanation of contrast-sensitivity in terms of the contrastive nature of explanation itself. This is one place where contrastivism about explanation gets into the picture, namely, as the best explanation of the fact that why-interrogatives are contrast sensitive. If there is a better explanation of the contrast-sensitivity of why-interrogatives, then this line of support is undermined.

5.4 Explaining domain sensitivity

While the contrastive theory has a straightforward explanation of contrast-sensitivity, it does not seem to have an explanation of domain sensitivity. In this sense it is like

the simple theory. Nonetheless, van Fraassen has attempted to account for domain sensitivity on the contrastive theory.

In order to account for domain sensitivity, van Fraassen proposes that why-interrogatives concern different relations of explanatory relevance in different contexts of use. That is, van Fraassen opts for something like the following semantic value of ‘why’:

$$\lambda q[\lambda p[\text{explains-in-c}(w)(k)(q)(p)]]$$

The relation expressed by *explains-in-c* depends on the context in which the interrogative is used. And this can be used to explain domain sensitivity on the assumption that different relations of explanatory relevance will be salient in different contexts, and these relations will put different constraints on which domains of reasons are relevant. There are several problems with this suggestion, however.

The first problem is related to a problem raised by Salmon and Kitcher. Salmon and Kitcher worry that “the lack of any contrasts on ‘relevance’ relations allows just about anything to count as the answer to just about any question” (Kitcher and Salmon 1987, p. 319). Of course, one way to avoid this objection, as Salmon and Kitcher note, is to “impose restrictions on relevance relations” (Kitcher and Salmon 1987, p. 319). And of course, one can do this by claiming that only certain kinds of relations count as relevance relations.³⁰

I think that Salmon and Kitcher’s worry points to a deeper problem with van Fraassen’s theory, however. The problem is that the standing linguistic meaning of a why-interrogative puts no substantive constraints on what counts as an answer to it. That is, there is no *linguistic* constraint which is constant between contexts. We can see this by examining the lexical entry for ‘why’ again:

$$\lambda q[\lambda p[\text{explains-in-c}(w)(k)(q)(p)]]$$

Notice the complete lack of non-context-dependent logical constants in this expression. The value of *explains-in-c* varies from context to context. Contrast this with the semantic value posited on the simple theory:

$$\lambda q[\lambda p[\text{explains}(w)(q)(p)]]$$

On the simple theory, *explains* remains constant from context to context, putting a substantive linguistic constraint on what can count as an answer to a particular why-interrogative. So, in order to account for domain sensitivity, van Fraassen takes the radical step of removing all substantive linguistic constraints on what counts as an answer to a why-interrogative, and this is problematic.

The second problem is that, in many cases, domain-sensitivity looks less like a difference in relations of explanatory relevance, and more like a restriction on the range of a single relation of explanatory relevance. Consider the examples we used to motivate domain sensitivity. We have more reason to think that we just want different kinds of reasons which stand in the same relation to what they are reasons for than we have to think that we want things which stand in different relations to what they are reasons for.

³⁰ Salmon and Kitcher discuss one possible way of doing this, drawing on van Fraassen’s remarks (Kitcher and Salmon 1987, pp. 319–322).

The third, and perhaps most serious, problem concerns the linguistic plausibility of accounting for domain sensitivity in this way. As I said, van Fraassen has no choice but to treat domain sensitivity in terms of the indexicality of ‘why’. But it is quite linguistically implausible to think that ‘why’ is indexical in this way. There is no linguistic precedent among other wh-words for such indexicality. And moreover, ‘why’ would be a very strange indexical indeed if it were an indexical. For consider how this thesis would combine with the various implementations above. We’d either end up with a view on which ‘why’ is both an indexical and introduces a contrast-variable, or on which it is doubly indexical, or on which it is an indexical which also takes a hidden argument, or on which it is an indexical which is sensitive to focus semantic values. These are all linguistically costly combinations.

