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The Erotetic Epistemology: A Primer

by

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Abstract

One way of "doing" philosophy is to choose a topic of investigation, proceed in depth narrowly on an analysis of that topic; then to apply the results widely. I follow this strategy in my dissertation. The topic I investigate narrowly is "questions"; then I emphasize its applications in epistemology. Since an analysis of questions has consequences for the ways it makes sense to think about knowledge, framing my project in terms of the *erotetic epistemology* seems natural, though it is novel.

The best developed erotetic epistemology is *contrastive knowledge*. Contrastivists about knowledge say 'knows' denotes the ternary relation "s knows *p* rather than *q*". The contrastive view thus conflicts with the standard view in epistemology according to which 'knows' denotes the binary relation "*s* knows *p*".

I argue that knowledge within an erotetic framework cannot be contrastive. So, after detailing the contrastive view (Chapters 1 & 2) and its application in epistemology (Chapters 3 & 4), I argue that certain types of questions are clear counterexamples to the contrastive interpretation of the erotetic epistemology (Chapter 6). In route, I defend contrastive knowledge against objection in the literature (Chapter 5).

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Chapter One

Should Knowledge be Modeled Declaratively?

What is the model of knowledge in epistemology? The *standard view* in epistemology is that the model of knowledge is a declarative sentence. On this view, 'knows' is syntactically conceptualized as a two-place, binary relation between a person and the proposition the person knows. The standard view is thus rendered "*s* knows that *p*." Should knowledge in epistemology be modeled as a declarative sentence? I answer *negatively*. In this Chapter, I argue that knowledge ought to be modeled in relation to a *question*. So, after detailing the standard view (§1), I find arguments for the "knows-*that*" model insufficiently motivating (§2) and conclude that viewing the "knows-*that*" model as the uniquely correct model of knowledge in epistemology is undeserved. In the final section of this Chapter, I motivate investigating the connections between questions and knowledge (§3).

§1

We do things with knowledge. We agree or disagree. We flag reliable sources of information. We testify. We answer questions. We also use knowledge to report, to admit, to concede, to confess, to plan, to evaluate, and to explain the behavior of other people. Knowledge is also used for a range of practical activities. We drive cars. We prepare meals. Some of us play musical instruments. In fact, it is difficult to imagine many human situations that do not involve knowledge.

Just as we do many things with knowledge, there is a wide variety of sentences in English that can be used to ascribe knowledge. Among these, declarative ascriptions, interrogative ascriptions, and ascriptions which feature noun-phrases are dominant. I briefly consider each. Declarative

knowledge ascriptions feature "that"-clauses. Examples include, "Jones knows *that* Sally stole the sapphire", "Jack knows *that* Obama is President", and "Holmes knows *that* Mustard is the murderer." Interrogative ascriptions embed *wh*-complements, such as *who, what, when, where*, *why*, and *how*. Examples of knows-*wh* include "Jones knows *who* stole the sapphire", "Jack knows *what* Obama spoke about", and "Smith knows *when* the play begins." Finally, noun-phrases are used to ascribe knowledge. Examples of noun-ascriptions include "Jones knows *the time*", "Jack knows *the colour*", "Smith knows *the odds*", and so on.

We also ascribe knowledge using sentences that fall into less common (but no less important) linguistic categories. For example, we ascribe knowledge using indirect interrogative clauses. Examples include, "Sally knew *whether* he committed the crime before he came home" and "Sarah knows *which* of two things he ate." We also use explicit "rather-than"-clauses to ascribe knowledge, as in "Watson knows Mustard was murdered rather than committed suicide", and "Watson knows the murder weapon is the pipe rather than the wrench."

We also communicate knowledge using more delicate and sophisticated ascriptions, as in "Smith knows *all too well* that if his wife's happy he's happy", "Jones doesn't know *enough* to say whether the economy will improve in six months", and "Susan knows *something* about the issue." Finally, we ascribe knowledge using a range of comparative adjectives. So, for instance, we say someone knows the difference between one thing and another, as in "Jones knows the *difference* between a field goal and a touchdown" and "Smith knows the *difference* between a stick shift and an automatic." We also say someone knows one thing better than another, as in "Smith knows Fords *better* than he knows Chevys" and "Jones knows the backwoods *better* than the city."

It would be safe to say that there are a variety of ways speaker-utterances communicate knowledge in natural language. It would also be safe to say that only handful of this variety receive attention in epistemology. They should all receive attention.

At least part of the reason this variety is neglected is due to the persistent idea that declarative knowledge ascriptions are somehow more central or basic to epistemological theorizing than any other type of knowledge-attributing sentence. More fully, sentences of the form "*s* knows that *p*" have been so regarded as the model knowledge ascription in epistemology that most analyses, tests, criteria, and conditions of

knowledge are formulated in sole regards to it.[1] I discuss motivations for this view below. In the interim, detailing privileged status of the "knows-*that*" model proves useful.

To begin with, the privileged status of the knows-*that* model is clear in discussions about "reductionism."[2] A *reduction* is any attempt to explain a *complex* knowledge ascription (an ascription of the form knows-*wh*, knows-*better*, knows-*rather than*, etc) in knows-*that* terms. So, for instance, René van Woundenberg (2008) analyzes knows-*rather than* in terms of knows-*that*. Steven Böer and William Lycan (1986) analyze knows-*who* in terms of knows-*that*. Jason Stanley and Timothy Williamson (2001) analyze knows-*how* in terms of knows-*that*, and David Lewis (1982) analyzes knows-*whether* in terms of knows-*that*.[3] Similar reductive views can be found in the work of Dennis Temple (1988) and David Rubin (1987), among others.

What motivates these reductions? These reductions are motivated by the knows-*that* model. Ascriptions of the form "*s* knows that *p*" are basic and normal; all other knowledge-attributing sentences can be explained within the knows-*that* framework.

The privileged status of the knows-*that* model is also clear in discussions which consign complex knowledge ascriptions to the status of secondary or derivative. In the terms of James Higginbotham (1996: 379):

> ["knows"] may take for its complement ordinary nominals referring to propositions, and finite clauses, which do the same; and it is natural to suppose that its use as in ["Mary knows whether it is raining"] is *derivative* from this (*italics added*).

In a similar vein, Adam Morton and Antti Karjalainen (2003: 75) explain knowledge ascriptions which feature "rather than"-clauses as "*less* than full binary [i.e., knows-*that*] knowledge" (*italics added*). Likewise, Williamson (2000: 34) says 'knows' "*typically* takes as object a term consisting of 'that' followed by a sentence", and Stanley and Williamson

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[1] In the terms of Stephen Hetherington (2008: 307): "The conception of knowing as being, most fundamentally, knowing-that continues to dominate epistemological analyses of knowledge."

[2] I'm indebted to the work of Jonathan Schaffer (2007) in this section.

[3] What form do these reductions take? According to the reductive view, to know-*wh* is to know-*that p*, where *p* happens to answer the indirect question of the *wh*-clause. James Higginbotham (1996: 381) formalizes this reduction as a rule: "know(x,^π) $\leftrightarrow$ ($\exists p$) (know(x, p) & p answers π)." For recent discussion, see Meghan Masto (2010) and Berit Brogaard (2009).

(2001: 241) contrast complex knowledge ascriptions with "*normal* clausal-complement uses of 'know'" (*italics added*).

What motivates treating complex knowledge ascriptions as secondary or derivative? These treatments are motivated by the knows-*that* model. Ascriptions of the form "*s* knows that *p*" are basic and normal; all other knowledge-attributing sentences are secondary or derivative.

Apart from the tendency to explain complex knowledge ascriptions as an extension of an account of declaratives, theory of knowledge in professional academic philosophy is explicitly predicated upon the knows-*that* model. Predicating epistemic research upon the knows-*that* model is a means of conferring upon it a privileged status. So, for instance, since Edmund Gettier (1963) it has been common currency to debate the conditions of knowledge and their sufficiency. Debates about the conditions of knowledge and their sufficiency are based squarely upon sentences of the form "*s* knows that *p*." It has not been common currency since Gettier to challenge the knows-*that* model itself. Conceptualizing knowledge in knows-*that* terms is an epistemic commitment that is rarely, if ever, challenged.[4]

It is not just Gettier-inspired epistemology that uncritically accepts the knows-*that* model. Virtually all post-Gettier discussion does the same. So, for instance, recent literature is dominated by discussions about opposing views about our shifting intuitions about knowledge. Some philosophers explain these intuitions by appealing to the *standards* of the ascriber (DeRose 1995, Cohen 1988, Lewis 1996), others appeal to *what is at stake* for the subject (Fantl and McGrath 2002, Hawthorne 2004, Stanley 2004, 2005). These discussions are predicated upon sentences of the form "*s* knows that *p*."

The privileged status of the knows-*that* model is also clear in discussions which challenge assumptions about knowledge within the knows-*that* framework, but not the knows-*that* model itself. For example, ask yourself if you've challenged one or more of the following assumptions about knowledge: *isolation* (correctly analyzing instances of knowledge requires isolating *p* from other propositions a person knows and investigating *p* in its own right); *fixed standards* (the standards of knowledge-attributing (and knowledge-denying) sentences do not vary; the standards are invariably stringent, lackadaisical or something in between); *objects of epistemic analysis* (the objects of epistemic analysis are the necessary and sufficient conditions of knowledge); *absolutism* (knowledge does not come in degrees. There is no such thing as knowing a proposition better or worse than any other); *discrimination* (in order to know *p* a subject must be able to distinguish *p* from relevant non-*p*

[4] Hetherington (2008) makes this point.

alternatives); *justification* (either justification is required for knowledge or it is not. If justification is required, 'justification' is understood "internally" or "externally"); *infallabilism* (knowledge is incompatible with any degree of doubt).

More examples can be given but the point is clear. Epistemologists are often willing to challenge assumptions about knowledge within knows-*that* framework, but not the knows-*that* model itself. There is a widespread reluctance to challenge—even a defensive stance towards—framing the model of knowledge in declarative terms.

Finally, the knows-*that* model is given privileged status in the classroom. It is standard practice to introduce students to epistemology by distinguishing knows-*that* from knows-*how* and knowledge by acquaintance. These distinctions leave no conceptual room for knows-*wh,* knows-*better,* or any other complex knowledge-attributing sentence. This neglect reflects the perceived unimportance of complex knowledge ascriptions.[5]

It would be fair to say that the knows-*that* model is an entrenched piece of epistemic orthodoxy. It's easy to appreciate why. Sentences of the form "*s* knows that *p*" constitute core components in an attractive conceptual framework. Thinking about knowledge in knows-*that* terms provides conceptual direction from which systematic investigations into the nature of knowledge can proceed. It also provides epistemologists with the promise that a comprehensive theory of propositional knowledge is possible. Moreover, since all knowledge-attributing sentences can be explained within the knows-*that* framework, sweeping complex knowledge ascriptions under the carpet, so to speak, and proceeding to the serious work of actually doing epistemology is that much easier.

But there is a crucial component to the discussion that is missing. We've yet to be given any reason to think declarative knowledge ascriptions ought to be the model knowledge ascription in epistemology or that declarative knowledge ascriptions are any more central or basic to epistemic theorizing than other type of knowledge-attributing sentence.[6] In the absence of reasons for thinking knows-*that* knowledge is the *uniquely correct* model of knowledge in epistemology, it remains an open question as to how best to model knowledge ascriptions for epistemic purposes. What I wish to show in the following section is that the privileged status of the knows-*that* model is undeserved—perhaps appreciably so. The result motivates investigating more closely the connections between questions and knowledge.

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[5] I detail the perceived unimportance of interrogative ascriptions in §3.

[6] In Schaffer's (2005*a*: 425-6) terms: "It must not be *presumed* that declarative ascriptions are more fundamental."

§2

So why accept that knows-*that* knowledge is the uniquely correct model of knowledge in epistemology?

To begin with, there is nothing like a canonical argument for the knows-*that* model. In fact, there is a surprising absence of arguments for this view entirely. Perhaps this absence itself reflects its privileged status. In any case, I now consider and reject what my informants and I consider to be the best arguments for modeling knowledge declaratively.

The first argument I consider is based on *shared content*. The second is based on *surface grammar*, and third and forth appeal to *constitution* and *benefits* respectively. The final argument I consider is based on *idealization*. I discuss these arguments in turn.

One way to make sense of the variety of ways we communicate knowledge in natural language is to focus on an invariant these sentences share (a "common core", so to speak) that provides conceptual direction from which systematic investigations into the nature of knowledge can proceed. To use this strategy is to borrow some early analytic epistemology. In the terms of A. J. Ayer (1956: 5): "expect when a word is patiently ambiguous, it is natural for us to assume that the different situation, or types of situation, to which it applies have a distinct common feature." The tendency in epistemology has been to identify this common feature or invariant as a *proposition*. On this view, the shared content of knowledge-attributing sentences are non-linguistic representations that are true or false and the objects of propositional attitude reports and assertion. Since propositions are expressed in English by declarative sentences, the variety of ways speaker-utterances communicate knowledge can be explained in knows-*that* terms. From this perspective, there are no meaningful differences among knowledge-attributing sentences (regardless of what appear to be appreciable differences) and what differences there are can be explained by linguistic subtleties that have little or no implication on philosophical analyses of knowledge.[7]

There are two main problems with this argument. To begin with, the argument from shared content is subject to an objection based on *restricted focus*. Christopher Hookway (1995: 8) sketches the objection in these terms:

[7] So, for instance, the difference between a knowledge ascription in interrogative form ("Jones knows *what* was stolen") and a knowledge ascription in declarative form ("Jones knows *that* the sapphire was stolen") is located in what J. L. Austin (1962) calls their *illocutionary force*, not in their propositional content.

> Philosophy of language, philosophy of mind and epistemology share an assumption about the primacy of the propositional: we can study our representational practices by examining assertoric uses of language in which propositions are put forward as true, and beliefs which are attitudes towards propositions; and we can study knowledge by considering which beliefs are known or justified. It is not obvious that this assumption is correct.

More fully, the objection here is that professional academic epistemologists focus on what Jaakko Hintikka (2007: 1) calls "contexts of justification" (or what we do when we know something, i.e., how to examine the piece of knowledge, etc.,) not on "contexts of inquiry" (or the role that propositions play in the process of asking and answering questions). For Hookway, this focus reflects an entrenched tendency among epistemologists to wrongly neglect the fact that propositions are uttered in *response to questions*, yet the connections between questions and knowledge remains a topic of neglect in professional epistemology.[8] Since "contexts of justification" systematically neglect "contexts of inquiry" this way, the argument from shared content misdescribes the role that propositions play in our epistemic practice. The upshot is that it is not wrong to focus on propositions as the shared content of knowledge ascriptions *per se*, but it is wrong to focus on propositions *simpliciter*. What should we focus on? According to Hookway, we should focus on the role that propositions occupy in the embedded context of question asking and answering.

The second main objection to shared content is based on the *presumption of content*. Versions of this objection are offered by Nuel Belnap (1990) and Jonathan Schaffer (2007). Roughly speaking, the objection here is that it is a mistake to focus on the shared content of knowledge-attributing sentences because it is a mistake to think that the propositional content of knowledge-attributing sentences are in each case is the same. The propositional content of sentences which feature interrogative complements requires the articulation of a different

[8] Hookway thus implements R. G. Collingwood's (1940: 23) idea that every statement is an answer to a question. Belnap (1990) observes a similar point: "[We] will not assert anything ever, nor profit from the assertions of others, without at least the traces of such interests as can be expressed by interrogatives."

grammatical structure in virtue of being an answer to a question.[9] Plausibly, focusing on propositions simpliciter instead of on propositions within the embedded context of question asking and answering conceals details which are bound to be epistemically significant.

I draw out these details in the next Chapter. For now, it is enough to observe that re-conceptualizing the role of declarative knowledge ascriptions from propositions simpliciter to propositions within the context of question asking and answering requires taking more seriously the role of questions in theory of knowledge than epistemologists have so far acknowledged.

I conclude that appeals to shared content do not show that knows-*that* knowledge is correct the model. An epistemological defense of the knows-*that* model needs to appeal to a different set of considerations.

A second argument motivating the knows-*that* model appeals to the *surface grammar* of knowledge-attributing sentences. This argument begins with some reflection on ordinary language. To begin with, we *use* knowledge ascriptions of the knows-*that* form. The ascriptions "Smith knows that Brown owns a Ford", "Jones knows that Peter got the philosophy job", and "Martha knows that Snoopy wants a walk", are considered basic and normal. The second step in the argument is a claim about the syntax of declarative knowledge ascriptions—namely, that knowledge ascriptions *express* the knowledge relation. What is it for a knowledge ascription to express the knowledge relation? The idea here is that the structure of language can be "read off" the surface grammar of knowledge-attributing sentences (knowledge ascriptions wear their logical form on their sleeves, so to speak). Given that knowledge-attributing sentences are of the form "*s* knows that *p*", the relationship they reveal is between *s* and *p* only.

There are two main problems with this argument. To begin with, linguists have long observed that deep structure of language is never just "in view." So, following Peter Ludow (2005) (and as in the work stemming from Bresnan 1982, Chomsky 1986, and Larson 1988), reading syntax from speaker-utterances is notoriously difficult. More fully, reading lexical argument structure from the surface grammar of speaker-utterances involves controversial theses about implicit argument places, adjuncts, argument-slots, and event structures, each of which offer conflicting interpretations of the structure of natural language terms.

A second main objection to surface grammar is epistemic. We don't typically ascribe knowledge using sentences of the form "*s* knows that *p*." In the terms of Franc Lihoreau (2008: 8):

[9] For Schafer, this requires the addition of a contrast class in knowledge-attributing sentences. For Belnap, this requires disambiguating sentences with interrogative complements into different declarative matrices.

> It is indeed very likely that most of our ordinary knowledge ascriptions are not of the somewhat canonical '"know' *plus* declarative *that*-clause" form, but of other forms, including the '"know' *plus* interrogative *wh*-clause" form (i.e., '"know' *plus* indirect question" form…'

Schaffer (2005*a*: 245) offers similar comments:

> Why the focus on declarative ascriptions? These seem to be relatively rare in natural language, especially when compared to interrogative ascriptions. So why focus on such an unrepresentative sample?

And Alan White (1982: 9) says:

> [J]ust as a scientist takes care not to jump to conclusions from a narrow set of data, so a philosopher must beware of taking a distorted view because of a one-sided diet of examples. Too many philosophical analyses of knowledge […] have been restricted to a particular kind of thing that can be known, especially the kind that is expressed in English as "knows that p."

According to these epistemologists, to claim that declarative knowledge ascriptions are the uniquely correct model of knowledge in epistemology on the grounds that declarative ascriptions are used so regularly in natural language all but *neglects* common usage. Appropriate sampling indicates that declarative ascriptions are relatively rare in natural language. As such, they ought to be accorded appropriate status. Whatever this status is, it is not that of the model.

In any case, if the motivating idea is that we should model knowledge upon the types of ascriptions we actually use (which is plausible, reasonable, and part of a sound epistemic project), we should focus on *interrogative ascriptions*. For interrogative ascriptions are the most dominant or primary knowledge ascriptions in natural language. In that case, we could motivate epistemology by focusing on interrogative ascriptions with declaratives occupying a subsidiary role. Moreover, since interrogative ascriptions feature indirect question components, motivating

epistemology by focusing on interrogative ascriptions has the advantage of more closely associating questions with our actual epistemic practice.[10]

I conclude that arguments that appeal to our use of declarative knowledge ascriptions or to reading their syntax directly does not show that knows-*that* knowledge is the correct model. Once again, an epistemological defense of the knows-*that* model needs to appeal to a different set of considerations.