All of these problems with van Fraassen’s theory point to a common solution: domain sensitivity should be accounted for via domain restrictions, as it is on the baseline theory. Suppose we accommodate domain sensitivity in this way. We would have the following logical form for ‘why Adam ate the apple’:

$$\lambda p:\text{reason-in-c}(p)[\text{explains}(w)(\text{adam-ate-the-apple})(k)(p)]$$

By adopting this approach, we can overcome almost all of the aforementioned problems for the contrastive theory. This logical form puts substantive linguistic constraints on possible answers to why-interrogatives, since the translation of *explains* remains constant. It accommodates domain sensitivity more naturally via *reason-in-c* which provides restrictions on possible explanantia.

But implementing domain restrictions in this way is linguistically implausible: it is simply ad hoc. There is no independent motivation for doing so as there is on the baseline theory, since we have abandoned the filler-gap syntax. That said, if this is the best we can do, then perhaps we have to get used to it. But in the next section, I will argue that we can do better.

6 Context sensitivity through domain sensitivity

We left off our discussion of the baseline theory of why-interrogatives with the observation that it does not seem to be able to explain contrast-sensitivity. The aim of this section is to re-examine this conclusion. I want to suggest that the baseline theory can, indeed, explain contrast-sensitivity. The basic suggestion is that it is by making particular contrasts salient in a context that we make salient a restriction on the domain of interrogation. And why-interrogatives, as we saw, are domain sensitive. We thereby explain contrast sensitivity through domain sensitivity.

The basic suggestion is ultimately due to David Lewis. According to Lewis, to explain an event is to provide some information about its causal history (Lewis 1987, p. 217). Suppose, for the moment, that he is right about this. He then observes that there is ever so much information about the causal history of an event, so “questioners have their ways of indicating how much information they want, or what sort” (Lewis 1987, p. 217). Lewis’s next observation is the crucial one for our purposes. He writes:

One way to indicate what sort of explanatory information is wanted is through the use of contrastive why-questions. Sometimes there is an explicit “rather than ...” Then what is wanted is information about the causal history of the explanandum event, not including information that would also have applied to the causal histories of alternative events, of the sorts indicated, if one of them had taken place instead. In other words, information is requested about the difference between the actualized causal history of the explanandum and the unactualized causal histories of its unactualized alternatives. (Lewis 1987, p. 229)

Here Lewis makes both the abstract suggestion that contrastive why-questions are used to indicate what sort of explanatory information is wanted, and a concrete suggestion about how exactly they are used to do this. Salient contrasts draw attention to events the causal histories of which we are interested in, and what we want to know, the information we want to be provided with, is information about certain differences between the causal history of the explanandum event and the unactualized causal histories of the unactualized alternatives. Lewis illustrates the concrete hypothesis with the following example:

Why did I visit Melbourne in 1979, rather than Oxford or Uppsala or Wellington? Because Monash University invited me. That is part of the causal history of my visiting Melbourne; and if I had gone to one of the other places instead, presumably that would not have been part of the causal history of my going there. It would have been wrong to answer: Because I like going to places with good friends, good philosophy, cool weather, nice scenery, and plenty of trains. That liking is also part of the causal history of my visiting Melbourne, but it would equally have been part of the causal history of my visiting any of the other places, had I done so. (Lewis 1987, pp. 229–230)

As Lewis observes, “[t]he same effect can be achieved by means of contrastive stress” (Lewis 1987, p. 230). Others have made much the same abstract suggestion as Lewis. Peter Lipton, for instance, writes: “When we ask contrastive why-questions, we choose our foils to point towards the sorts of causes that interest us” (Lipton 2004, p. 47). And Christopher Hitchcock writes:

[W]hen we ask for explanations, it is often helpful to direct our audience to that part of the causal history that we are most interested in learning about. Formulating our why-questions with the use of contrast is an effective means of doing this. (Hitchcock 1999, p. 597)