A third argument that knowledge ought to modeled declaratively is based on *constitution*. Arguments in this family begin by discussing epistemic concepts, proceed to define them in binary terms (i.e., terms that relate a subject to one concept only); then conclude that 'knows' is a member of this group.

Consider one version of this argument. A definition of knowledge that holds some currency today but was popular during the early days of analytic epistemology is that knowledge is a species of justified true belief. If knowledge is a species of justified true belief and if 'justification' and 'belief' denote binary relations, then 'knows' denotes a binary relation too.

The problem with this version of the argument is that it straightforwardly commits a composition error. *Composition errors* are based on the idea that if the constitutive members of *W* have a particular property (say, *f*) then *W* also has *f*. This is a mistake. It's perfectly possible for the constitutive members of *W* to have a property which *W* does not. Each member of an orchestra may be excellent (e.g.), but it doesn't follow that the orchestra itself is excellent. Each member on a sports team may be the best in the league (e.g.), but it doesn't follow that the team is the best in the league. Likewise, epistemic terms constitutive of 'knowledge' may denote binary relations but it doesn't follow that 'knowledge' denotes a binary relation.

A second constitution based argument is a variation of the first. Epistemologists who analyze knowledge as a species of justified true belief are not merely claiming that there are lots of parts of knowledge, all of which denote binary relations. The core of the idea is that knowledge is a kind of belief—a belief that also happens to be true and justified. If knowledge is a kind of belief and if 'belief' denotes a binary relation, then 'knows' also denotes a binary relation. My reply to this argument is that it is merely an *account* of knows-*that* knowledge and cannot be used in a non-question begging way to show us that knows-*that* knowledge is correct model of knowledge for epistemic purposes.

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[10] As Hookway (2008) observes in his excellent recent discussion about questions and knowledge, whether interrogatives or declaratives are taken to be more important for epistemological purposes, it is clear that questions and answers have significant contributions to make in theory of knowledge. (See also Hookway 1990, 1995, Hintikka 2007, Hetherington 2008).

A third constitution based argument is from *precedent*. According to this argument, 'knows' denotes a binary relation based on the precedent set by analyses of other (comparably less important) epistemic terms. Roderick Chisholm (1957) offers an argument of this sort. He begins his first major philosophical work by citing epistemic terms—*perceives*, *adequate evidence*, *unreasonable, acceptable*, etc.,—defines them as binary relations (*s perceives f*, *s* has *adequate evidence* for *h*, etc); then defines 'knows' binarily as a matter of course.

The main problem with this argument is that it's not obvious that there is a precedent for understanding epistemic terms binarily. For example, 'explains' is routinely analyzed as a three-place, ternary relation: for *s* to explain *p* is for *s* to explain *p rather than q* (van Fraassen 1980, Garfinkel 1981, Lipton 1991). More recently, binary analyses of the epistemic terms 'justification,' 'belief,' and 'evidence' have been rejected as well. What form do these terms take? Like 'explains', the speculation is that these terms denote ternary relations. So, for instance, Walter Sinnott-Armstrong (2006) argues that for *s* to have justification for *p* is for *s* to have justification for *p rather than q*. Martijn Blaauw (2010) argues that for *s* to believe that *p* is for *s* to believe that *p rather than q*, and Ram Neta (2002) argues that for *s* to have evidence for *p* is for *s* to have evidence for *p rather than q*. The result is that there may be a precedent for understanding epistemic terms binarily, but the precedent is *disputed*—perhaps even *weak*. In fact, if precedent supports anything at all, it might be that it supports the conclusion that epistemic terms ought to be understood in ternary terms. At the very least, there is a burgeoning precedent for conceptualizing epistemic terms non-binarily.

I conclude that modeling knowledge declaratively is not supported by considerations about constitution. Once again, if an epistemologist wishes to defend the knows-*that* model, she needs a different argument.

A third argument that knowledge ought to be modeled declaratively appeals to *benefits*. The core of the idea here is that knows-*that* knowledge has been *good* to epistemologists. That is, epistemology has progressed so much from conceptualizing knowledge in knows-*that* terms that there must be something unmistakably correct about the view. At the very least, knows-*that* knowledge *points in the right direction*.

My reply to this argument is to agree with it. It is true that we've learned a lot from modeling knowledge declaratively. But that's not an especially good reason to think that ascriptions of the form "*s* knows that *p*" constitute the uniquely correct model of knowledge for epistemological purposes. The reason is two-fold. First, we need good independent reasons for modeling knowledge declaratively. Pointing to some benefits isn't enough. But more importantly, it's not obvious that many of the advancements that have developed within the knows-*that* framework would not have developed in the absence of modeling knowledge

declaratively. In that case, how good the knows-*that* model has been to epistemologists is questionable.

Consider the most important developments in theory of knowledge since Gettier, then ask yourself if they're deeply related to conceptualizing knowledge in knows-*that* terms. Most significant contributions since Gettier have developed independently of conceptualizing knowledge in knows-*that* terms. For example, contextual views of knowledge are predicated upon the idea that the truth-value of knowledge-attributing (and knowledge-denying) sentences vary according to contextually relevant standards. So understood, contextualism is neutral with respect to how to model knowledge for epistemological purposes. Another candidate for most influential post-Gettier epistemology is relaibilism. But reliablism is fundamentally a position about cognitive processes and true belief ratios, not what the structure of knowledge is or ought to be. As such, reliabilism is also neutral with respect to how to model knowledge for epistemological purposes. The result is that re-conceptualizing (or perhaps even abandoning) the knows-*that* model neither results in a loss of progress in epistemology nor disvalues the real contributions epistemologists have made to these debates.[11]

In fact, something of the opposite is true. Knows-*that* knowledge has been decidedly *bad* to epistemologists. Modeling knowledge declaratively leads to what David Lewis (1996) calls the 'whirlpool' of scepticism. Modeling knowledge declaratively also leads to sorties and other paradoxes, and to the denial of a highly intuitive inferential pattern (Dretske 1970). Modeling knowledge declaratively also leads to treating 'knows' as a lexical freak (Schaffer 2004, Stanley 2005)[12] and to the conclusion that 'knows' is either undefinable (Zagzebski 1999) or unanalyzable (Williamson 2000). Of course, thinking about knowledge in knows-*that* terms also leads to Gettier-cases.[13] Given that conceptualizing knowledge in knows-*that* terms leads directly to intractable and unsolved problems, why not re-evaluate the shape and organization of the model itself?

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[11] Christopher Hookway and Tobies Grimaltos (1995) observe a similar point.

[12] The freakishness of 'knows' rests on identifying (or at least closely associating) 'knows' as an indexical. The only non-controversial examples of indexicals are demonstratives (e.g., 'this', 'that') and pronouns (e.g., 'I', 'he', 'she'). To treat 'knows' as an exception is to treat 'knows' as a lexical freak. More recently, Jason Stanley (2004, 2005) has argued that unlike standard lexical types that allow for modifiers, 'knows' doesn't take to modification well or at all. Unless there are principled reasons for treating 'knows' as a special case, treating 'knows' as a special case is unwarranted.

[13] More precisely, thinking about knowledge in knows-that terms leads to Gettier cases with the addition of fallibilism.

I conclude that appealing to benefits does not motivate viewing knows-*that* knowledge as the uniquely correct model of knowledge in epistemology.[14] Once again, a different argument is needed.

Perhaps the most powerful argument for the knows-*that* model is the simplest. Epistemologists idealize sentences of the form "*s* knows that *p*" for purposes of epistemological research. More fully, the idea here is that modeling knowledge upon sentences of the form "*s* knows that *p*" is a defeasible assumption, but one that may be vindicated through further research. At the very least, studying knowledge by studying declarative ascriptions is bound to give us a roughly accurate picture of knowledge however the model is finally conceptualized.

There are three main problems with this argument. To begin with, worries that beset the benefits argument re-emerge here. If scepticism, sorites and other paradoxes, and Gettier-cases (etc) aren't tell-tale signs that we've set off in the wrong direction, methodologically speaking, what would be?

An objector might claim that scepticism (and other problems) are not reasons to reject the knows-*that* model whole-sale. After all, epistemology is tough. We expect problems and part of what it means to do epistemology is to attempt to resolve them. Scepticism (and other problems) simply indicates the healthy state of contemporary epistemology and the need for further research. I have no particular objection to this project. I only wish to note that epistemology can be motivated in multiple ways, as recent epistemology attests to (Hookway 1995, Kvanvig 2003, Schaffer 2005, Pritchard 2007, Sosa 2007, Riggs 2008). Given that knows-*that* knowledge is fraught with problems and that epistemology can be motivated in multiple ways, perhaps it's time see the knows-*that* model for what it is: a problematic assumption about the nature of knowledge that has only ever approximated our actual knowledge-attributing practices. The result is that thinking about knowledge in knows-*that* terms might be a legitimate idealization to start thinking philosophically about knowledge, but not all idealizations are helpful; idealizations are *unhelpful* when they hamper further development.[15]

Finally, the idealization argument is subject to a bad form objection. If modeling knowledge declaratively is an idealization, something we

[14] An objector might agree but nonetheless accept that a weaker benefits based argument is acceptably motivating. For example, knows-*that* knowledge captures our intuitions about knowledge. As such, it at least points in the right direction. This is true but unsurprising. Any respectable theory of knowledge must accord with our *intuitions*. But it often fails to accord without intuitions as well. Adam Morton and Antti Karjalainen (2003) discuss a wide range of cases where "*s* knows that *p*" fails to capture the correct knowledge ascription.

[15] Dan Sperber and Deirdre Willson (1987) make this point in a different context.

recognize only approximates the correct model of knowledge and is in no way mandatory to accept for purposes of epistemic research, it's just *bad from* to use it inform key epistemic disputes.[16] Hintikka (2007) offers one version of this objection. On his view, thinking about knowledge in knows-*that* terms has lead to the wrong debates in epistemology entirely. Hintikka's worry is expressed by others. Hookway (2008), for one, frames epistemic research in terms of *inquiry* (or the process of asking and answering questions). As such, we ought to focus on inquiry related problems and not problems that develop within the architecture of orthodox epistemology. So, just as William Alston (2005) dismisses previous epistemological research into the concept of justification because he doesn't think justification picks out an important epistemic property, some epistemologists think we ought to re-conceptualize how knowledge is modeled because it wrongly focuses epistemic research.

So what can be concluded? It should be reasonably clear that there are few good reasons to accept the knows-*that* model and increasingly good reasons to reject it. It should also be clear that challenging the knows-*that* model is timely—perhaps even overdue. So what view is the *contender?* I propose: *interrogative ascriptions*. More precisely, knowledge ought to be modeled *in relation to a question*. I detail this relation in the next Chapter, but registering a few comments is worthwhile.

There are five main reasons to model knowledge in relation to a question. To begin with, the topic of the connections between questions and knowledge *fit research*. So Schaffer (2007: 401) says: "All knowledge involves a question. To know is to know the answer." Hector Castañeda (1986: 362) offers similar comments: "knowledge is power…What kind of power? Epistemic power, of course. But what is an epistemic power? The answer is: a power to answer a question." Likewise, Hookway (1995: 12) says: "…we should treat knowledge ascriptions as a relation between an individual and a question rather than between an individual and a proposition," and Tobies Grimaltos and Christopher Hookway (1995: 34) say: "[W]e can think of the possessor of knowledge as having the ability to answer a question correctly" (2008: 4). Finally, Hintikka (1999: 10) is explicit: "[E]very proposition...can be thought of as an answer to a question."

Second, interrogative ascriptions *fit our knowledge-attributing practices*. Tokens of the form "knows-*wh*" feature dominantly in natural language knowledge ascriptions, §3. Tokens of the form "knows-*that*" do

[16] So, for instance, Schaffer (2004, 2005*a*), Hetherington (2008), Hookway and Grimaltos (1995), Morton and Karjalainen (2003), Morton (2008), and Bradley (*ms*) each argue in their own way that philosophical problems dissolve if we start thinking about knowledge non-binarily.

not. As such, theory of knowledge might be motivated by focusing on interrogative knowledge ascriptions with declarative knowledge ascriptions occupying a subsidiary role.

Third, modeling knowledge in relation to a question is less a novel project as much as it is a topic of perennial neglect. Linguists and philosophers of language sympathetic to interrogatives and optimistic about their prospects in epistemology have researched questions considerably, yet the connections between questions and epistemology is a project of only a minority of epistemologists. Modeling knowledge in relation to a question is thus well-motivated.

Fourth, there is a surprising *direction of fit* between questions and knowledge. Most real world epistemic work begins by asking questions and attempting to formulate answers. So the first step of actually doing epistemology is often explicitly a question and answer process. Thinking about knowledge in terms of question asking and answering thus closely mirrors our actual epistemic practice.

Fifth, our *ultimate* epistemic goal is truth and our method of seeking truth is inquiry.[17] Inquiry is the process of forming questions and attempting to answer them correctly.[18] So we explicitly achieve our ultimate epistemic goal through asking questions and attempting to answer them correctly.

But a question remains. Why are interrogative ascriptions neglected in epistemology? To close this Chapter, I discuss why epistemologists have focused on declaratives ascriptions and neglected interrogative ascriptions, thus explaining why the connection between questions and knowledge remains overlooked.

§3

When philosophers talk or write about sentences they typically have only declarative sentences in mind. Belnap (1990) calls this preoccupation the *declarative fallacy*. The declarative fallacy is an error committed by

[17] See Schaffer (2005*a*) for a discussion on this point.

[18] This is the *Deweyian* view of inquiry. For John Dewey (1938: 105): "Inquiry and questioning, up to a certain point, are synonymous." According to Robert Stalnaker (2004: 119), when we inquire we "partition a limited space of open possibilities, into a set of mutually exclusive alternatives, and ask which one of them is actual." And Hookway (1996: 7) says: "The central focus of epistemic evaluation is…the activity of inquiry…When we conduct an inquiry…we attempt to formulate questions and answer them correctly."

epistemologists, philosophers of language, and philosophers of mind; anyone who focuses on declarative sentences at the *expense* of interrogative sentences.

Why do we commit the declarative fallacy?

One explanation is that declarative sentences are perceived to be more fundamental to language, meaning, and knowledge. Consequently, declarative sentences are more closely associated with the nature of philosophical research. So, for instance, declaratives sentences are sentences that have assertoric content (they can be used to 'say' something); they are sentences that have truth-values (they are truth analyzable); and they are sentences that express the content of our mental states (they are the objects propositional attitudes). Declarative sentences can also play a role in inferences as premises or conclusions (they are the basic constituents of formal and informal argumentation) and are the objects used to identify meaning (they have truth or verifiability conditions).

Interrogative sentences are comparably less important. Interrogative sentences cannot be used to 'say' something (they don't have assertoric content); they are sentences that do not have truth-values (they are not truth analyzable); and they are sentences that cannot be used to express the content of our mental states (they are not the objects of propositional attitudes). Interrogative sentences cannot play a role in inferences as premises or conclusions (at best they fit into the category of a non-standard logic); and interrogative sentences do not have either truth or verifiability conditions. Overall, philosophers have had little motivation to consider interrogative sentences as anything more than an extension of an account of declaratives (or more rarely, as a limitation of such an account).[19]

Part of what it means to actually "do" philosophy may be partially responsible for the neglect of interrogative sentences. Analyses of knowledge typically proceed by focusing on *what people say*. So Moore says he has hands, Keith says the bank is open on Monday, and Stewart says the plane stops in Chicago (e.g.). Under these conditions, reconstructing an instance of knowledge is naturally expressed in using the knows-*that* model: Moore knows *that* he has hands, Keith knows *that* the bank is open on Sunday, and Stewart knows *that* the plane stops in Chicago. The mistake epistemologists make in this context is to assume that investigations of claims made are *identical* with investigations of the nature of knowledge.[20] Investigations of claims made and investigations

[19] In the terms of Donald Davidson (1967): "And finally, there are all the sentences that seem not to have truth values at all: the imperatives, optatives, interrogatives, and a host more. A comprehensive theory of meaning for a natural language must cope successfully with each of these problems" (quoted from Hanks (2007: 1)).

[20] This point is made in Alan White's (1982: 12) excellent discussion.

of the nature of knowledge are distinct and should not be assimilated. To do so is to commit at least a misdemeanor of Belnap's fallacy.

In a similar vein, much of what we know we're willing to claim that we know; so we're willing to say it.[21] Moore is thus *willing to say* that he has hands, Keith is *willing to say* that bank is open on Sunday, and Stewart is *willing to say* that the plane stops in Chicago. This is a subtlety different context than the one discussed above. But under these conditions too, we explicitly analyze our willingness to express what we know in declarative terms. Once again, the error to avoid is assimilating investigations of claims made with investigations of nature of knowledge.

Apart from methodology, perhaps we focus on declaratives for an entirely different reason. Perhaps we focus on declaratives because epistemologists have largely focused on a handful of sceptical arguments in which declarative sentences feature prominently. Here, the sceptic queries how we know what we unreflectively think we know. To do this, the sceptic systematically lays out for investigation the reasons or arguments that could be given for holding that a certain proposition is known. Since much epistemology is development in response to scepticism, we have a natural tendency to reconstruct putative instances of knowledge declaratively.

But perhaps we focus on declaratives for simpler reasons. As Adam Morton pointed out to me in conversation, perhaps we focus on the knows-*that* model because no one has yet proposed anything better, or perhaps as Schaffer (2007: 384) reports that Jonathan Vogel told him in conversation, we focus on the knows-*that* model because we've just got stuck.

So what does knowledge *look like* if it is modeled interrogatively? I turn to this topic in the next Chapter.

[21] White (1982: 12) also makes this point.

Chapter Two

The Erotetic Epistemology: A Primer

In a recent edition of *Grazer Philosophische Studien*, Franck Lihoreau (2008: 8) offers these comments: "The topic of the relationships between knowledge and questions is of the utmost importance to epistemology." The volume itself is devoted to this topic and many epistemologists now take the connection quite seriously (Chapter One, §3). Since many epistemologists say that questions have consequences for how it makes sense to think about knowledge, framing my discussion in terms of the *erotetic epistemology* seems natural, though it is novel.[22]

What is the erotetic epistemology? The erotetic epistemology is whatever the epistemic consequences thinking about questions are. The best developed erotetic epistemology is Jonathan Schaffer's *contrastive knowledge*.[23] Schaffer's contrastivism models knowledge as a relation to a question. What is this relation? According to Schaffer, 'knows' denotes the three-place relation "*s* knows *p* rather than *q*." Here, *p* and *q* span the denotation of possible answers to a question. The contrastive view of knowledge thus offers an alternative to the standard view discussed in Chapter One. According to the standard view, knowledge is modeled as a relation between a person and the proposition the person knows, or "*s* knows that *p*." I motivate this version of contrastive knowledge in §1-5.

It is possible to motivate contrastive knowledge non-erotetically. Overall, this is the best way to understand the work of Adam Morton and Antti Karjalainen (2003, 2008) and Morton (2010, *forthcoming*).[24]

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[22] The label is also honorific. Nuel Belnap and Thomas Steel (1976) refer to the logic of questions and answers as the "erotetic logic."

[23] See, e.g., 2004, 2005*a*, 2008, 2010.

[24] This is a useful point of contrast between Schaffer's version of contrastive knowledge and Morton and Karjalainen's, but it is not a neat division. Morton and Karjalainen (2003: 78-9) discuss contrastive knowledge in connection to questions (or attributions of knows-*wh*). On balance, the connection between questions and contrastive knowledge doesn't feature in the majority of their work. This includes Morton's (2010) and (*forthcoming*).

According to Morton and Karjalainen, contrastive knowledge ascriptions play a supplementary role in our knowledge-attributing practices. I detail this view in §6.

The broad motivations for contrastive knowledge—the erotetic and the non-erotetic—might therefore seem quite far apart, and it's clearly legitimate to think that way. But it's worth investigating whether Morton and Karjalainen's view (or a view similar to it) can be brought into the erotetic fold. If so, the initial difference between opposing views of contrastivism isn't so great after all, and one basic goal of this Chapter is to have something illuminating to say about their connection, §7. But the basic objective of this paper is less ambitious. I wish to present the reader with an attractive picture of the motivations and arguments for the family of views denoted by the term "contrastive knowledge."

§1

In order to model knowledge in relation to a question we need a good grasp of questions, so that's where I begin.

Prior to the pioneering work of Charles Hamblin in the middle of the 20th century, there was no clear place in formal semantics for questions. This is because formal semantics until the mid-20th century was designed to handle statements and their associated meanings. Statements are sometimes true and sometimes false but questions are never either. Hamblin's article "Questions" was the first attempt to understand questions in terms of statements, by relating questions to statements we already know how to handle. Hamblin's contribution results in a *partition semantics* for questions. Within this framework, questions denote options (or for a more general term 'alternatives') which are their possible answers.[25] The meaning of a question is then identified with the set of possible answers the question induces. This analysis yields what Jeroen Groenendijk and Martin Stokhof (1997: 21) call *Hamblin's Picture*. Hamblin's Picture results jointly from the following postulates:

(*i*) Answers to questions are statements or propositions.
(*ii*) Knowing what counts as an answer is equivalent to knowing the question.
(*iii*) Possible answers to a question are identified with an exhaustive set of mutually exclusive alternatives.

[25] Hamblin's treatment of questions remains the best contemporary treatment of interrogatives. See, e.g., Groenendijk and Stokhof Groenendijk and Stokhof (1982, 1984, 1989, 1997), James Higginbotham (1993), and Issakcs and Rawlins (2006).

There are, then, many things to consider. Let's pursue them systematically.

We ask questions. *Who got the philosophy job? When will you be home? How many fingers am I holding up?* When we ask a question, what are we doing? When we ask a question, the question denotes a request for an addressee to provide information that answers the question. In Hintikkinan terms, a question is "a request...to be put into an epistemic state."[26] Hamblin's first postulate identifies the linguistic entity that suffices for the purpose. Answers to questions are statements or propositions. While statements or propositions answer questions, not all answers to questions are propositional in form. For example, sometimes replying "—Yes" or "—No" is an appropriate answer to a question (e.g., *Are we going to the show tonight? Is it raining outside?*). At other times questions can be answered by uttering a proper noun (e.g., *What is your name?* "—Bartholomew").[27]

The rationale underwriting Hamblin's view that all answers are propositions is three-fold. First, answering a question by uttering "—Yes" or "—No" (e.g.) is semantically equivalent to the proposition which is the answer to the question. So, for instance, answering the question *Are we going to the show tonight?* by replying "—Yes" or "—No" is semantically equivalent to the proposition "—Yes, we're going to the show tonight" or "—No, we're not going to the show tonight" respectively. Similarly, in the context of the question *What is your name?,* replying "—Bartholomew" is semantically equivalent to the proposition "—My name is Bartholomew." The second rationale for the first postulate is that correct answers to questions must be true, and being true is a property of propositions. The final rationale concerns the function of an answer to a question. The function of an answer to a question is to provide information and the linguistic vehicle used to provide information is a proposition. Hamblin's first postulate thus systematically excludes non-sentential responses to questions as genuine answers. Hamblin's first postulate says that all *well-formed* answers to questions are propositions.

Apart from specifying the nature of answers, the qualification "well-formed" serves to distinguish misplaced or irresponsible answers. Misplaced or irresponsible answers are ones that could not be true of a question or are otherwise incompatible with possible answers to a question. Consider the question *When does the show begin?* An inappropriate answer is to respond by saying (e.g.) "—at the Institute of Linguistics" or "—she brought half a dozen." There are of course many ways a question can be inappropriately answered. I might ask you a

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[26] (2007): 5.

[27] See Ronald Hausser (1983) and Remko Scha (1983).

question and you might punch me in the face (e.g.). This case invites the glib reply: "—Well, you got your answer!" but punches are not propositions; punches are inappropriate answers to questions. Likewise, I might ask you a question and you might reply by staring blankly. David Lewis (1986) observed that staring blankly isn't an appropriate answer to much of anything, including as an answer to a question.

Just as there are inappropriate answers to questions, so too there are inappropriate questions. A *pragmatically inappropriate* question is a question that is too forward or intrusive. So, for instance, *How much do you earn?* or *Are you pregnant?* are questions that are considered to be boorish and invasive. A *semantically inappropriate* question is a question that is too confusing to be answered directly (e.g., *How many waters are in the field?*) Finally, questions with false presuppositions are also inappropriate. For example, *Have you stopped beating your spouse yet?* or *Where did you hide the cookies you stole?* are inappropriate because the invited replies do not exhaust the possible answers, such as the possible answer, "—I have never beaten my spouse" and "—I haven't stolen any cookies", respectively.

Hamblin's second postulate follows from the first: knowing what counts as an answer is equivalent to knowing the question. It follows for the simple reason that answers to questions are propositions. A few illustrations make this point clear. Suppose that Jed utters "Berlin is in Germany." Uttering "Berlin is in Germany" is an answer to the question, *In which country is Berlin?* Likewise, uttering "—The gas tank is full" is an answer to the question, *How much gas is in the car?* The importance of this postulate is twofold. First, known propositions count as answers to contextually recoverable questions. This means questions need not be explicitly stated but are recoverable from context.[28] Second, this postulate identifies the meaning of a question with a set of possible answers. So, just as statements or propositions have truth conditions (i.e. to know the meaning of a proposition is to know what the world would be like if it were true), so questions have *answerhood conditions* (i.e., to know the meaning of a question is to know what propositions count as answers). For example, to know the meaning of the question *Who shot Kennedy?* is to know what propositions count as answers: "—Oswald shot Kennedy", "—CIA operatives shot Kennedy", "—Cuban operatives shot Kennedy."

Hamblin's third postulate specifies the nature of propositions that count as answers to questions. Possible answers to a question are identified with an exhaustive set of mutually exclusive alternatives. Answers to questions are *exhaustive* in the sense that questions denote all of their possible answers. Consider the question *Who shot Kennedy?* An answer to this questions denotes who shot Kennedy but also who might

[28] I discuss this in greater detail in §2.

have shot Kennedy but didn't. This constraint is intuitive. Someone who asks *Who shot Kennedy?* is not asking about anyone who could have possibly shot Kennedy (say, Queen Elizabeth). Someone who asks *Who shot Kennedy?* is asking about some contextually determined set of possible answers.

Hamblin's third postulate also specifies that answers to questions are *exclusive* in the sense that the proposition that is the true answer to a question implies that the other possible answers are false. This constraint implies that every questions has a unique true answer. To know that *Oswald shot Kennedy* is to know that Oswald shot Kennedy (and no one else did).

We can summarize these points by saying that answers to questions are *mutually exclusive* (only one answer is the correct answer to a question) and *jointly exhaustive* (the disjunction of possible answers to a question fill the conceptual space defined by the question).

The final point I wish to emphasize about a partition semantics is that possible answers to a question can be conceptualized as non-overlapping compartments *within a region of logical space*. In the terms of James Higginbotham (1993: 196): "An *abstract question* [is] a nonempty partition…of the possible states of nature into *cells*." Hamblin (1958: 166) offers similar comments: "A question is equivalent to a decomposition (or section or division) of the possible universes. The set of possible universes is split up into a number of subsets, each subset representing an answer to the question..." These cells or sections are a semantic image of a *multiple-choice slate*. Pictorially:

$Q?=$ | a_1 | a_2 | a_3 | a_4 |

Figure One

A natural language interpretation of the meta-language question represented by *Figure One* (i.e., "Q {a_1, a_2, a_3, a_4}?") might be (e.g.): *Who stole the sapphire?* Here, the region of logical space induced by Q partitions the possible answers (e.g.), {Jones, Martha, Jed, Thomas}.[29]

Where do answers *come from?* Answers come from *context*. According to Robert Stalnaker (1999), a context can be modeled as a set of possible worlds (the 'context set') "which include all the situations among which speakers intend to distinguish with their speech acts" (99).

[29] For simplicity, I choose to refer to possible answers to questions non-propositionally as shorthand. Non-propositional answers to questions should be treated elliptically as standing for the whole proposition (i.e., "—Jones stole the sapphire", "—Martha stole the sapphire", "—Jed stole the sapphire", etc.}.

The context set is "the set of possible worlds recognized by the speaker to be the 'live options' relevant to the conversation" (84-5). The set of live options recognized by conversational participants disjoin answers. So if the discussion concerns who stole the sapphire, the context set might take the form {*w*: Jones, *w*: Martha, *w*: Jed, *w*: Thomas}.

We're now in position to appreciate some epistemics of Hamblin's Picture. Suppose you don't know who stole the sapphire. Suppose further that Jones, Martha, Jed, and Thomas are the possible thieves. If you don't know the answer to this question and you select "Martha" you've *guessed* that "Martha" is the correct answer to the question. If you select "Martha" and "Martha" happens to be the correct answer, you've *luckily guessed* that "Martha" is the correct answer to the question. Of course to know the correct answer to a question it is not enough to merely guess the correct answer. To know the correct answer you must have reason to reject the other possible answers induced by the question. To borrow a term of art from the epistemic literature, in order to know the correct answer to a question a subject must *rule out* or *eliminate* possible but false alternatives.[30]

Reflections about lucky guesses thus underscores the rationale for ruling out possible but false answers to a question. For a question to be effectively answerable by *s* (i.e., for *s* to non-lucky possess the correct answer) *s* must be able to eliminate all-but-one possible answer.[31] Intuitively, if a subject can rule out all-but-one possible answer to a question, whatever is left is the answer. In the terms of Sherlock Holmes: "It is an old maxim of mine that when you have excluded the impossible, whatever remains, however improbable, must be the truth" (*The Adventure of the Beryl Coronet*).[32]

§2

[30] How does one *rule out* or *eliminate q*-alternatives? It remains an open question as to what counts as elimination in an erotetic epistemology. A contrastivist might adopt comparably lax conditions of elimination (say, by requiring only that *s* has strong inductive evidence against *q*-alternatives). On the other hand, more stringent conditions of elimination might be invoked (say, by requiring that *s*'s evidence for *p* entails that *q*-alternatives are false, thereby "eliminating them") (see, e.g., Lewis 1996: 553, Dretske 1981: 346). A third view requires that *s* believes *p* on the basis of undefeated evidence. I opt for the first option but remain ultimately pluralistic about elimination. It seems plausible that different contexts allow for different methods of elimination.

[31] In the terms of Adam Morton and Antti Karjalainen (2003: 78): "when someone knows where/who/which [etc] they can normally give a non-accidentally correct answer to a corresponding question 'Where/who/which…[etc]'?"

[32] I'm borrowing this illustration from Schaffer (2005*a*: 256).

We're now positioned to articulate Schaffer's argument for contrastive knowledge. The first step in the argument articulates the sense in which "knowing the answer" is an epistemic capacity. Knowing the answer within an erotetic framework is:

(1) An epistemic capacity to identify the correct answer among a multiple-choice slate.

(1) is thus the contrastive implementation of Hector-Neri Castañeda's (1980: 194) idea that, "knowledge involves essentially the non-doxastic component of a power to answer a question."

The Hamblin Picture also characterizes the nature of a question. For any Q, Q induces a set of possible answers within a region of logical space, or better:

(2) All well-formed questions are multiple-choice questions.[33]

By (1) "knowing the answer" is an epistemic capacity to identify the correct answer among a multiple-choice slate. By (2) all well-formed questions are multiple-choice questions. It follows that when a subject knows the answer to a question, the subject knows p: the correct answer to the question, rather than q: the disjunction of non-p alternatives induced by Q. Knowing the answer can thus be rendered "*s* knows p rather than q."[34] This is the *foundational argument* for contrastive knowledge, based upon a partition semantics for questions.

The conclusion of this argument is important, but it doesn't yet give us what we want. Since contrastivism is put forward as a general theory of knowledge, what we want is a *general* argument for contrastivism, and the foundational argument doesn't provide that. The foundational argument provides the conclusion that in certain epistemic contexts (i.e., the context of correctly knowing the answer to a question) knowledge is a contrastive relation. Can we build upon foundations (1) and (2) to provide what's needed?

One way to add to this argument to get the desired result is to report on the purpose of knowledge ascriptions. What are knowledge ascriptions *for?* What do they *do?* Schaffer (2005: 236) proposes:

(3) Knowledge ascriptions certify that a subject is able to answer

[33] That all well-formed questions are multiple choice questions is known as *Hamblin's dictum*.

[34] Morton and Karjalainen (2003: 79) express the same point using slightly different terminology: "When a person knows that p rather than that q, p is the answer to some question whose foil is q."

a question.[35]

He provides these clarifications:

Knowledge ascriptions refer to tokens of 'knows' in the propositional sense, the sense Gilbert Ryle (1949) distinguished knowing-*that* from knowing-*how*.

Ability to answer as per (1) is the capacity to recognize *p*: the correct answer to a question, from *q*: possible answers to a question. It is a capacity insofar as one doesn't need to exercise it in order to posses it and it is epistemic in the sense that it produces knowledge by producing correct answers to questions.[36]

Certify in (3) is used in the sense of conferring approval. According to Robert Brandom (1994), such certification consists in the conferral of an *entitlement* and subsequent *endorsement*. So, for instance, Socrates certifies that Meno's boy is someone who knows what the Pythagorean Theorem is and subsequently endorses him as someone who can answer questions about it if asked (*Meno* 85*d*).

Why (3)? Schaffer offers three arguments.

First, (3) *fits practice*. We use knowledge ascriptions to certify that a subject is able to answer a contextually relevant question.[37] So, for instance, the CIA torture the terror suspect because they think the terror suspect has the answer the contextually relevant question *Where's the bomb?* A student misses class and asks a peer what was covered because she identifies her peer as someone who can answer the question, *What did I miss?* A tourist asks a local the whereabouts of *Rocco's Restaurant* because the tourist fingers the local as someone who can provide an answer to the question, *Where's Rocco's?* More examples can be given but the point is clear. To say that one knows is to say that one knows the answer to a question.

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[35] Similar views are defended by Hamblin (1958), Warnock and Cohen (1962), Alan White (1982), Lawrence Powers (1978), Dan Sperber and Deirdre Wilson (1988), and Jennifer Lackey (2007). For an application of (3) to the concept of justification, see Walter Sinnott-Armstrong (2006).

[36] A similar (though slightly divergent) analysis is offered by Christopher Hookway and Tobies Grimaltos (1995: 34): "[W]e can think of the possessor of knowledge as having the ability to answer a question correctly." Hetherington (2008) adds a slightly modified view. For Hetherington, knowledge is an ability to do many equally important things, including the ability to answer questions. The difference between Hookway and Grimaltos, and Hetherington on the one hand, and Schaffer on the other, concerns conceptualizing question answering as an ability or as a capacity. Schaffer identifies questions answering as a capacity instead of as an ability because conceptualizing answering questions as an ability runs into the problem of explaining how infants and animals possess knowledge.

[37] See, e.g., Hookway and Grimaltos (1995), Lackey (2007, 2009).

The second argument is that (3) *scores inquiry*. What is inquiry? Inquiry is a goal directed activity. Schaffer (2005*a*: 237) observes that in epistemology "Our *ultimate*…goal is truth, and our method for seeking truth is inquiry. So it is apt for knowledge ascriptions to be directed to questions, to gauge the progress of inquiry." What do we do when we inquire? According to Stalnaker (2004: 119), we "partition a limited space of open possibilities, into a set of mutually exclusive alternatives, and ask which one of them is actual." Christopher Hookway (1996: 7) offers similar comments: "The central focus of epistemic evaluation is…the activity of inquiry…When we conduct an inquiry…we attempt to formulate questions and answer them correctly." Inquiry is thus a question/answer process.[38]

The final argument Schaffer offers is that (3) *explains other proposals in the literature*. So, for instance, Michael Welbourne (2001) proposes that knowledge ascriptions classify people as good or bad believers. Being a good or a bad believer can be characterized in terms of having the correct answer to a question more often than having an incorrect answer or a lucky guess. Similarly, John Greco (2002: 111) identifies "an important illocutionary force of knowledge attributions: namely, that when we credit knowledge to someone we mean to give the person credit for getting things right." Plausibly, getting things right is getting the right answer to a question. Finally, Edward Craig (1990: 11) identifies the role of knowledge ascriptions as flagging "approved sources of information." What suffices for identifying approved sources of information suffices for identifying who can answer a question. There's good reason, then, to accept that (3) is either true of knowledge ascriptions generally or at least identifies a major function knowledge ascriptions play.

Does reporting the use of knowledge ascriptions build upon (1) and (2) and give us a general argument for contrastivism knowledge? *Yes*: by (1) all well-formed questions are multiple-choice questions; by (2) the ability to answer is an epistemic capacity to identify the correct answer among a multiple-choice slate; and by (3) knowledge ascriptions certify that a subject is able to answer a question. Now, if knowledge ascriptions do this, and if the knowledge relation is expressed by knowledge ascriptions, then 'knows' denotes a contrastive relation between a subject, the proposition the subject knows, and a class of rejected alternatives. Hence Schaffer's view that 'knows' within an erotetic framework must be contrastive.

An objector might claim there are good reasons to accept that (3) is at least one of the things knowledge ascriptions do, but (3) does not identify the uniquely correct view about what they do. I'm sympathetic to

[38] I discuss this in more detail in §3.

this view.[39] But whatever the fate of (3), the point to note here is that a second general argument for contrastivism can be made using the foundations (1) and (2). Instead of (3) we might add,

(4) For any ascription "*s* knows that *p*", *p* is the answer to a contextually recoverable question.

(4) is the contrastive implementation of R. G. Collingwood's (1940) idea that every statement is an answer to a question. If (4) is correct, we should be able to intentionally reconstruct the question from ascriptions of *p* in context *c*. So a second general argument for contrastivism can be made if (4) is plausible. This argument can be made if someone rejects (3), or in addition to (3). So, are known propositions answers to contextually recoverable questions?

Here are three affirmative arguments. To begin with, let "knowledge-*wh*" denote ascriptions of knowledge which feature interrogative complements (such as *who, what, when, where*, and *how*). Examples of knowledge-*wh* include, "Jones knows *when* the plane lands", "Timothy knows *what* happened in the bathroom at midnight", and "Sally knows *who* won the game." And let "knows-*that*" denote declarative knowledge ascriptions. Examples of knows-*that* include, "Jones knows *that* it is 2:00 p.m.", "John knows *that* he lives in New York City", and "Peter knows *that* he should exercise regularly."