The take-home message from these abstract observations is that the purpose of making particular contrasts salient is to focus attention on certain features of the causal histories of the explanandum event and the alternatives. And what we want is information about certain differences between these causal histories. The connection with our discussion of domains of interrogation is this: the purpose of making particular contrasts salient is to bring to salience the domain from which we want the answer to be chosen. Paraphrasing Lewis, what is wanted is an event which meets the following condition: it is an event which is part of the causal history of the explanandum event but which is not

part of the causal history of the salient alternatives. To see that this adequately captures Lewis's intentions, we need only note that immediately after saying that questioners have their ways of indicating how much information they want, or what sort, and immediately before proving his account of contrastive why-questions, Lewis gives the example: "Why, in economic terms, is there no significant American socialist party?" (Lewis 1987, p. 229). This is a straightforward example of an explicit interrogative domain restriction: 'in economic terms'. For Lewis, contrastive questions serve the same purpose: 'Why, in terms of an event which would not have been part of the causal history of my going to Oxford, if I had have gone to Oxford in 1979, or part of the causal history of my going to Uppsala, if I had have gone to Uppsala in 1979, did I visit Melbourne in 1979?'

Lewis's concrete suggestion about the information we use contrastive why-questions to request has been criticised by both Lipton and Hitchcock. As Lipton observes, it will not do in answering the question of why Lewis visited Melbourne rather than Oxford to note that he was invited to Monash, although, of course, his being invited to Monash would not have been part of the causal history of his going to Oxford if he had gone to Oxford instead (Lipton 2004, p. 40). So, it seems, the details of Lewis's suggestion are wrong. Nonetheless, I don't think it would take much to repair the suggestion. Lewis could simply say that what is wanted is an event such that no relevantly similar event would have been part of the causal history of the salient alternatives if they had occurred instead. This puts a lot of weight on 'relevantly similar' and it may well be that which events count as relevantly similar is a highly contextual matter. There is, no doubt, more work to be done in spelling out exactly what it is that we want when we ask a contrastive why-question, that is, in spelling out the exact nature of the restriction on the domain of interrogation drawing attention to salient contrasts provides. The important point for us, however, is that it is very plausible that this is what we are doing in asking a contrastive why-question.

It is here that the baseline theory and this pragmatic hypothesis intersect. For, as we saw, it is an independent prediction of the baseline theory that why-interrogatives, as a kind of wh-interrogative, will be associated with a contextually variable domain of interrogation. And, as we have just seen, it is very plausible that in asking contrastive why-questions, we draw attention to a particular domain of interrogation by drawing attention to contrasts to the explanandum event. This suggests a very promising line for explaining contrast sensitivity via domain sensitivity. In order to explain contrast sensitivity, we need nothing more than the resources which we otherwise need to explain the domain sensitivity of wh-interrogatives in general.

Unlike some of the hypotheses for accommodating contrast sensitivity discussed in Sect. 5, there is a clear linguistic precedent where contrasts are used to restrict domains of quantification. That precedent is provided by adverbs of quantification. Consider a declarative sentence like 'Eve always gives the apple to Adam'. This sentence involves an adverb of quantification 'always', and such adverbs are associated with contextually restricted domains of quantification. Now consider the following said in a context where the salient contrast to Eve giving an apple to Adam is Eve's giving a pear to Adam.

- (37) Eve always gives THE APPLE to Adam.

This sentence in this context can be true even if Eve sometimes gives an orange to Adam. This is because the salient contrast serves to restrict the domain of quantification to cases where Eve either gives the apple or the pear to Adam. The sentence is then used to assert that in every such case, Eve gives the apple to Adam.³¹ So this is an example where contrasts are used to restrict a domain.

Much more needs to be said about the precise mechanisms by which we use contrasts to draw attention to domains of interrogation, and about how the semantics of *wh*-interrogatives interacts with domains of interrogation. Such an account would plausibly provide a general account of the role of context in providing domains of interrogation and domains of quantification (Stanley 2007, 2011). Earlier I claimed, for the sake of having a concrete proposal on the table, that the interface between context and semantics was facilitated, in the case of *wh*-interrogatives, by a variable whose value is a salient property of things of the right type. I made this suggestion merely to have a concrete proposal on the table. There are other ways of implementing domain restrictions. Indeed, there are far more sophisticated models of the relationship between semantics and discourse which we could draw on here and of the role played by the participants goals and aims in determining domains of interrogation.³²