The first argument for the contextual recoverability of the question concerns the reduction of knows-*wh* to knows-*that*. Reductive arguments are attempts to explain knows-*wh* in terms of knows-*that*. So, for instance, Steven Böer and William Lycan (1986) analyze knows-*who* in terms of knowledge-*that*. Jason Stanley and Timothy Williamson (2001) analyze knows-*how* in terms of knowledge-*that*. And Jaakko Hintikka (1975), Alan White (1982), and James Higginbotham (1996) classify various epistemic constructions of 'knows' as departures from the knows-*that* form.

How does knows-*wh* reduce to knows-*that*? What *form* does the reduction take? According to the reductive view, to know-*wh* is to know-*that p*, where *p* happens to answer the indirect question of the *wh*-clause. Higginbotham (1996: 381) formalizes this reduction as a rule: "know(x,^π) $\leftrightarrow$ ($\exists p$) (know(x, p) & p answers π)." So, for instance, if Jones knows *who* the speaker is, and the speaker is Obama, then Jones knows *that* the speaker is Obama. Similarly, if Jones knows *what* the

[39] My sympathies rest on *plurality*: knowledge ascriptions probably serve a variety of purposes, one of which Schaffer identifies. For example White (1982: 2) observes that 'knows' is sometimes used to *concede* or *confess*. I leave it as an open question whether to concede or to confess is to concede or confess *the answer to a question*.

subject is, and the subject is economics, then Jones knows *that* the subject is economics. Likewise, if Jones knows *when* the talk is, and the talk is at 7:30 p.m., then Jones knows *that* the talk is at 7:30 p.m. How is the question *p* is the answer to recovered? The method of recovery is the method of decoding the indirect question of the *wh*-clause.

Reflections about the reduction of knows-*wh* to knows-*that* reveals the validity of the following inferential pattern:

Knows-*wh*
Knows-*that*

A second argument for the contextual recoverability of the question invokes an argument articulated by Hamblin (1958). According to Hamblin, to know-*that p* counts as the answer to the equivalent question.[40] The method of recoverability is thus the method of asking the question *p* is the answer to. To contextually recover the question is thus to apply Bas van Frassen's (1981: 126) idea that interrogative complements function to turn propositions *into* questions. So, for instance, suppose Jones knows *p*: *that Brown owns a Ford*. Here, the propositional content of *p* determines the nature of the question Jones knows the answer to, in this case, *What type of car does Brown own?* Likewise, if Holmes knows *p*: *that Scarlet murdered Mustard*, Holmes knows the answer to the question about *who* the murderer is: Scarlet rather than any other suspect. In general, if *s* knows-*that p* there is a contextually recoverable question *s* knows the answer to.[41] Counting *p* as the answer reveals the validity of the following inferential pattern:

knows-*that*
There is a *wh*-question *s* knows the answer to

Schaffer (2007) offers a third argument to contextually recover the question. Suppose *p* and consider: (*i*) an utterance of "*s* knows that *p*"; and (*ii*) an utterance of "*s* knows whether *p*." Schaffer argues that (*i*) and

[40] Hamblin thus articulates a contention more forcefully observed by Nuel Belnap (1990: 16): "[We] will not assert anything ever, nor profit from the assertions of others, without at least the traces of such interests as can be expressed by interrogatives." Similarly, Collingwood (1940) and Hookway and Grimaltos (1995: 35) suggest that *s* can know that *p* only if there exists a question to which *p* is the answer to. More generally, Hookway (2008: 4) says: "We can always find an equivalent way of expressing what a propositional knowledge sentence expresses by using just the indirect question form [i.e., the form knows-*wh*, where "knows-*wh*" denotes and interrogative complement, e.g., who/what/when/where/why/how]."

[41] Hamblin (1958: 161) puts the point in these terms: "…to say that someone 'knows how' (or knows whether…' or 'knows when…' or 'knows where…' etc) is at most to specify a question and say that he knows the correct answer to it."

(*ii*) are semantically equivalent. So, for instance, holding context fixed the following inferential patterns are valid:

s knows that *p*
s knows whether *p*

s knows whether *p*
s knows that *p*

For instance, if Watson knows *that* Martha stole the sapphire, Watson knows *whether* Martha stole the Sapphire. Similarly, if Watson knows *whether* Martha stole the sapphire, Watson knows *that* Martha stole the sapphire. In general, *s* knows that *p* iff *s* knows whether *p*. In the terms of Lawrence Powers (1978: 342): "*x* knows at *t* that *p* = *x* would unhesitatingly affirm…that *p* if he were at *t* asked *whether p*" (*italics added*). Paul Egré (2008: 121) offers similar comments: "to know *that* is to know *whether*, just as to know *whether* is to know *that*" (*italics added*).

§3

How does a partition semantics *illuminate* the knowledge relation? The relation at this point should be predictable. In Schaffer's (2005: 239) terms:

(5) The knowledge relation is a ternary, contrastive structure: K*spq*.

Here, K is the knowledge relation, *s* is the subject, *p* is the known proposition, and *q* is the disjunction of non-*p* alternatives. K*spq* is thus rendered: "*s* knows *p* rather than *q*."

Schaffer offers three arguments on behalf of (5). The first is that K*spq* records information about the question asked. The second argument is that K*spq* measures progress through inquiry by recording the question, and the third is that K*spq* models perceptual discrimination. I discuss these arguments in turn.

To begin with, the ability to answer a question is *question-relative*. Someone might know the answer to one question but not know the answer to a closely related question; some questions are harder than others. Consider a series of increasingly difficult questions:

Q_1: What type of *bird* in the Garden? {crow, robin, blue jay, thrush}
Q_2: What type of *bird* in the Garden? {crow, magpie, goldfinch}

Q_3: What type of *bird* in the Garden? {crow, raven}
Q_4: What type of *bird* in the Garden? {male crow, female crow}

A subject asked Q_1-Q_4 may have no trouble correctly answering Q_1 and Q_2 via *p*: *there's a crow in the garden*. But the same subject may experience difficulty correctly answering Q_3 via *p*. This is because answering Q_3 requires a degree of ornithological expertise *s* may be lacking. Even a subject with considerable ornithological expertise may not be able to answer Q_4. After all, Q_3 may be a relatively easy question for an ornithologist but Q_4 is a harder one. So the ability to answer Q_1 and Q_2 does not entail the ability to answer Q_3, and the ability to answer Q_1, Q_2, and Q_3 does not entail the ability to answer Q_4. The point worth emphasizing is that identifying who can answer these questions requires recoding the alternatives at *q*. For example, just about anyone can answer Q_1 and Q_2; fewer people with more specialized knowledge can answer Q_3, and only a subset of these can answer Q_4. K*spq* thus records the information the question asked—it logs the question, so to speak—and so does the right job identifying who can answer. (5) thus fits (3) by recording the question.

The second argument is that K*spq* measures progress by recording the questions asked. Questions are closely related to inquiry (§2). John Dewey (1938: 105) specifies their relationship in these terms: "Inquiry and questioning, up to a certain point, are synonymous." So someone feeling Deweyian might inquire about my show-going habits: *How often do you take in live theater? When does the show begin? Do you have plans after? Why Othello and not the movies?* (etc). The qualification 'up to a certain point' cues in answers. For inquiry is more than merely rapid-fire questioning. Intuitively, when one conducts an inquiry one *searches for the answer*. In the terms of David Hume (1749: 77-8), when one searches for an answer one must "beat about all the neighboring fields." Inquiry is thus a question/answer process. David Harrah (1961: 40) expresses this idea succinctly: "An organ of rational inquiry should include a rational procedure for asking questions and giving and receiving answers." Accordingly, Hintikka (1981) formalizes inquiry as a cooperative game played between a Questioner and Answerer represented by movement through a sequence of question-and-answer pairs. Here, *s*'s ability to correctly answer Q_1 is measured by eliminating alternatives in route to Q_2. Inquiry produces knowledge at a stage by producing the ability to answer a question at that stage. Moving through a sequence of question/answer pairs constitutes *progress* through inquiry. Progress is measured by recording which stage of inquiry has been completed. K*spq*

thus tracks progress through inquiry by logging the question in terms of recoding which question was asked and which answer was given.[42]

The third argument Schaffer offers is that (5) fits perception. Perception is discriminatory ability. Cases of perceptual discrimination identify contrasts by differentiating the stimuli, *p*, from what it's being distinguished from, *q*. Weber's Law provides a general and thoroughgoing means of measuring discriminatory abilities. The Weber Law codifies stimuli in terms of just noticeable differences, where just noticeable differences are well described by $\Delta I/I=K$. In words: the size of any difference threshold is lawfully related to initial stimulus magnitude. For example, a highly trained ornithologist may be able to discern subtle differences in the frequency of bird songs. This is an impressive ability, given that many species of birds have remarkably similar tonal frequencies and pitches. Suppose we have two birds (a magpie and a lark, say) whose pitch varies only by a few megahertz. To an untrained observer, the frequency of their songs is indiscernible. But the value of the just noticeable difference to our ornithologist is 3 kHz. The difference in pitch therefore yields a just noticeable difference of 3 kHz in our ornithologist (i.e., $\Delta I=33-30=3$). Here, the size of a just noticeable difference in stimulation is a contrast (one chirp is 3 kHz higher than another). Discrimination-relative knowledge is thus contrastive knowledge: (5) fits (3) by logging the reported stimuli and what the stimuli was discriminated from. Discriminatory abilities are built to handle contrasts, so to speak.

§4

How do knowledge ascriptions express K*spq*? On Schaffer's view:

(6) Knowledge ascriptions encode K*spq* by encoding relations to questions.

There are three main types syntactically distinguishable knowledge-attributing sentences. Interrogative ascriptions ("Jed knows who shot JFK"), declarative ascriptions ("Jed knows that JFK was assassinated"),

[42] Sylvain Bromberger (1966: 597) applies this model to scientific investigations: "A science…consists of a set of accepted (or at least seriously entertained) propositions, a set of unanswered questions to which these propositions give rise, and a set of principles or devices for establishing the answers to such questions." And Mantti Sintonen (1997: 234) comments generally that: "If there is a philosophy of a working scientist it certainly is the idea that inquiry is a search for questions and answers."

and ascriptions which employ noun phrases ("Jed knows the day JFK was shot"). I describe the mechanisms for decoding K*spq* in each.

Interrogative ascriptions embed questions. Questions present contrasts (§1). The mechanism of question-relativity is thus given by the surface form of interrogative sentences (i.e., the *wh*-clause). So, for instance, if someone says, "I know who shot JFK", then the embedded question *Who shot JFK?* induces the possible answers {Oswald, Castro, CIA operatives}. Here, *p* is the select answer: Oswald, and *q* is the disjunct of rejected alternatives: {Castro, CIA operatives}. Consider a second illustration. If someone says, "I know what type of rifle was used to shoot JFK", then the embedded question, *What type of rifle was used to shoot JFK?* induces the possible answers (e.g.): {Enfield, Springfield, Garand, Carano}. Here, *p* is the select answer: Carcano, and *q* is the disjunct of rejected alternatives: {Enfield, Springfield, Garand}. In general, *s* knows-*wh* iff K*spq*, where *p* is the correct answer to the indirect question of the *wh*-clause, and *q* is a non-empty set of rejected alternatives.

Confirmation of the question-relative nature of interrogatives comes by way of (*i*) truth-value outcomes and (*ii*) the contextual recoverability of the question. Consider truth-values outcomes first. Suppose Jones glances at Sarah Palin speaking on television; then compare these knowledge claims:

(I1) Jones knows whether Sarah Palin or Hilary Clinton is speaking;
(I2) Jones knows whether Sarah Palin or Tina Fey is speaking.[43]

Jones may know the answer to I1 but not I2. Intuitively, I1 is a relatively *easy* question. Like most people Jones can discriminate Sarah Palin from Hillary Clinton. But I2 is a comparably difficult question. Perhaps only Will Ferrell can discriminate Sarah Palin from Tina Fey. The difference in truth-value between I1 and I2 is not due to either *s* or to *p*. In both contexts Jones is the subject and Sarah Palin is the speaker. The difference affecting truth-value outcomes are due to differences at *q*, between *q*1: Hillary Clinton is the speaker, and *q*2: Tina Fey is the speaker. Differences in contrasts thus affect truth-value outcomes.

The second confirmation of the question-relative nature of interrogatives is due to the contextual recoverability of the question. If Jones knows either I1 or I2, then Jones knows the answer to the contextually recoverable question, *Who's speaking on television?* (§2).

[43] Tina Fey is a comedic actress well-known for her impersonations of Sarah Palin. Schaffer (2005*a*: 246) chooses to use an illustration with Will Ferrell, a comedic actor well-known for his impersonations of George W. Bush, Jr.

Moving now to noun ascriptions. Knowledge ascriptions that employ noun phrases are semantically equivalent to interrogative knowledge ascriptions. So, for instance, "I know the time" and "I know the day of the week" are semantically equivalent to "I know *what* time it is" and "I know *which* day of the week it is, Tuesday" respectively. The mechanism of question-relativity is thus the interpretation of the noun phrase. So, for instance, if it is 9:00 a.m., then to know the time is to know *p*: it's 9:00 a.m. rather than *q*: 10:00 a.m. or 11:00 a.m., etc. Likewise, if today is Tuesday, then to know the day of the week is to know *p*: it's Tuesday, rather than *q*: Wednesday or Thursday or Friday, etc.

The same tests that confirm the question-relative nature of interrogative ascriptions confirm the question-relative nature of noun ascriptions. Consider truth-value outcomes first. Suppose:

(N1) Jones knows the speaker.

A token of N1 may be true in one context but false in another. Jones may know whether Sarah Palin or Hillary Clinton is the speaker in *c*1 but not know whether Sarah Palin or Tina Fey is the speaker in *c*2. The difference in truth-value outcome is not due to either *s* or to *p*. In both contexts Jones is the subject and Sarah Palin is the speaker. The difference affecting truth-value outcomes is due to differences at *q*, between *q*1: Hillary Clinton is the speaker, and *q*2: Tina Fey is the speaker.

The second confirmation of the question relativity of noun ascriptions comes from the contextual recoverability of the question. If Jones knows the speaker, it follows that there is a question about who the speaker is that can be recovered from context (§2).

Declarative sentences containing tokens of 'knows' (ascriptions of knowledge that feature a "that"-clause) inherit contrasts contextually. The mechanism of question-relativity is thus a Stalnakerian context set, §1 . So if Jed says, "I know that JFK was assassinated" in the context of who the murderer was, then the value of *p* is: Oswald, and the value of *q* is: another other person who may have done the deed. If one says this in the context of how JFK was assassinated, then the value of *p* is: that JFK was shot, and the value of *q* is: that JFK was assassinated some other way. In general, context constitutes the default source of contrasts for interrogative, noun, and declarative ascriptions.[44]

The same tests that confirm the question-relative nature of interrogative and noun ascriptions confirm the question-relative nature of declarative ascriptions. First, differences in contrasts affect truth-value outcomes. So, for example, suppose the context set in *c*1 is {Sarah Palin is

[44] See Morton and Karjalainen (2008: 249), Schaffer (2005*a*), Dretske (1972).

the speaker, Hilary Clinton is the speaker}, and the context set in *c*2 is {Sarah Palin is the speaker, Tina Fey is the speaker}. Now consider:

(D1) Jones knows that Sarah Palin is the speaker.

Intuitively, a token of D1 may be true if uttered in *c*1 but false if uttered in *c*2. The difference in truth-value is not due to either *s* or to *p*. In both contexts Jones is the subject and Sarah Palin is the speaker. The difference affecting truth-value outcomes are due to differences at *q*, between *q*1: Hillary Clinton is the speaker, and *q*2: Tina Fey is the speaker.

The question-relativity of declarative ascriptions is also confirmed by the contextual recoverability of the question. If Jones knows that Oswald shot JFK, then it follows that there is a question Jones knows the answer to—namely, the question *Who shot JFK?* (§2).

In sum, the contrastive view is that interrogative, declarative, and noun ascriptions embed contrasts by encoding K*spq*.

§5

What are the conditions of knowledge, if knowing is knowing the answer? For the contrastivist,

(7) K*spq* iff (*i*) *p*; (*ii*) *s* has justification that *p* rather than *q*; and (*iii*) *s* believes that *p* rather than *q*, based on (*ii*).[45]

The first condition is the truth condition: *p* is true, being known. The second condition is the contrastive implementation of justification. The contrastive view of justification is a form of *restricted infallabilsm* about evidence. To be justified in *p* rather than *q* one must have conclusive evidence that *p* rather than *q*. What is it for *s* to have conclusive evidence *p* rather than *q*? It is to have evidence that obtains only if *p* is true, given that either *p* or *q* is true. The contrastive view of justification is thus *restricted* to the extent that the domain of quantification is limited to {*p* or *q*}; and *infallible* to the extent that *s* cannot be wrong about *p*, given {*p* or *q*}.

The third condition is the belief condition. It is a form of *restricted indubidability* about *p*. It is *indubitable* because it requires certainty

[45] Schaffer's terminology differs slightly: "K*spq* iff (*i*) *p*; (*ii*) *s* has conclusive evidence that *p* rather than *q*, and (*iii*) *s* is certain that *p* rather than *q*, on the basis of (*ii*) (2005: 255)." I choose to use the more common terms "justification" and "belief" on the grounds that they're more natural. Given that Schaffer explains (*ii*) and (*iii*) using the language of justification and belief, no harm is done.

(absence of any doubt that *p* is the case); and *restricted* to the extent that possibilities open to doubt are limited to *p* or *q*.[46]

Overall, knowledge within an erotetic framework provides a principled constraint on what it is for a person to know a proposition. Knowledge requires ruling out *q*-alternatives (or as a contrastivist might say, the elimination of the contrast). To know *p* is to eliminate all-but-*p* (§1). (7) is thus the contrastive implementation of the contextualist idea that knowledge requires eliminating relevant alternatives (Dretske 1970, Lewis 1996, Neta 2002). What constitutes a relevant alternative in an erotetic epistemology is what constitutes a possible answer to a question.

§6

It is possible to motivate contrastive knowledge non-erotetically. Overall, this is the best way to understand the work of Morton and Karjalainen (2003, 2008) and Morton (2010, *forthcoming*). Morton and Karjalainen (2003) motivate contrastive knowledge by considering different aspects of a thinker's belief that fail to count as knowledge.

To begin with, for any belief a subject possess that belief has different components and a subject might be mistaken about which components obtain. So, for instance, suppose that Jones glances out of a window, sees a robin on a branch, and comes to believe *p*: *there's a robin on the branch*. In this context, *p* has two components, b_1: *x* is a robin; and b_2: *x* is on the branch. These components constitute the *propositional content* of *p*.

It's perfectly possible that Jones is mistaken about his belief's propositional content. Suppose Jones is mistaken about b_1: Jones cannot tell the difference between robins and sparrows. So Jones doesn't know if the bird is a robin rather than a sparrow. Epistemically speaking, we can describe Jones' situation by saying Jones knows *where* the bird is but not *what* it is. So it would be wrong to deny that Jones knows something in this case, but—and this is the crucial point—a declarative sentence cannot be used to ascribe knowledge to Jones in this context. For if we used the ascription "*s* knows that *p*", we would wrongly attribute to Jones knowledge of what kind of bird it is, and that's precisely what Jones *doesn't* know. What is needed, then, is a knowledge-attributing sentence

[46] Schaffer (2005*a*: 255) offers these comments about (7): "I should emphasize from the outset that [(7)] is the least important and least promising part of the contrastive view. It is the least important insofar as K*spq* is compatible with virtually any analysis of knowledge (even none at all). And it is the least promising insofar as the history of philosophical analyses suggests that counterexamples are inevitable. Thus [(7)] is merely intended as a *useful gloss*."

that correctly attributes knowledge to a subject but one that is sensitive to the ways in which a subject's belief might be in error. Contrastive ascriptions of knowledge stop the gap. For we can say—rightly—that Jones knows a bird is on the branch rather than on the window sill but does not know the bird is a robin rather than a sparrow.[47] Here, then, is one virtue of this type of contrastivism. Contrastive knowledge ascriptions capture a sense of 'knows' that cannot be captured non-contrastively.

Varying the elements of *p* slightly yields a different ascription of contrastive knowledge. Suppose Jones is mistaken about b_2 but not b_1; that is: Jones knows *what* kind of bird it is but not *where* it is. Once again Jones knows something and once again a contrastive ascription of knowledge can be put to meaningful use: Jones knows the bird is a robin rather than a sparrow but does not know if the robin is on the branch rather than levitating a micron above it (e.g.).

Contrastive knowledge ascriptions are thus something less than full binary ascriptions, but that doesn't make them any less important, since they capture a sense of knowledge otherwise unavailable using the locution "*s* knows that *p*." The result is that if we accept that people often know some but not all of the propositional content of their beliefs, we can understand the usefulness and rationale of contrastive knowledge ascriptions in our knowledge-attributing practices.

Morton's later work is a development of this theme. Here, Morton (2010) refers to ascriptions of knowledge involving contrasts by introducing a term of art: the partial-Gettierization. *Partial-Gettierizations* occur when a person's belief fails to be knowledge with respect to some but not all of its propositional content.[48] So (and to continue with the bird example), when Jones knows where the bird is but does not know what it is, Jones' belief fails to be knowledge relative to the contrast {robin, sparrow} but is knowledge relative to the contrast {branch, window sill}. Likewise, when Jones knows what kind of bird it is but does not know where it is, Jones belief fails to be knowledge relative to the contrast {branch, window sill} but is knowledge relative to the contrast {robin, sparrow}.

Beliefs with more complex propositional content yield increasingly subtle and intricate ways a person's belief might be in error. For example, suppose Jones believes *p*: *the man in front of me is drunk*. This belief has

[47] In which ways might a thinkers belief be based on error? Potentially a variety of ways. Morton (*forthcoming*) argues that sources of contrasts vary contextually based on visual accuracy, conceptual repertoire, and the limited discriminatory power of evidence.

[48] Morton attributes this view to Dretske (1970). The rationale for calling these partial-Gettierizations instead of Gettier cases is this: *s* is not being *denied* knowledge (which makes it a Gettier case); *s* is being denied knowledge of some aspect of *p* (which makes it a "partial" Gettier case or "partial" Gettierization).

three components, b_1: x is a man; b_2: x is in front of Jones; and b_3: x is drunk. It's perfectly possible that Jones is mistaken about one or the other of these components. So, for example, suppose Jones is mistaken about b_1 but not either b_2 or b_3: the man is really a woman on her way to a cross-dressing party and without getting too close Jones cannot discriminate the person's gender. In this case, Jones knows the person in front of him is drunk rather than ill or exhausted but does not know that the person is a man rather than a woman. Jones might be mistaken about b_2 but not either b_1 or b_3. So, for instance, suppose Jones cannot distinguish distances past ten meters within three feet. So Jones knows the man is drunk rather than ill or exhausted but does not know if the man is thirty-three feet away rather than thirty-six feet away or thirty. Jones could be mistaken about b_3 but not either b_1 or b_2. Suppose that Jones has never heard of tardive diskenesia, a neurological disorder that presents symptoms similar to drunkenness. So Jones knows a man in from of him rather than a woman or a child but does not know if the man is drunk rather than suffering from tardive diskenesia. In each of these cases, Jones knows something but what Jones knows is cannot be captured non-contrastively.[49]

Morton calls knowledge ascriptions that involve partial-Gettierizations "hyper-contrastive", where a hyper-contrastive knowledge ascription is one that is sensitive to the ways in which the propositional content of *s*'s belief might fail to be knowledge. Hyper-contrastive knowledge ascriptions are ubiquitous is any sufficiently comprehensive description of a subject's epistemic situation. Hence Morton (*forthcoming*) says that the details of a person's epistemic situation are "usually more complex that might be predicated from a very simple contrastivism." In this sense, describing any thinker's epistemic situation by saying "*s* knows *p*" is just as misleading as saying "*s* knows *p* rather than *q*."

§7

Now it's worth asking whether these motivations for contrastive knowledge—the erotetic and the epistemic—are divergent after all. My view is that these motivations are compatible. Before discussing

[49] Timothy Williamson (1992) describes similar types of cases in terms of *inexact knowledge*. One only ever has inexact knowledge of the height of yonder tree, for example. The height of yonder tree is reliable *within a margin of error*. For the contrastivist, what suffices to capture an ascription of inexact knowledge is what suffices to capture a contrastive ascription of knowledge.

contrastivism in connection to some central epistemic disputes (Chapter Three and Four), I sketch out some common ground.

The point that emerges relatively clearly from a partition semantics for questions is that a subject may know the answer to one question but not know the answer to a closely related question (§3). To borrow an example from Schaffer, a subject might know the answer to Q_1: *What type of bird is in the garden* {canary, crow}? but fail to know the answer to Q_2:*What type of bird is in the garden* {raven crow}? The point worth emphasizing about these cases is that they share more than a passing resemblance to partial-Gettierizations.[50] Partial-Gettierizations begin with one or more questions *s* can answer, proceeds to one or more question *s* cannot answer; then conjoins the result in a contrastive knowledge ascription. To work with a case Morton and Karjalainen introduce, when Jones knows *where* the bird is but doesn't know *what* the bird is Jones can answer Q_1: *Where is the bird?* but not Q_2: *What kind of bird is it?* Given that an erotetic epistemology analyses ascriptions of knowledge in terms of a subjects ability to answer a question, and partial-Gettierizations are cases that involve multiple questions, I see no principled reason partial-Gettierizations cannot be brought under the umbrella of a partition semantics. A partition semantics thus joins both views at the hip, so to speak.

A few more illustrations prove useful. You probably know *what* day of the week it is but not *what* the precise time is. So you know the answer to Q_1: *What day of the week is it?* but not Q_2: *What time is it?* We can thus ascribe to you the following partial-Gettierization: you know the day of the week is Tuesday rather than Wednesday, but you don't know if it's 1:00 p.m., rather than 1:30 p.m. or 2:00 p.m. Suppose you're visiting with a student who's drinking from a non-disposable cup. This situation presents you with questions. You can answer the question Q_1: *What type of container is the student drinking from?* but not Q_2: *What type of beverage is the student is drinking?* Hence the partial-Gettierization: you know Janet (e.g.) is drinking from a disposable container rather than a non-disposable container but you don't know if Janet is drinking coffee rather than tea or a latte. Consider a final illustration. Suppose you see a Ford Escort driving on the highway. You can answer the question, Q_1: *What type of car is it?* but not Q_2: *What kind of transmission does it have?* In this case, you know the car is a Ford Focus rather than a Honda Civic but you don't know if the car has an automatic rather than a manual transmission.

In sum, in this Chapter I've motivated the two approaches to contrastive knowledge in the literature. In Chapters Three and Four, I

[50] Morton and Karjalainen (2003: 78-9) observe this connection to questions and identify questions as a natural source for contrastive ascriptions.

discuss how opposing views of contrastivism handle some contemporary disputes in epistemology.

Chapter Three

The Contrastive and Erotetic Solutions to Scepticism

Scepticism is arguably the most important topic in contemporary theory of knowledge. If sceptical challenges cannot be met, further work in epistemology is pointless. But if sceptical challenges can be met, an acceptable solution is yet to be offered. In the first half of this Chapter, I discuss how opposing views of contrastivism handle this topic (§1-§2). In the second half of this Chapter, I discuss scepticism "erotetically." Here, I explain how sceptical possibilities factor into the question and answer process (§3-§7).

§1

Here's a passage from Francis Bitter's *Magnets*:

> An event that stands out must have happened in my early teens. I was paddling a canoe on a clear night and letting my thoughts roam. Suddenly it came over me, and with something of a shock, that maybe everything that I considered most real was pure imagination. The lake, the canoe, the paddle, the stars, the night, the trees, even the feeling of water on my hand, might merely be sensations…that the feeling of the solid earth when I walked on it was only a feeling.[51]

Possibilities like the one expressed in this passage are ubiquitous in contemporary epistemology. The expression of these possibilities often lacks the literary flare of Bitter's imagining, but the point is always the same. It's at least possible we're entirely mistaken about what we think

[51] Quoted from Anthony Rudd (2008): 313.

we know. Bitter thus describes what is referred to in epistemology as a *sceptical possibility*.

The literature on epistemological scepticism is full of sceptical possibilities. Consider a contemporary example. You don't know you're not in the *Matrix world* (e.g.). In the Matrix world, your body is submerged in a vat of nutrients and your brain is connected to a sophisticated super computer. Through a series of artificial inputs, the Matrix produces in you the same beliefs and perceptual experiences you would have if you were living in the real world. Since nothing you could ever experience distinguishes your being in the Matrix world from your being in the real world, you *don't know* you're not in the Matrix world.

Possibilities like you're in the *Matrix world* feature prominently in discussions about scepticism. Following Keith DeRose (1995) and Duncan Pritchard (2002), among others, let's take the *sceptical paradox* to consist of the joint incompatibility of the following propositions, each of which appears to be perfectly in order. Let '*p*' represent ordinary sorts of propositions you think you know (such as the Moorian proposition "I know that I have hands") and let '*sp!*' represent your preferred sceptical possibility. We can then generate these three claims:

(P1) I know *p*.
(P2) I do not know ~*sp!*.
(P3) If I do not know ~*sp!*, then I do not know *p*.

Each of these propositions is independently plausible but when taken together cannot all be true. We standardly take ourselves to know the ordinary sorts of propositions specified by (P1). (P2) seems equally plausible as well. After all, everything you're currently experiencing is perfectly consistent with the possibility that you're in a tub in the Matrix or dreaming (or whatever). Lastly, (P3) is a perfectly good deduction. Key disputes in epistemology concern how to handle this paradox.

Here are four standard solutions.

Option One is *Scepticism*. Here, we deny (P1) on the basis on (P2) and (P3). The sceptic thus has it that you don't know you have hands (e.g.), given that you don't know the denial of sceptical possibilities. The sceptical argument that results from the sceptical paradox can be stated precisely:

(S1) You do not know ~*sp!*
(S2) If you don't know ~*sp!*, then you do not know *p*.
(SC) So you don't know *p*.

This argument is clearly valid. As Pritchard observes it's also highly intuitive. As such, any reply to the effect that scepticism is false is *prima facie* counterintuitive.

Option Two is *Dogmatism*. Here, one avoids the sceptical interpretation of the sceptical paradox by denying (P2). We do not need to know the denial of sceptical possibilities in order to know the ordinary

propositions that we think we do. You can be more certain that you have hands (e.g.) rather than the conclusion of any sceptical argument that says otherwise.[52] The result is that any argument that concludes that Scepticism is correct (i.e., Option One) must be false.

Option Three is *Closure-denial*. If we deny the intuitively plausible principle that knowledge is Closed under deductive entailment, we're in position to deny (P3).[53]

Option Four is *Contextualism*. Contextualists index the truth-value of knowledge-attributing sentences to contextually relevant standards. In low standard contexts, ordinary knowledge-attributing sentences are true and scepticism is false; in high standard contexts, ordinary knowledge-attributing sentences are false and scepticism is true. Since (P1) and (P2) are never true in the same context, contextualism renders scepticism and knowledge compatible.

I reject these solutions.

I reject Option One on the grounds that it's *unduly concessionary*. Defeating or otherwise adequately responding to scepticism is an objective of any theory of knowledge; so conceding Option One without scruple is *prima facie* undesirable.

I reject Option Two on the grounds that it creates an *epistemic impasse*. Option Two is less a meeting of minds than a firmly entrenched declaration of positions. Dogmatists claim to know *p*; sceptics deny this. The impasse can be resolved. Hence I reject Dogmatism.

I reject Option Three on two counts. I reject Closure-denial on the grounds that (*a*) Closure *preservation* is a desideratum of any theory of knowledge; and (*b*) blindly accepting or rejecting the epistemic Closure principle is mistaken. An epistemic *via media* is both plausible and available.[54]

I reject Option Four on as many counts. First, contextualism treats 'knows' as a *lexical freak*. What allows truth-values to vary contextually is that 'knows' either is (or acts very much like) an indexical (see, e.g., Stewart Cohen 1988: 97, DeRose 1992: 920, Ram Neta 2003). Indexicals change the truth-value of sentences they're uttered in. So, for instance, the sentence, "I'm in the pantry" might be true if uttered by Jones but false if uttered by Smith. The only non-controversial examples of indexicals are demonstratives (e.g., 'this', 'that') and pronouns (e.g., 'I', 'he', 'she'). Treating 'knows' as an indexical is an unprincipled linguistic exception.[55] I also reject contextualism because it's *intuitively bizarre*. For

[52] See, e.g., G.E. Moore (1925).
[53] I discuss this option in more detail in Chapter Four.
[54] I discuss this in Chapter Four.
[55] More recently, Jason Stanley (2004, 2005) has argued that unlike standard lexical types that allow for modifiers, 'knows' doesn't take to modification well or at all. Once

the contextualist, we know the denial of sceptical possibilities just as long as we're not thinking about them.[56] Third, contextualism renders knows *too shifty* to score inquiry. As Jonathan Schaffer (2005*a*: 261) observes, our ability to measure progress through inquiry requires the ability to evaluate how a subject performs through a sequence of question/answer pairs. This requires a vocabulary to keep a consistent score. But 'knows' is too shifty to keep a consistent score. The final reason I reject contextualism is based on *limitations*. Whatever contextualism can do contrastivism does better, and less objectionably so (Schaffer 2004).

In any case, the point I wish to emphasize is that each of the standard replies to scepticism is based upon the declarative model of knowledge (Chapter One). This is the view according to which knowledge is a two-place, binary relation between a person and the proposition the person knows. Conceptualizing knowledge as a ternary relation between a person, the proposition the person knows and a *contrast class* matters considerably for the ways it makes sense to think about the sceptical paradox. So how does the contrastivist respond to the sceptical paradox? What is Option Five?

Option Five is *Contrastivism*. According to the version of contrastivism that develops in the work of Schaffer (2004, 2005*a*, 2007*a*, 2008, 2009), contrastivism contributes to discussions about scepticism by showing how ordinary claims to know and their denial are compatible. They concern different contrasts. Moore knows *p*: *I have hands*, rather than *q*: hooks or stumps or prosthetic hands, but Moore does not know *p*: *I have hands,* rather than *q*: vat-induced hand images or dream-hands. Contrastivism thus mirrors the anti-sceptical motif of contextualism by conceding to the sceptic, but this concession does not come without an anti-sceptical price. The anti-sceptical price is that the sceptic too must concede to the Moorean. Let me explain.

In the epistemic literature, sceptical possibilities are presented as alternatives to a person's belief that, unless eliminated, ruin a person's claim to know (Austin 1946, Dretske 1981, Lewis 1996, Neta 2002). Overall, contrastivism requires the elimination of these alternatives (or better: the elimination of the contrast). For ease of reference, let's conceptualize propositions in terms of worlds. We can then say that there are plenty of worlds you can eliminate, these include worlds where you have stumps or prosthetic hands instead of hands. And there are plenty of words you cannot eliminate, these include the actual world and worlds

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again, unless there are principled reasons for treating the verb 'knows' as a special case, treating 'knows' as a special case is unwarranted.

[56] On this point Jonathan Kvanvig (2008: 248) observes: "Not much mileage can be had by emphasizing this feature of the view, so contextualists tend rather to focus on the anti-sceptical nature of their view rather than the anti-commonsensical feature." A similar point is raised by Stephen Hetherington (2008).

where sceptical possibilities obtain. Borrowing a turn of phrase from Schaffer (2005: 258), let's say that for any *s* and for any *p*, *s* has a *discriminatory range* R over *p*, where R is the union of ~*p* worlds which *s* can distinguish from actuality. So, for instance, if *p* is: *I have hands*, R is the union of worlds *s* can distinguish from *p*: {*w*: hooks, *w*: prosthetic hands, *w*: stumps}. If *p* is: *I have hands*, worlds *s* cannot distinguish from *p* include {*w*: vat-induced hand images, *w*: dream-hands, *w*: hallucinatory hand experiences}.

The notion of a discriminatory range allows us to state perspicuously what *s* does and does not know, relative to particular contrasts. Generally speaking, when *s* can discriminate *p*-worlds from *q*-worlds, *s* knows *p* rather than *q*. When *s* cannot discriminate *p*-worlds from *q*-worlds, *s* does *not* know *p* rather than *q*. This set-up entails that you cannot know the denial of sceptical possibilities on the general and thoroughgoing grounds that sceptical possibilities lie *outside* your discriminatory range. Pessimism about Moorean knowledge follows. You don't know you have hands rather than Matrix induced hand images (e.g.). But optimism about Moorean knowledge follows as well. You know you have hands rather than hooks (e.g.). The point to emphasize is simple and powerfully anti-sceptical. Since the absence of *s*'s ability to eliminate possibilities outside of *s*'s discriminatory range does not imply the absence of *s*'s ability to eliminate possibilities within *s*'s discriminatory range, sceptical possibilities do not imply the absence of knowledge. Moorish claims to know and scepticism are compatible. The sceptical paradox is resolved.[57]

Contrastive implications in epistemology are not all anti-sceptical. An idea introduced into the literature by Adam Morton (2010) is that beliefs can fail to be knowledge with respect to some of their content (Chapter Two, §6). These cases sufficiently motivate our use contrastive knowledge ascriptions. Morton frames his discussion about these cases in terms of *partial-Gettierizations*. Knowledge ascriptions sensitive to partial-Gettierizations are expressed "hyper-contrastively", where a knowledge ascription is hyper-contrastive when *p* and *q* have distinct contrast classes. For example (and reintroduce a case from Chapter Two), suppose Jones believes *p*: *the man in front of me is drunk*. This belief has three components: *x* is a man; *x* is in front, *x* is drunk. These elements

[57] Schaffer bolsters this anti-sceptical position by implementing a contrastive view of epistemic Closure (see Chapter Four). Roughly speaking, Schaffer denies that valid inferential relations obtain over states that *s* cannot distinguish from actuality. So, for instance, if one knows one has hands rather than hooks one cannot thereby know one has hands rather than Matrix induced hand-images, even though this is entailed by what one knows. This is because Matrix induce hand-images is a ~*p* world indistinguishable by *s* from *p*. So one cannot use the fact that Moore knows he hands rather than hooks to infer that Moore knows he has hands rather than Matrix induced hand-images.

constitute the *propositional content* of Jones' belief. It's perfectly possible for Jones to be mistaken about his belief's propositional content. So, for instance, suppose Jones cannot distinguish drunkenness from tardive dyskenesia, a neurological disorder that presents symptoms similar to drunkenness. In that case, the declarative ascription: "Jones knows that the man in front of him is drunk" is false, but the hyper-contrastive ascription: "Jones knows there's man in front of him rather than a woman or a child but Jones doesn't know if the man is drunk rather than suffering from tardive diskenesia" is true. Or suppose Jones cannot reliably distinguish distances past ten meters within three feet. In this case, the declarative ascription: "Jones knows the man thirty feet in front of him is drunk" is false, but the hyper-contrastive ascription: "Jones knows the man in front of him is drunk rather than tired or ill but does not know if the man is thirty feet away rather than thirty-three feet or thirty-six" is true. Finally, suppose that the man is really a woman in drag and Jones cannot distinguish between them at a distance. The declarative ascription: "Jones knows the man in front of him is drunk" is false, but the hyper-contrastive ascription: "Jones knows there is a drunk person in front of him rather than behind him but does not know if the person is a man or a woman" is true.