The thesis that contrast sensitivity can be explained via domain sensitivity can be given further support by considering an observation which ultimately traces to Peter Lipton, and which I take to favour the baseline theory of *why*-interrogatives over the alternatives (Lipton 2004, pp. 38–47). The observation concerns the way the possible answers to a *why*-interrogative are constrained by facts about how things actually are. We have already seen that the possible answers to a *wh*-interrogative are so constrained. Consider, for example, ‘Which men in the room next door are bakers?’ If John is in the room next door, then ‘John is a baker’ is a possible answer to this question. If John is not, then ‘John is a baker’ is not a possible answer to this question. Now, Lipton’s observation is that whether ‘Because Monash invited him’ is a possible answer to the question ‘Why did Lewis visit Melbourne (rather than Oxford)?’ depends on whether Oxford also invited him. We can agree that it is a possible answer when Lewis received an invitation only from Monash. Indeed, it may well be a true answer to the question. But now suppose that Lewis received an invitation from both Oxford and an invitation from Monash. It now seems that ‘Because Monash invited him’ is not even a *possible* answer to the question at issue. Why should this be so? Well the baseline theory, coupled with the concrete observation we made above about how contrasts serve to restrict domains of interrogation, has a straightforward explanation. What is wanted, given the contrasts, is an event which is part of the causal history of Lewis’s going to Melbourne but which is such that no relevantly similar event is part of the causal history of his going to Oxford. The restriction on the domain is to an event such that no relevantly similar event is part of the unactualized causal history of his going to Oxford. Since Lewis’s being invited to Monash is not such an event (since a relevantly similar event, namely, his being invited to Oxford is part of the unactualized causal

³¹ See Beaver and Clark (2008) for further discussion of focus and domains of quantification.

³² For a particularly sophisticated model applied particularly to the case of *how*-interrogatives see Asher and Lascarides (1998). See also van Rooy (2003), Ginzburg (2012) and Roberts (2012).

history of his going to Oxford), ‘because he was invited to Monash’ is not even a possible answer to the question at issue.

The alternative theories we examined in Sect. 5 do not predict or explain the fact that whether ‘Because Monash invited him’ is a possible answer to the question ‘Why did Lewis visit Melbourne (rather than Oxford)?’ depends on whether Oxford also invited him. If we are simply looking for something that stands in some three-place relation to two other things, as contrastive theories predict, then why should the answer not be a possible answer? The contrastive theory predicts that it should be. But it isn’t. This is surely a mark against the contrastive theory.

I want to end by considering a challenge which might be raised to the claim that we can explain the contrast sensitivity of why-interrogative via domain sensitivity in this way. Answering this challenge will allow us to further clarify the theory on offer. The challenge is to say why, on the theory on offer, only why-interrogatives are contrast-sensitive. If the theory is that their contrast-sensitivity is to be explained via domain-sensitivity, then why aren’t all other wh-interrogatives contrast-sensitive, given that they are domain-sensitive too? What is wanted here is an explanation of what it is about why-interrogatives in particular which explains why *only* why-interrogatives are contrast-sensitive. Without such an explanation, the theory is undermotivated.

Fortunately, I think such an independently motivated explanation can be given. My explanation of why only why-interrogatives are contrast-sensitive, even though all wh-interrogatives are domain sensitive, appeals, on the one hand, to the kind of information why-questions are requests for, and, on the other hand, to our interest in such information. I already noted that why-interrogatives are requests for information about the causal history of an event (at least in central cases). This is the view of causal information offered by Lewis and basically accepted by van Fraassen. But, as Lewis notes, there is ever so much information about the causal history of an event, and partial answers to why-questions are the order of the day. The interest we have in such information, when partial answers are all we can hope for, is in answers which make for a *difference* between actualized possibilities and unactualized possibilities. There may be ever so many events in the causal history of an event, but only some of those made a difference relative to some unactualized possibility. Our interest in such differences may then, in turn, be explained in terms of our interest in manipulation (Woodward 2003, Chap. 2). That is, we may want to know what made a difference in order to know to make a difference. As I have suggested, the way we restrict attention to the events in the causal history which are of interest to us (via domain restrictions) is by drawing attention to the unactualized possibilities.