When we combine the potential failure of belief with a constraint upon knowledge that requires the elimination of relevant alternatives, partial-Gettierizations introduce a new and basic type of scepticism about knowledge. On the plausible assumption that we don't ordinarily rule out alternatives to the propositional content of many of our beliefs, we must allow that most of our beliefs can fail to be knowledge with respect to some of their content. This is a sceptical conclusion. But it's a conclusion Morton describes as one we can live with.[58]

The final point I wish to emphasize about the contrastive treatments of scepticism is that both Schaffer and Morton offer *epistemological* analyses of scepticism. Schaffer's concerns a thinker's ability to evidentially distinguish worlds (bolstered by an account of Closure,

[58] Apart from opposing diagnosis of scepticism, the versions of contrastivism in the literature offer epistemology a robust, enduring concept of knowledge. Within the tradition of epistemology that conceptualizes knowledge in declarative terms, claims to know shipwreck on sceptical possibilities. Given a claim to know *p*: *I have hands* (e.g.) and given the introduction of some *sp!*—you're in the Matrix (e.g.)— you no longer know *p*. All one needs to do to shipwreck a particular claim to know is to raise an eneliminable alternative to *s*'s beliefs consistent with *s*'s experience. In that case—*poof!*—knowledge disappears (Lewis, 1996). Knowledge doesn't so easily disappear when conceptualized contrastively. The introduction of *sp!* ruins a thinkers claim to know *p*: *I have hands* rather than, *q*: *I'm in the Matrix*. But it does not ruin a thinker's claim to know *p*: *I have hands* rather than *q*: {hooks or prosthetic hands}. In short, knowledge within a contrastive framework *endures*; knowledge within a contrastive framework *vanishes*.

suitably understood)[59] and Morton's concerns alternatives to a thinker's beliefs that remain uneliminated. But the point I wish to focus on in particular concerns a deficiency of sorts in Schaffer's view. Since Schaffer motivates knowledge by viewing it as an implementation of a partition semantics for questions (Chapter Two), it's unclear why he offers an *epistemic* solution to scepticism instead of an *erotetic* one. Whatever the reason, it's worth fleshing out what an erotetic solution to scepticism looks like. Accordingly, in the second half of this Chapter I offer this diagnosis.

§3

Sometimes the best way to handle a philosophical issue is to handle it indirectly. In step with this intuition, I discuss scepticism erotetically by discussing the purpose or aim of sceptical possibilities.

Thinking seriously about sceptical possibilities raises a question about their objectives. What is the purpose or aim of a sceptical possibility? Let's call this the *sceptical question*. I address the sceptical question by drawing on the literature in analytic epistemology (§4); then I diagnose what (if any) common themes they share (§5). I then propose to answer to the sceptical question. The purpose of a sceptical possibility can be identified with our inability to *answer a question* (§6). In the final section I sketch out an erotetic reply to scepticism (§7).[60]

Perhaps the most intuitive answer to the sceptical question is the most straightforward. Sceptical possibilities show we don't know what we thought we did. In the terms of Schaffer (2010), sceptical possibilities *debase* our claims to know. But showing we don't know what we thought we did is only part of the story; *yes*: sceptical possibilities show (or potentially show) that we don't know what we thought we did. But no epistemologist has ever been content with that. After all, identifying sceptical possibilities with a potential loss of knowledge neglects the variety of ways philosophers respond to sceptical possibilities and to that extent it neglects—wrongly—the positive epistemic developments that result from the hard work of formulating anti-sceptical replies. It is this sense of the *result* of a sceptical possibility—the content of philosophical replies to scepticism—that I identify as the purpose or aim of a sceptical possibility. From this perspective, philosophers who were either sceptics

[59] See *n*7.

[60] My thanks to Duncan Pritchard and Bernard Linsky for helpful comments in this section.

themselves or deeply concerned with scepticism answer the sceptical question differently.

For many philosophers sceptical possibilities tell us about *knowledge*. While there are different ways a sceptical possibility can do this, sceptical possibilities are used by some philosophers to identify the *conditions* of knowledge. Robert Nozick (1981), for example, says that for our beliefs to count as knowledge it must not be the case that our beliefs could easily be false. This makes our beliefs' *sensitive*.[61] Likewise, Ernest Sosa (1996, 2000) says that for our beliefs to count as knowledge it could not easily happen that we accept beliefs when those beliefs are false. This makes our beliefs' *safe*. Others conceptualize the connection between sceptical possibilities and knowledge more generally. Pritchard (2008), for example, says sceptical possibilities force epistemologists to choose between internalist and externalist theories of knowledge, and David Lewis (1996) says sceptical possibilities reveal the variable standards of knowledge-attributing sentences.

Sceptical possibilities are also used by philosophers to identify *principles* of knowledge. Fred Dretske (1970, 2005), for example, says that we cannot infer the denial of sceptical possibilities based on what we know even though the denial of sceptical possibilities are logical consequences of what we know. This means that knowledge is not "closed" under known implication. Others say that since we have the same beliefs and perceptual experiences in the situations described by sceptical possibilities whether we're in these situations or not, sceptical possibilities show that our beliefs and perceptual experiences are underdetermined by data (Brueckner 1994, Fumerton 2005, Vogal 2005).

Other philosophers agree that sceptical possibilities tell us about knowledge, but sceptical possibilities do this by telling us about *belief*. While there are a variety of ways sceptical possibilities can do this too, one tendency is to use sceptical possibilities to show that a certain class of beliefs (or phenomenological states) is immune or certain (G. E. Moore 1925, Wittgenstein 1969, Pryor 2000, Lewis 1946). A second tendency is to use sceptical possibilities to *explain* beliefs. Sceptical possibilities do this by revealing better (or worse) ways to understand our beliefs' causal origins (Russell 1912, Vogel 1990, Bonjour 2003).

Surprisingly, sceptical possibilities are used by other philosophers to tell us about *sceptical possibilities*. According to these philosophers, many sceptical possibilities are too fantastic to be taken seriously. Although it's perfectly possible that you're in the Matrix world (and so perfectly possible that all of your beliefs are false), that scenario is so implausible that it doesn't need to be taken seriously (Stine 1975, see also Goldman 1976). Sceptical possibilities are thus irrelevant to the assessment of

[61] See also Fred Dretske (1971).

knowledge. Finally, sceptical possibilities are used by some philosophers to tell us about the *a priori probability* that sceptical possibilities obtain (Bonjour 1985, DeRose, 2000).

Collectively, these views represent an answer to the sceptical question. Sceptical possibilities aim to tell us about *epistemology*. At first blush, answering the sceptical question epistemically captures our philosophical intuitions. But sceptical possibilities are used for a variety of purposes besides, and the general problem for any epistemic answer to the sceptical question is that it unduly neglects the variety of ways sceptical possibilities have been used for *non-epistemic* purposes.

For example, some philosophers say sceptical possibilities tell us about *cognitive psychology*. In the terms of Barry Stroud (1984: 39): "when we first encounter sceptical reasoning…we find it immediately gripping. It appeals to something deeper in our nature and seems to raise a real problem with the human condition." Stroud thus has it that sceptical possibilities tell us about "the human condition" and why sceptical possibilities are "immediately gripping." In a similar vein, Steven Luper (2003) discusses sceptical possibilities in terms of why we find them *attractive* and Keith DeRose (1995) discusses sceptical possibilities in terms of why we find them *nightmarish*. Finally, Christopher Hill (1999) analyses the reliability of our cognitive facilities in the situations described by sceptical possibilities.

Other philosophers also provide non-epistemic answers to the sceptical question. According to some versions of contextualism (e.g.), sceptical possibilities reveal the indexicality of 'knows' (DeRose 1992, Neta 2003, Cohen 1988). Still others say sceptical possibilities reveal how the meaning and reference of a proposition is determined (Putnam 1981) or about the presuppositions that underwrite interpreting speaker-utterances (Davidson 1975). For these philosophers, sceptical possibilities tell us about *language* and *communication*.

These views represent a fragment of the contemporary landscape. But they reveal enough of this landscape to safely conclude two things. First, it's fair to say that there are myriad answers to the sceptical question. Sceptical possibilities are used variously to tell us about epistemology, cognitive psychology, and language. Second, it's not obvious what a sceptical possibility should do or that it should do one of these things better or more naturally than any other.

§4

Reflections about the variety of ways sceptical possibilities are used suggest a strategy for answering the sceptical question. This strategy is to

discover what sceptical possibilities have in common (an invariant feature they share) then to identify the denotation of this invariant with their purpose or aim. With this strategy in mind, there are at least five candidate invariants—five separable objectives—sceptical possibilities can be identified with. I jointly refer to these candidates as *general view possibilities*.

One way to understand the aim of a sceptical possibility is to say that in every case a sceptical possibility is a *pedagogical device*. Pedagogically, sceptical possibilities aim to achieve the interests of those who advance them. A second way to understand sceptical possibilities pedagogically is to say that sceptical possibilities *focus research*. Sceptical possibilities do this by prompting us to respond to sceptical threats. A third view interprets sceptical possibilities as *invitations*. Here, sceptical possibilities invite us to think critically about what we know or believe by challenging the justification we have for believing what we do. By inviting us to think critically about justification, we can strengthen or abandon our beliefs based on how well or badly they handle sceptical attacks. A fourth way to understand the purpose or aim of a sceptical possibility is to identify sceptical possibilities as *challenges*. On this view sceptical possibilities are conceptualized as obstacles that need to be overcome. This view thus has it that one can develop a better philosophy based on scepticism than in the absence of scepticism or if sceptical possibilities were not considered serious threats. A final way to understand a common sceptical objective is to deny that sceptical possibilities have anything in common in virtue of which they can be studied.

I reject these positions.

Each describes a perfectly general and appropriate way to characterize a sceptical possibility, but what we want is *analysis* of sceptical possibilities, not (merely) an outline of their broad strokes. General view possibilities thus miss the mark, so to speak. More importantly, general view possibilities are subject to an objection based on *diffused objectives*. The worry here is that each putative aim of a sceptical possibility is shared by other methods philosophers use. So, for instance, run-of-the-mill arguments and intuition pumps achieve the interests of those who advance them, each focus research in the relevant sense, each invite us to think more deeply about the topic under discussion, and each can be characterized as a challenge that needs to be overcome. The result is that if the aim of a sceptical possibility is "diffused" in this way there is no uniquely correct answer to the sceptical question. But sceptical possibilities *do* share a common feature (a non-diffused invariant) in virtue of which the sceptical question has a uniquely correct answer. I turn to this issue now.

§5

Sometimes the best way to handle philosophical issues is to handle them indirectly. In step with this intuition, I propose to address the sceptical question erotetically. Here, sceptical possibilities can be usefully identified with our *inability to answer a question*. More precisely,

(1) The aim of a sceptical possibility is to show that we don't know the answer to a question we think we do.

I now clarify and argue for (1).

To begin with, when one knows the answer one knows the answer to a question, Q. What are questions? One way to understand discussions about questions is to understand them as attempts to explain the type of semantic object (or the type of semantic 'thing') questions are. Following Jeroen Groenendijk (1999) (see also Higginbotham and May 1981, Groenendijk and Stokhof 1984, Higginbotham 1993) and the work stemming from Charles Hamblin (1958) (Karttunen 1977, Belnap and Steel 1977), I adopt a *partition semantics* for questions. Within a partition semantics, questions denote options which are its possible answers.[62] So the question *What kind of car does Brown own?* asked in a context in which Chevy, Ford, Dodge, and Toyota are the possible answers, denotes the set: {Chevy, Ford, Dodge, Toyota}. Likewise, the question *Who got the philosophy job?* asked in a context in which Boo, Hicks, and Riley are the possible answers, denotes the set: {Boo, Hicks, Riley}.

Where do answers *come from?* Answers come from context. According to Robert Stalnaker (1999), a context can be modeled as a set of possible worlds (the 'context set') "which include all the situations among which speakers intend to distinguish with their speech acts" (99). The context set is "the set of possible worlds recognized by the speaker to be the 'live options' relevant to the conversation" (84-5). The set of live options recognized by conversational participants disjoin answers. So if the question concerns which type of car Brown owns, the context set might take the form {*w*: Ford, *w*: Chevy, *w*: Honda, *w*: Toyota}.[63]

We're now in a position to appreciate some epistemics of questions and answers. Suppose that you don't know the answer to the question about which type of car Brown owns. If you don't know the answer to this question and you select *Ford* you've *guessed* that *Ford* is the correct

[62] For discussion, see Rani Nelken and Nissim Francez (2002) and Sigrid Beck and Shin-Sook Kim (2006).

[63] Schaffer (2005*a*) adopts this model of context in discussions about contrastive knowledge.

answer to the question. Likewise, if you select *Ford* and *Ford* happens to be the correct answer, you've *luckily guessed* the correct answer to the question. But to know the answer to a question it is not enough to guess the correct answer. To know the correct answer you must have reasons to reject other possible answers the question induces. To borrow a term of art from epistemology, to know the answer to a question one must *rule out* or *eliminate* possible but false alternatives. Intuitively, if a subject can rule out all-but-one possible answer to a question, whatever is left is the answer.

The final point I wish to emphasize is that possible answers to a question can be partitioned as possibilities *within a region of logical space*. In the terms of James Higginbotham (1993: 196): "An *abstract question* [is] a nonempty partition…of the possible states of nature into *cells*." Charles Hamblin (1958: 166) offers similar remarks: "A question is equivalent to a…section or division of the possible universes. The set of possible universes is split up into a number of subsets, each subset representing an answer to the question..." These cells or sections are a semantic image of a *multiple-choice slate*. Picturesquely:

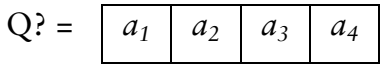


Figure One

A natural language interpretation of the meta-language question represented by *Figure One* might be (e.g.): *Who stole the sapphire?* Here, the region of logical space induced by Q partitions the possible answers (e.g.) {Janice, Paul, Smith, John}.

The point that emerges relatively clearly is that the best way to understand *knowing the answer* is understand it *contrastively* (Schaffer 2004, 2005, Morton 2003). To *know the answer* is to know *p*: the correct answer, rather than any other non-*p* alternative induced by Q. To know the answer to the question about who stole the sapphire is to know that Janice stole the sapphire rather than {Paul or Smith or John}.

In sum, knowing the answer is an epistemic capacity to identify the correct answer among a series of competing alternatives. The ability to correctly identify an answer is a *capacity* insofar as one does not need to exercise it in order to posses it, and it is *epistemic* insofar as it produces knowledge by producing correct answers to questions.[64]

[64] At this point one might follow Stephen Hetherington (2008) and argue that knowledge is a capacity to do *many* equally important things, including answering questions. I'm close ally with Hetherington on this point. For present purposes, I'm focusing narrowly and in depth on the epistemics of questions.

§6

So how can we fix the sense in which sceptical possibilities aim to show us that we don't know the answer to a question that we think we do? Sceptical possibilities factor in on the general and thoroughgoing grounds that,

(2) Known propositions are answers to contextually recoverable questions.

Why (2)? I detailed arguments for (2) in Chapter Two. But a summary discussion proves useful.

The first argument for the recoverability of the question concerns the reduction of knows-*wh* to knows-*that*. As indicated, a reduction is any attempt to explain knows-*wh* in terms of knows-*that*.[65] So, for instance, Steven Böer and William Lycan (1986) analyze knows-*who* in terms of knows-*that*. Jason Stanley and Timothy Williamson (2001) analyze knows-*how* in terms of knows-*that*, and Jaakko Hintikka (1975), Alan White (1982), and James Higginbotham (1996) classify various epistemic constructions of 'knows' as departures from the knows-*that* form.[66]

So, for instance, if Tobias knows *who* won the big game, and Tomahawks won the big game, then Tobias knows *that* the Tomahawks won the big game. Similarly, if Jones knows *what* the score was, and the score was 55-0, then Jackson knows *that* the score was 55-0. Likewise, if Jackson knows *when* the plane departs, and the plane departs at 2:30 p.m., then Jackson knows *that* the plane departs at 2:30 p.m. How is the question *p* is the answer to recovered? The method of recovery is the method of decoding the indirect question of the *wh*-clause. Reflections about the reduction of knows-*wh* to knows-*that* reveals the validity of the following inferential pattern:

<u>Knows-*wh*</u>
Knows-*that*

A second argument for the contextual recoverability of the question invokes an argument articulated by Hamblin (1958). According to

[65] Chapter One, §1.

[66] How does knows-*wh* reduce to knows-*that*? What *form* does this reduction take? According to the reductive view, to know-*wh* is to know *that-p*, where *p* happens to be the answer to the indirect question of the *wh*-clause. Higginbotham (1996: 381) formalizes this reduction as a rule: "know(x,^π) ↔ ($\exists p$) (know(x, p) & p answers π)."

Hamblin, to know-*that p* counts as the answer to the equivalent question (i.e., the question *p*?). The method of recoverability is just asking the question *p* is the answer to. So, for instance, suppose Jones knows *p*: *that Peakcock is 39 years old*. Here, the propositional content of *p* determines the question Jones knows the answer to, in this case *How old is Peacock?* Likewise, if Watson knows *p*: *that Sarah stole the bicycle*, Watson knows the answer to the question about *who* the bicycle thief is: Sarah rather than any other suspect. In general, if *s* knows-*that p* there is a contextually recoverable question that *s* knows the answer to.[67] Counting *p* as the answer reveals the validity of the following inferential pattern:

knows-*that*
There is a *wh*-question *s* knows the answer to

Schaffer (2007) offers a third argument to contextually recover the question. Suppose *p* and consider: (*i*) an utterance of "*s* knows that *p*"; and (*ii*) an utterance of "*s* knows whether *p*." Schaffer argues that (*i*) and (*ii*) are semantically equivalent. Holding context fixed, the semantic equivalence of (*i*) and (*ii*) reveals the validity of the following inferential patterns:

s knows that *p*
s knows whether *p*

s knows whether *p*
s knows that *p*

So, for instance, if Watson knows *that* Janice stole the sapphire, Watson knows *whether* Janice stole the Sapphire. Likewise, if Watson knows *whether* Janice stole the sapphire, Watson knows *that* Janice stole the sapphire. In general, *s* knows that *p* iff *s* knows whether *p*.

Given that known propositions are answers to contextually recoverable questions, how do sceptical possibilities show that we don't know the answer to a question that we think we do? By (2), whenever you know *p* you know the answer to a contextually recoverable question. The sceptic *denies* that you know *p* is the answer to a contextually recoverable question because the sceptic denies that you can rule out all of the question's possible answers. The possible answer in question is given by the sceptical possibility the sceptic introduces. Since knowing the answer requires eliminating every possible answer but one (§5), and since sceptical possibilities are *ex hypothesi* eneliminable, you don't know that *p* is the answer to a contextually recoverable question after all. If this

[67] In the term of Charles Hamblin (1958: 161): "…to say that someone 'knows how' (or knows whether…' or 'knows when…' or 'knows where…' etc) is at most to specify a question and say that he knows the correct answer to it."

analysis is correct, the purpose or aim of a sceptical possibility is straightforwardly erotetic: sceptical possibilities show that we don't know the answer to a question we think we do, (1).

Consider a concrete illustration. Suppose you claim to know something the sceptic denies (say, *p*: *that you have hands*). Is there a contextually recoverable question you know the answer to? *Yes*: in this context *p* counts as the answer to the question *What's at the ends of your wrists?* Picturesquely:

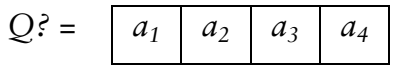


Figure Two

Here, a_1 corresponds to (e.g.) *hands*; a_2: *hooks*; a_3: *prosthetic hands*; a_4: *stumps*. According to the sceptic, you don't know the answer to the question at *Figure Two*. You don't know the answer to the question at *Figure Two* because you cannot eliminate a possible answer the sceptic introduces. This is the possible answer that you're experiencing Matrix or dream induced hand-images (e.g.). Since "Matrix induced hand-images" and "dream induced hand-images" are possible answers to the question *What's at the ends of your wrists?*, the semantic image of the answers to the question at *Figure Two* can be *expanded* like so:

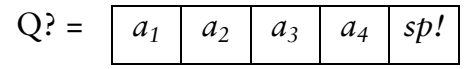


Figure Three

The noteworthy difference between *Figure Two* and *Figure Three* is the introduction of a sceptical possibility—*sp!*—in *Figure Three*. Intuitively, *Figure Three* represents a question you don't know the answer to. The point this example illustrates is perfectly general. For any known *p*, *p* is the answer to a contextually recoverable question, Q; and for any *sp!*, *sp!* is a possible answer to Q. Hence sceptical possibilities can be understood as showing that we don't know the answer to a question we think we do.

§7

Re-conceptualizing (or better: *identifying*) the point of a sceptical possibility erotetically has further applications in epistemology, one of which is a novel explanation of why philosophical scepticism is misguided.

How is scepticism misguided, erotetically speaking? Consider *Figure Two* and *Figure Three* once more.

Q?= | a_1 | a_2 | a_3 | a_4 |

Figure Two

Q?= | a_1 | a_2 | a_3 | a_4 | *sp!* |

Figure Three

These figures represent the semantic image of the question *What's at the ends of your wrists?* These figures are noteworthy because they were used in §5 to illustrate how the sceptic introduces and answer to a question you cannot eliminate, so do not know.

What is also noteworthy is that by introducing *sp!* in *Figure Three* the sceptic has effectively *changed* the question at *Figure Two*.[68] In fact, when the sceptic introduces *sp!* into *Figure Three* the sceptic is *stacking the deck*: you can't eliminate *sp!* and the sceptic knows it. But do you need to? Of course the sceptic assumes that by introducing *sp!* you no longer know *p*—"*psst! you can't eliminate that possibility!*"—and the sceptic is right: you can't eliminate that possibility. But it doesn't follow from the fact that you cannot eliminate *sp!* that you cannot eliminate other possible answers at *Figure Three* and hence partially answer the sceptic's question. *Partial answers* are used in the linguistic literature to explain how possible answers to a question are not reduced to a single possibility (i.e., the correct answer) but as a result are anyway diminished (see, e.g., Hamblin 1958, Higginbotham 1996, Groenendijk 1999). In the question under discussion, *sp!* remains uneliminated, but *s* can provide an answer by eliminating the possible but false alternatives that remain.

An illustration proves useful. Excluding *sp!* and counting *hands* as the correct answer to the question at *Figure Three*, there are seven possible disjunctions within the set: {a_1: *hands*, a_2: *hooks*, a_3: *prosthetic hands*, a_4: *stumps*, *sp!*} that constitute perfectly appropriate answers, given this particular question. Each of these answers is perfectly consistent with your expressed inability to eliminate *sp!* Partial answers include:

s knows p_1: *I have hands* rather than: {*hooks*}
s knows p_2: *I have hands* rather than: {*hooks* or *prosthetic hands*}
s knows p_3: *I have hands* rather than: {*hooks* or *prosthetic hands* or *stumps*}
s knows p_4: *I have hands* rather than: {*prosthetic hands* }

[68] For a discussion on how possible answers to a question can change the question, see Schaffer (2005*a*) and Christopher Hookway (1995).

s knows p_5: *I have hands* rather than: {*stumps* }
s knows p_6: *I have hands* rather than: {*prosthetic hands* or *stumps* }
s knows p_7: *I have hands* rather than: {*hooks* or *stumps* }

Since Jones can eliminate possible but false answers to the question *What's at the ends of your wrists?*, despite one possible answer denoting a sceptical possibility, Jones can partially answer the sceptic's question. What this suggests is that the sceptic wrongly neglects more general and thoroughgoing considerations about the questionee's epistemic situation and to that extent the sceptic rejects what the partition theorist takes as basic—namely, that eliminating some but not all possible answers to questions legitimately counts as knowledge.

So was David Lewis's (1996) *sotto voice* appraisal of our epistemic situation correct? That we know—*psst!*—only when we're not thinking about or ignoring sceptical possibilities? Erotetically speaking, *no*: your inability to answer questions involving sceptical possibilities does not imply your inability to provide partial answers and so does not imply the absence of knowledge. Erotetically speaking, the mistake made by the sceptic is to neglect the phenomena of partial answerhood. From an erotetic perspective, the sceptic fails to appreciate some of Ludwig Wittgenstein's (1953) advice. For Wittgenstein: "philosophical problems are solved not by giving new information, but by arranging what we have always known" (109). What suffices for arranging what we already know suffices for contrasting *p* with alternatives *s* can eliminate.

In sum, attempting to solve the puzzle of scepticism is a past time for many epistemologists. To the extent that philosophical analysis shows that counterexamples and objections are inevitable, the reply to scepticism sketched above is at best a useful gloss about how scepticism can be handled when the connections between questions, answers, and knowledge are taken seriously. But if I've got that far some hard work is done. For the reader recognizes the relevance of question asking and answering to topics in contemporary epistemology.

Chapter Four

Contrastive Knowledge and Epistemological Closure

Thinking about knowledge contrastively raises a question about epistemic Closure. How should a contrastivist about knowledge formulate the epistemic Closure principle? In the first two sections of this Chapter, I introduce the controversy and discuss Closure maneuvers over binary knowledge states. In the third section of this Chapter, I draw on themes developed in the first two sections and discuss how it makes sense to think about Closure contrastively. In section four I offer a critical assessment.

§1

The Epistemic Closure Principle (or "Closure" for short) is sometimes discussed as a topic of independent interest (Warfield 2004, Warfield and Davis *ms*, Hales 1995, Hawthorne 2005, Dretske 2005). More typically, Closure is discussed in reference to either scepticism (Brueckner 1985, Williams 1991) or knowledge (Nozick 1981, Sosa 1999, Dretske 2005). Whatever the context, discussions about Closure can be understood as attempts to discover if we can expand our knowledge by recognizing and accepting what follows from what we know.[69] If we can expand our

[69] One of my informants points out that there are multiple ways of formulating Closure and one ought to be wary of saying anything about Closure in general terms. I choose to characterize Closure in terms of *expanding knowledge* because (*a*) it's a natural staring point; (*b*) one goal of the Closure principle itself; and (*c*) it is consistent with the literature (see, e.g., Keith DeRose 1999: 13).

knowledge by recognizing and accepting what follows from what we know, knowledge is *closed* under deductive entailment. If we cannot so expand our knowledge, knowledge is not closed under deductive entailment.

So can we expand our knowledge by recognizing and accepting what follows from what we know? Is knowledge closed under deductive entailment?

Sometimes asking certain questions presupposes certain answers. In step with this intuition is the simple fact that we can (and regularly do) expand our knowledge by recognizing and accepting what follows from what we know. The result is that we can (and often do) acquire knowledge by deducing it from premises we already know and accept. Consider a few illustrations. Suppose you know p_1: *you're at a hockey arena watching your favorite team*. Knowing you're at a hockey arena watching your favorite hockey team entails p_2: *you're not working at your desk at home*. So it seems safe to say you know p_2. You also know p_1: *you're reading a paper about epistemology*. Knowing p_1 entails p_2: *you're not reading the New York Times*. Once again, it seems safe to say you know p^2. Ordinary usage and a little reflection are suggestive. At first blush anyway, Closure appears to be a perfectly rudimentary piece of epistemology.

So why deny Closure? Reasons to deny Closure vary. One reason is attributed to Robert Nozick (1981). Nozick denies that knowledge is closed on the grounds that the epistemic terms constitutive of knowledge are not closed.[70]

Consider the epistemic terms "justification" and "belief." "Justification" and "belief" are often cited as conditions of knowledge. So, for instance, suppose you have justification for p and you accept the entailment $p \rightarrow q$. Do you have justification for q? To work with a well-worn illustration, suppose you're at the zoo and observe what appear to be zebras in an enclosure. Suppose further than you have good justification for this—say, the sign on their enclosure reads "Zebra" and you observe zebra-like animals in the pen. "Zebra" entails "not deceptively elaborate mechanical-zebra." If Closure holds over justification, you should have justification that the animals in the pen are not deceptively elaborate mechanical-zebras. Do you have justification for this? Intuitively, you do not. "Justification" does not appear to be a closed epistemic term.

"Belief" does not appear to be a closed epistemic terms either. Suppose you believe p and you accept the entailment $p \rightarrow q$. Do you

[70] In Nozick's terms: "[K]nowledge is closed under known implication *only if* each necessary condition is so closed" (*italics added*). See also Anthony Brueckner (1985) and Ted Warfield (2004).

believe *q*? Consider an illustration. Suppose you believe that the animals in the pen are zebras. If Closure holds over belief, you should also believe that the animals in the pen are not deceptively elaborate mechanical-zebras. Do you believe this? Intuitively, you do not. Like "justification", "belief" does not appear to be a closed epistemic term.

Others deny that knowledge is closed because they deny that the *methods* of acquiring knowledge are closed. Fred Dretske (1970, 2005) is the philosopher most closely associated with this view. For Dretske, epistemic terms fail to "penetrate" to all of their logical consequences. So, for instance, suppose you're at a friend's house, observe what appears to be a bottle of Wolf Blass on the counter, and come to beleive p^1: *there's a bottle of Wolf Blass on the counter*. Knowing there's a bottle of Wolf Blass on the counter entails p^2: *material objects exist*. But one cannot know just by looking (or touching or seeing or tasting) that material objects exist. So in this case *s* knows that p^1 (via method *M*) entails p^2 but *s* does not know p^2 via method *M*. So Closure fails. Similar arguments can be run against other methods of knowledge acquisition (e.g., testimony, memory, etc).

But the most popular reason for denying Closure is the most straightforward. To work with a case introduced earlier, if you know you're at a hockey arena watching your favorite team and Closure holds, then you also know you're not working at your desk at home. So far so good. But if you know you're at a hockey arena watching your favorite team you also know one other remarkable thing. If you actually know you're at a hockey arena watching your favorite team, then you also know you're not in the *Matrix world*, since not being in the *Matrix world* is a logical consequence of being in a hockey arena. But any epistemologist worth her salt is reluctant to say you know *that*. The hesitation can be pinpointed. Whatever reasons or evidence you have for believing you're in the hockey arena are the same reasons or evidence you would have if you were in the *Matrix world* being stimulated to have the experience of being in a hockey arena. To use a technical piece of jargon, your beliefs and perceptual experiences are *underdetermined by the data* (Brueckner 1985, Stroud 1984). The point this case illustrates is perfectly general. We cannot know the denial of sceptical hypotheses based on what we know, even though the denial of sceptical possibilities are logical consequences of what we know. So Closure fails.

Despite these arguments there is widespread agreement that some version of the Closure Principle is valid. In the terms of Richard Feldman (1995): "[S]ome version of the closure principle…is surely true. Indeed, the idea that no version of this principle is true strikes me, and many other philosophers, as one of the least plausible ideas to come down the pike in recent years." Patrick Rysiew (2006: 260) offers similar comments: "…most epistemologists take the closure principle to be

obviously correct." Likewise, Stewart Cohen (1999: 68) says Closure as "axiomatic" and Timothy Williamson (1992: 219) adds: "It is counter-intuitive to suppose that making competent deductions from what we know is not in general a way of extending our knowledge."

The upshot is that sometimes it seems legitimate to extend knowledge based upon what we know and sometimes illegitimate. We should investigate when and why.

§2[71]

Suppose knowledge is a two-place relation between a person and the proposition the person knows, K*sp*. Here, K is the knowledge relation, *s* is the subject, and *p* is the proposition that *s* knows. The Standard Closure Scheme (SCS) for K*sp* can be stated precisely:

SCS $\quad (Ksp_1 \,\&\, (p_1 \rightarrow p_2)) \rightarrow Ksp_2$

According to this scheme: if *s* knows p_1 and p_1 entails p_2, then *s* knows p_2.[72] In short, knowledge is closed over *p-entailment*. Stated just so, the Closure principle is most certainly false. SCS is subject to a series of well-known objections, these include (*a*) *omniscience*: if we know p_1 we know all the consequences of p_1;[73] (*b*) *recognition failure*: we often fail to see the consequences of what we know (in which case p_2 follows p_1 but we don't know it); (*c*) *inference failure*: *s* may not have performed the relevant deduction, $p_1 \rightarrow p_2$; and (*d*) *failure of belief*: sometimes we see the consequences of what we know but fail to believe them.

None of these objections are fatal to SCS. What they suggest is that SCS requires a certain retooling. One way to do this is to *strengthen the antecedent*. We can do so by stipulating that the entailment $p_1 \rightarrow p_2$ is *known* by *s*.[74] So a first attempt to reformulate SCS can be stated like so:

$SCS_K \quad (Ksp \,\&\, Ks\,(p_1 \rightarrow p_2)) \rightarrow Ksp_2$

---

[71] I'm indebted to the work of Schaffer throughout this section.

[72] To be clear: "→" typically denotes a conditional. A more strict formulation replaces "→" with logical consequence: "|=". Here, SCS is read: $(Ksp_1 \,\&\, (p_1 \models p_2)) \models Ksp_2$. I chose to use "→" to be consistent with the literature.

[73] Bob Hales (1995), Shaffer (2007), Jonathan Kvanvig (2008).

[74] Timothy Williamson (2000) and John Hawthorne (2005) strengthen the antecedent by requiring that *s* completely deduces p_2 from p_1 (where competent deduction is one where *s* performs the inference from *p* to p_1 and believes that p_2 while retaining the belief p_1 throughout).

According to this reformulation, when *s* knows p_1 and knows that p_1 entails p_2, then *s* knows p_2. In short, knowledge is closed under *known p*-entailment.[75]

What can be said in favor of SCS_K is that it blocks objections (*a*)—(*c*): cases of omniscience failure, recognition failure, and inference failure. What can be said against this reformulation is that it doesn't successfully prevent objection (*d*): failure of belief. It remains possible for a person to see the consequences of one of her beliefs but fail to accept them. So SCS_K doesn't result in a successful reformulation of Closure. Worse, whatever advantage is gained by moving from SCS to SCS_K is offset by new worries. So, for instance, one might object to SCS_k based on (*e*) *irrational worries*: *s* might believe p_2 but for irrational reasons (Schaffer 2007) or it might be irrational for *s* to believe the consequences of p_1 (Morton 2009).

One way to avoid these objections entirely is to replace the strategy of strengthening the antecedent by *weakening the consequent*. We can do this by accepting that neither SCS nor its modification SCS_k satisfies worries (*a*)—(*e*). Instead, if *s* knows p_1 and p_1 entails p_2 then *s* has all *s* needs, *evidentially speaking*, to know p_2. Schematically:

SCS_E $\quad (Ksp \,\&\, (p_1 \rightarrow p_2)) \rightarrow Esp_2$

In short: *s* is in *position to know* p_2 when p_1 entails p_2. What can be said in favor of this formulation is that it successfully addresses objections (*a*)—(*e*). But SCS_E doesn't result in a successful refinement of Closure either. For there will always be a consequence of what one knows that is *indistinguishable* from the known proposition. Let's call two propositions $\{p_1, p_2\}$ indistinguishable for *s* if *s* cannot *evidentially discriminate* $\{p_1, p_2\}$.[76] Taking the indistinguishabilty of p_1 and p_2 seriously has consequences for the ways it makes sense to think about any successful

[75] See, e.g., Jonathan Vogel (1990), Gail Stine (1976), Brueckner (1985, 1985*b*).

[76] What does it mean for p_1 and p_2 to be indistinguishable by *s*? We can describe the indistinguishability in terms of *telling*. In the terms of Colin McGinn (1984: 534):

> The following seems an intuitively correct principle: one can *know* that *p* only if one can *tell whether p* — I can know that (e.g.) it is raining outside only if I can tell whether it is raining outside. Let us apply this principle to my putative knowledge that there is a table in front of me and that I am not a brain in a vat. Can I tell whether there is a table there? I think that in the ordinary use of the phrase tell whether, what this requires is that I can distinguish there being a table from there being a chair or a dog or some such. So, granted that conditions are normal — there is a table there, my eyes are functioning normally, etc. — I *can* tell whether there is a table there. But can I tell whether I am a brain in a vat? [W]hat is required for telling whether I am a brain in a vat is that I be able to *distinguish* my being a brain in a vat from my not being a brain in a vat. But it seems clear that I lack this ability — I cannot tell whether I am a brain in a vat because I have no means of distinguishing being in that condition from not being in that condition.

refinement of Closure. For example (and to work our well-worn illustration once more), suppose you're at the zoo and observe what appear to be zebras in a pen. "Zebras" entails "not deceptively elaborate zebra-machines." But you can't know the animals in the pen are not zebra-machines because you cannot evidentially distinguish mechanical-zebras from real zebras.

We can flesh out the distinguishability of p_1 from its consequences more generally by modeling propositions as possible worlds (Stalnaker 1999). Let's say that for any *s* and for any *p*, *s* has a *discriminatory range* R over *p* where R is the union of all those worlds that *s* is able to discriminate from actuality.[77] For example, worlds distinguishable by *s* from actuality include worlds where there are giraffes or wolfs in the pen, instead of zebras. Worlds indistinguishable by *s* include worlds where there are deceptively elaborate zebra-machines or deceptively elaborate zebra-holograms in the pen, instead of real zebras. In these worlds, *s* cannot evidentially distinguish real zebras from fakes.