Now to explain why why-interrogatives are uniquely contrast-sensitive, it would suffice to point out that it is *only* in the case of why-questions that we are interested in differences between actualized possibilities and unactualized possibilities. When we ask, for example, who passed the exam, we cannot draw attention to some restricted class of persons by drawing attention to unactualized possibilities. We just aren’t interested here in a *difference* between actualized possibilities and unactualized possibilities. This should be unsurprising for the case of who-interrogatives, but it also true for when, where, and how-interrogatives. In the case of how-interrogatives, we have various actual processes leading to an event. We can use stress to draw attention to which actual process we are interested in. But drawing attention to unactualized

possibilities does nothing to draw our attention to a particular part of that process. In the case of how-interrogatives we are interested in the actual process leading to an event. We are not interested in what made a difference. It is only in the case of why-interrogatives that we are interested in what made a difference (relative to some unactualized possibility). And this is intrinsically contrastive.

Strikingly, elements of this answer are present in the following prescient observations made by Barbera Partee in this connection. Partee writes:

Why do WHY-questions and not other WH-questions work the same way? Is it because WHY doesn't bind a trace of its own (c.f. Bromberger 1987 [1992]) and the others do? Is it because the question isn't even interpretable without a specification of relevant alternatives? Is it because of the implicit counterfactuality involved in asking and answering WHY questions? I don't know the answer, although I am inclined to favor a possible combination of the second and third alternatives: a WHY-question, unlike other WH-questions, isn't even a well-defined question without a specification of "why this instead of what?", and that may in turn be related to the fact that in order to answer such a question one must counterfactually entertain some family of alternative possible states of affairs and explain why the actual state of affairs is the case rather than any relevant alternative possible state of affairs. (Partee 1991, p. 174)

I have offered a similar answer to Partee's opening question. Only in the case of why-interrogatives do we "entertain some family of alternative possible state of affairs" in order to narrow down the events we are interested in. And this is what explains why why-interrogatives are uniquely contrast-sensitive.

So what makes why-interrogatives unique is not that they are syntactically or semantically unlike other wh-interrogatives. Rather, what makes them unique is the information they are requests for and our interest in that information.

7 Conclusion

In this essay I have argued against exceptionism about why-interrogatives and have argued that, fundamentally, why-interrogatives are syntactically and semantically just like other wh-interrogatives. I have argued that why-interrogatives work just like other wh-interrogatives and that they express the questions express in the contexts in which they express them by the same means that other wh-interrogatives do.

At the very least, I hope to have put an important hypothesis on the table for further consideration, namely, the hypothesis that why-interrogatives work just like other wh-interrogatives. I have shown that the usual reasons for thinking that why-interrogatives are fundamentally unlike other wh-interrogatives do not hold up. Moreover, I have argued that it may well be possible to explain the widely observed contrast-sensitivity of why-interrogatives within a theory which treats why-interrogatives just like other wh-interrogatives. Much work still needs to be done in fully developing such a theory. While the syntactic and semantic foundations have been laid (in Sect. 4), only the

beginnings of a theory of the pragmatics of why-interrogatives which integrates with this syntactic and semantic foundation have been given (in Sect. 6).

If I am right that the usual reasons for thinking that why-interrogatives are fundamentally unlike other wh-interrogatives do not hold up, and I am right that exceptionalism should be rejected, then some of the support for the various philosophical theses I mentioned in Sect. 1 will have been undermined. The two most important upshots of the discussion concern the motivation for thinking that explanation itself is contrastive, involving a ternary or quaternary relation, and the consequences for the prospects of developing a fully general theory of explanation. The baseline theory suggests that explanation is at its core a binary relation, but that we are often interested in a restricted range of things which can feature in the range of that relation. This follows from the semantic analysis given in Sect. 4. Moreover, the baseline theory suggests that why-interrogatives put a single constraint on their answers which remains constant across contexts. This follows from our rejection of van Fraassen's explanation of domain sensitivity in terms of differences in relations of explanatory relevance being expressed by why-interrogatives in different domains of enquiry. So, it seems, there is hope for a fully general theory of explanation after all, a theory which would give an account of what it takes for something to be an answer to a why-question across any domain of enquiry.³³

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³³ See Nickel (2010) for a similar conclusion about 'because'-constructions.

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