In general, when *s* knows p_1 and p_2 is within *s*'s discriminatory range, *s* is in position to know Ksp_2. When p_2 is outside of *s*'s discriminatory range, $\sim Ksp_2$. Applying this modification to SCS_E results in a final expression of binary Closure:

SCS_D $\quad (Ksp \,\&\, (p_1 \rightarrow p_2 \,\&\, Dsp_1p_2)) \rightarrow Esp_2$

In words: if *s* knows p_1 and p_1 entails p_2, then *s* is in *position to know* p_2 for any p_2 within *s*'s *discriminatory range*.

This is a sufficiently rigorous formulation of binary Closure. It remains to be seen whether this is a sufficiently rigorous and sufficiently *acceptable* formulation of binary Closure.[78] But the point in any case is that to deny Closure is not to deny that you can ever know p_2 if you infer it from p_1. To deny Closure is to deny that this can be done for *any* consequence of p_1. The result is that there is no sensible way to speak unequivocally about Closure success or failure in all cases. At best, binary knowledge is potentially closed over worlds where *s* has discriminatory range.

§3

[77] See Schaffer (2005*a*: 258) for discussion. The notion of a discriminatory range is roughly approximate to what DeRose (1995) describes as *strength of epistemic position*.

[78] One limitation concerns *restriction*: this scheme applies to entailments over cases of perceptual knowledge. It remains an open question as to how to formulate closure over cases of non-perceptual knowledge. So further refinements are required.

So how does a contrastivist formulate the Epistemic Closure Principle? In what follows I explain when and why knowledge closes over K*spq*. (This discussion is largely due to the work of Schaffer 2004, 2005, 2007 and Morton and Karjalainen 2008, Morton 2010). I also discuss when and why knowledge is not closed over K*spq* and some general logical relations that seem to hold, given K*spq*.

Drawing on themes developed in Chapter Two, let's make use of the following assumptions about knowledge. Assume:

(i) Knowledge is the contrastive relation, K*spq*;
(ii) The evidential component of K*spq* is elimination of *q*-alternatives; and
(iii) *q* is a non-empty set.

Given these assumptions, how should a contrastivist formulate Closure? The contrastive formulation of Closure proceeds in two steps. The first step recognizes that contrastive knowledge extends deductively over *multiple* argument places. The rationale for this step is that any acceptable account of Closure over K*spq* will have something illuminating to say about *p* (and its entailments) and *q* (and its entailments). The second step recognizes and preserves maneuvers made in our discussion of Closure over K*sp*. In particular, closing K*spq* is consistent with *s*'s discriminatory range and respects *s*'s position to know.

To begin with, when one says one knows *p* rather that *q*, one usually alludes to a wide range of contrasting propositions.[79] Consider a Moorish illustration of this point. Suppose I know I have hands rather than hooks at the ends of my wrists. If I know I have hands rather than hooks at the ends of my wrists, I will normally also know I have hands at the ends of my wrists rather than prosthetic hands or stumps. If I know I have hands rather than prosthetic hands or stumps, I will normally also know I have hands out of a class of more remote contrasts: I know I have hands rather than gigantic swords or claws or paws (e.g.). These additional contrasts are implied but often left unsaid when one says one knows *p* rather than *q*. The point is perfectly general: for any ascription "*s* knows *p* rather than *q*", '*q*' denotes a non-empty but non-universal class of rejected alternatives. Conceptualizing contrastive knowledge with an explicitly populated contrast class allows us to be more conspicuous about which contrastive knowledge states are compatible with deductive closure (and becoming conspicuous about this issue is highly desirable).

[79] In the terms of Bredo Johnsen (1991): "What is known is always a contrastive proposition to the effect that p-rather-than-any-other-member-of-category-C is true." Adam Morton and Antti Karjalainen (2007) make a similar point: "…'Kaija knows where the money is hidden' means 'Kaija knows that the money is hidden at some location rather than any other location in class C."

So let's say that when *s* contrastively knows *p*, *s* knows *p* rather than {q_1, q_2, q_3,…q_n}.

The set {q_1, q_2, q_3,…q_n} includes propositions distinguishable by *s* from *p* as well as those *s* cannot distinguish from *p* (Morton and Karjalainen 2008, Morton *forthcoming*, Schaffer 2005*a*). This is as it should be. Given a sufficiently large contrast class, many propositions within the set {q_1, q_2, q_3,…q_n} contrast with *p* but are nonetheless evidentially indistinguishable from *p* by *s*. For example (and to work with Moore once more), suppose I know I have hands rather than prosthetic hands. Although I know I have hands rather than prosthetic hands I do not know if I have hands rather than *Matrix* induced hand-images (e.g.). This is because I cannot evidentially discriminate worlds in which I have hands from worlds in which I'm in the *Matrix*. So while I know I have hands rather than hooks (e.g.) I do not know I have hands rather than *Matrix* induced hand-images. The result of the indistinguishability of *p* and *q* is that contrastive knowledge *conflicts* with Closure: some propositions are entailed by *p* but *s* doesn't know them. As in our discussion of Closure over binary knowledge states, we can only say that *s* is in position to know *p* rather than *q* for any *q* within *s*'s discriminatory range. This point can be summarized by saying that when *s* knows *p* rather than *q* for any *q* within *s*'s discriminatory range, then *s* is in position to know K*spq*. When *q* is outside of *s*'s discriminatory range, ~K*spq*.

With the notion of a discriminatory range in play, one can specify which deductive relations are more and less problematic over contrastive knowledge states.

The following two inferential patterns preserve Closure over *p*.

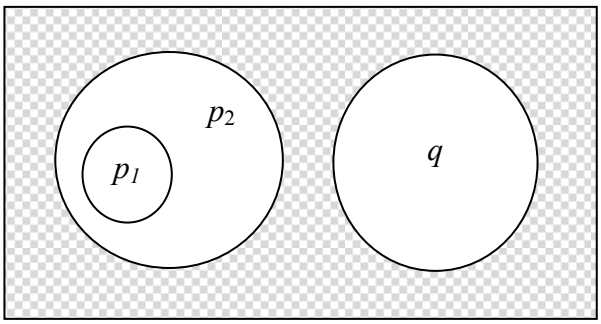
Expand-p

Given the entailment $p_1 \rightarrow p_2$, if *s* knows p_1 rather than *q*, then *s* is in position to know p_2 rather than *q*. This is the contrastive expression of Expand-*p*.[80] Schematically:

$$(Ksp_1q \;\&\; (p_1 \rightarrow p_2)) \rightarrow Esp_2q$$

Expand-*p* can be modeled pictorially:

[80] Contrastivists formulate *p*-entailment differently. On Morton and Karjalainen s view, the proposition entailed by *q* must be a member of the contrast class, *q*. With minor amendments, the principle they endorse can be stated like so: $(Ksp_1q \;\&\; (p_1 \rightarrow p_2 \;\&\; p_2 \in q)) \rightarrow Esp_2q$.



The way Expand-p works (roughly speaking) is that s moves from knowing p_1 rather than q, to knowing that p_2 rather than q, when p_1 entails p_2 (i.e., when the set of all p_1-worlds is a subset of the set of all p_2-worlds).

An illustration makes this point clear. Suppose s knows p^1: John F. Kennedy was assassinated in Dallas, rather than q: assassinated in Detroit. Since 'assassinated in Dallas' entails (p_2): 'assassinated in Texas', Expand-p positions s to know 'JFK was assassinated in Texas rather than assassinated in Detroit.'[81]

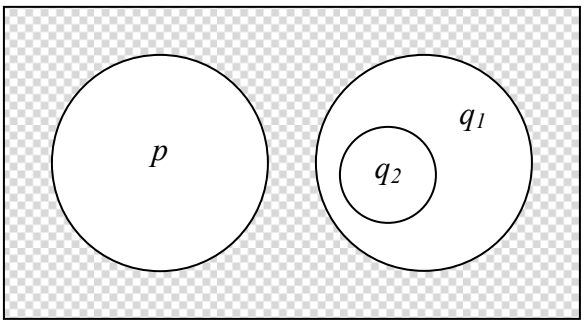
Contract-*q*

The following principle preserves Closure over q. Given the entailment $q_2 \rightarrow q_1$, if s knows p rather than q_1, then s is in position to know p rather than q_2. This is the contrastive expression of Contract-q. Contract-q preserves the elimination of q-alternatives. More precisely:

$$(Kspq_1 \,\&\, (q_2 \rightarrow q_1)) \rightarrow Espq_2$$

The worlds image of contract-q can be stated pictorially too:

[81] An objector might claim that there are problems of indistinguishability in this case. For example, "assassinated in Dallas" entails "not made to disappear by aliens and substituted by a cloned and then wounded body, in a location outside space and time to which the motorcade and Oswald and all the spectators had been instantaneously transported." But you don't know that *that* rather than assassinated in Detroit. Recall that when s can distinguish {p, q}, Kspq. When s cannot distinguish {p, q}, ~Kspq. See Chapter Three.



The way contract-*q* works (roughly speaking) is that *s* moves from knowing *p* rather than q_1 to knowing that *p* rather than q_2 when q_2 entails q_1 (i.e., when the set of all q_2-worlds is a subset of all q_1 worlds).

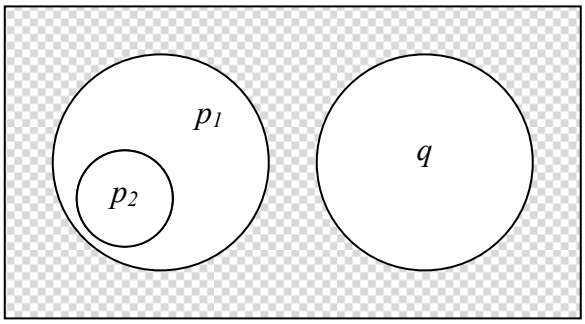
Once again, an illustration is helpful. If *s* knows JFK was assassinated (*p*) rather than died of natural causes (q_1), then *s* is in position to know JFK was assassinated rather than died of a heart attack (q_2). Contract-*q* positions *s* to know JFK was assassinated rather than died of a heart attack since to rule out all the natural cause possibilities is to rule out the heart attack possibility too. The limitation to Contract-*q* is not an arbitrary stipulation, but is rather motivated by the very idea of contrastive knowledge as requiring elimination of the contrast. If *s* can eliminate the contrast, it follows that *s* can eliminate all the sub-cases within the contrast.

Contract-*p*

Contract-*p* is an *invalid* inferential pattern over K*spq*. Given the entailment $p_2 \rightarrow p_1$, if *s* knows p_1 rather than *q*, then *s* is in position to know p_2 rather than *q*. Schematically:

$(Ksp_1q \ \& \ (p_2 \rightarrow p_1)) \rightarrow Esp_2q$

And the corresponding worlds image:



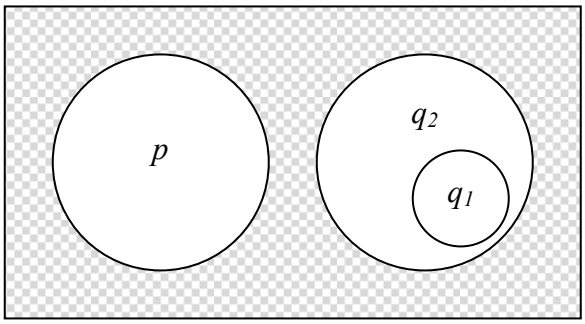
Consider an illustration. Suppose *s* knows there's a predatory bird circling above (p_1) rather than a pigeon (q). Being an eagle (p_2) entails being a predatory bird (p_1); so according to Contract-*p* *s* is in position to know there's eagle circling above (p_2) rather than pigeon (q). Although 'predatory bird' entails 'eagle', it also entails other predatory birds—ospreys, falcons, kites, harriers, vultures (e.g.)—and it doesn't follow that *s* has eliminated these other possibilities. Contract-*p* is invalid.

Expand-*q*

Cases of Expand-*q* also fail to preserve Closure over K*spq*. Given the entailment $q_1 \rightarrow q_2$, if *s* knows *p* rather than q_1 then *s* knows *p* rather than q_2. Schematically:

$$(\mathrm{K}spq_1 \,\&\, (q_1 \rightarrow q_2)) \rightarrow \mathrm{E}spq_2$$

And the worlds image of Expand-*q*:



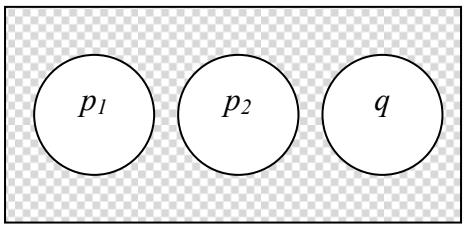
So, for instance, suppose *s* knows JFK was assassinated (*p*) rather than died of pneumonia (q_1). It is tempting to say that *s* knows JFK was assassinated (*p*) rather than died of natural causes (q_2), because to die of pneumonia is to die of a natural cause. But this inference is invalid. Dying of pneumonia entails dying of a natural cause but it also entails not dying of a heart attack, stroke or any other natural cause possibility, and it doesn't follow that *s* has eliminated these other possibilities. Since contrastivism requires the elimination *q*-alternatives and *s* hasn't eliminated these, Contract-*q* does not preserve closure over K*spq*.

Replace-*p*

Replace-*p* is another invalid inferential pattern over K*spq*. Schematically:

$$(\mathrm{K}sp_1q \rightarrow \mathrm{K}sp_2q)$$

And its worlds image:



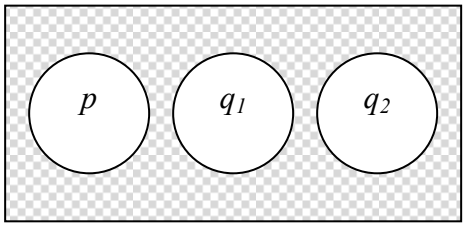
Here, p_1 is simply replaced with p_2. So, for instance, suppose *s* knows the bird circling above is a hawk (p_1) rather than a pigeon (q); Replace-*p* positions *s* to know the bird circling above is an eagle (p_2) rather than a pigeon (q). Replacing p_1 with p_2 disrespects *s*'s discriminatory capacities. *s* cannot simply replace knowing the bird circling above is a hawk rather than a pigeon with knowing the bird circling above is an eagle rather than a pigeon.

Replace-*q*

Replace-*q* is the final invalid inferential pattern I discuss.

$(Kspq_1 \rightarrow Kspq_2)$

Picturesquely:



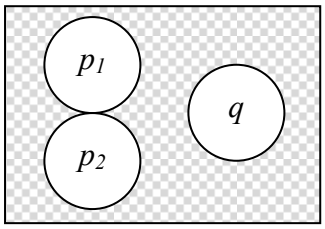
Here, replacing q_1 with q_2 mirrors the replacement of p_1 with p_2. Like Replace-*p*, Replace-*q* disrespects *s*'s discriminatory capacities. For example, suppose *s* knows the bird circling above is a hawk (p) rather than an eagle (q_1). According to Replace-*q*, *s* is in position to know the bird is hawk rather than a tern (q_2). Even though knowing the bird is an eagle entails the bird is not a tern, *s* cannot simply substitute one contrast with another. After all, *s* may not be able to distinguish eagles from terns. Contrastivism requires the elimination of the contrast. This inference disrespects *s*'s discriminatory range.

The following logical relation is consistent with K*spq*.

Intersect-*p*:

$(Ksp_1q \ \& \ Ksp_2q) \rightarrow Es(p_1 \& p_2)q$

And the worlds image:



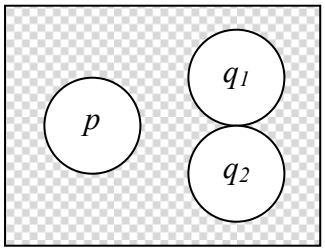
For example, suppose *s* knows two things about JFK: *s* knows (p_1) JFK was assassinated rather than died of natural causes; and *s* knows (p_2) JFK was shot rather than died of natural causes. Intersect-*p* positions *s* to know (p_1 & p_2) rather than *q* (i.e., *s* knows that JFK was assassinated & JFK was shot rather than died of natural causes).

Union-q

Cases of Union-*q* are also consistent with K*spq*. According to Union-*q*:

$(\mathrm{K}spq_1 \,\&\, \mathrm{K}spq_2) \rightarrow \mathrm{E}sp(q_1 \vee q_2)$

And the corresponding worlds image:



So, for instance, suppose *s* knows JFK was assassinated rather than (q_1) died accidentally, and Jones also knows JFK was assassinated rather (q_2) died of natural causes. Union-*q* positions *s* to know *p* rather than ($q_1 \vee q_2$) (i.e., *s* is positioned to know JFK was assassinated rather than died accidentally or died by natural causes).

In sum, the contrastive analysis of Closure yields the conclusion that knowledge is closed under Expand-*p* and Contract-*q*. The contrastive analysis of Closure also yields the conclusion that Expand-*q*, Contrast-*p*, Replace-*p* and Replace-*q* are invalid inferential patterns over contrastive knowledge states. Finally, contrastivism is consistent with Intersect-*p* and Union-*q*.

§4

I close my discussion by sketching out two problem cases for Closure over K*spq* (I offer a reply to one; I let the other stand).

The first worrisome feature of contrastive Closure is that it fails to explain inferences that involve negations, which it ought to feature.[82] If negations are worked into these schemes, the contrastive account of Closure runs into the problem of *diffused contrasts*. Let me explain.

Cases of diffused contrasts are cases where the entailment over *p* does not contrast with *q* (i.e., cases where the entailment of *p* and *q* are both true). Diffused contrasts are clear in cases of Expand-*p*. Consider an illustration. Suppose that you know JFK was assassinated rather than died of natural causes. Given what you know you're in a position to infer a few denials. For example, you're surely in a position to infer that JFK did not commit suicide, based on the fact that you know JFK was assassinated. That JFK was assassinated entails that JFK did not commit suicide. In that case, you're in position to know the following piece of contrastive knowledge: you know JFK did not commit suicide rather than die of natural causes. The problem is that not dying by suicide and not dying of natural causes fails to preserve contrastivity—both contrasts are true.

One way to prevent diffused contrastivity (and preserve Expand-*p* over K*spq*) is to into allow the entailed negation into the contrast class. So, for example, we might say you know JFK was assassinated rather than died of natural causes or suicide. Apart from its intuitive appeal, this inference is allowable on the general grounds that contrasts to *p* are rejected alternatives—and that's just what the contrast class is. To capture this relation, let's introduce a further closure scheme into the contrastive repertoire. Call this *swallow*-q. *Swallow*-q can be stated precisely: Given the entailment ($p \rightarrow \sim r$), this principle says that if *s* knows *p* rather than *q* and *p* entails ~*r*, then *s* is in position to know *p* rather than {*q* or *r*}. Schematically,

***Swallow*-q**

$$K_{spq} \ \& \ (p \rightarrow \sim r) \rightarrow E_{sp}\{r,q\}$$

Here, the negation is "swallowed" by the contrast class. Is this a plausible principle? The principle is plausible given the following stipulations:

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[82] After all, in Ksp cases, the proposition that is the subject of the inference is negated. It would be surprising if Kspq did not either mirror this similarity or could not conceptually handle inferred negations.

(*i*) *s* can discriminate *p* from *r*
(*ii*) *s* can rule-out or eliminate *r*
(*iii*) *r* contrasts with *p*

So long as *Swallow*-q satisfies (*i-iii*) there doesn't appear to be a principled reason to reject a general loosening of contrastive inferential patterns over *p*. In particular, there doesn't appear to be a principled reason for a contrastivist to reject *swallow*-q.

The second problem is more basic. Generating cogent examples of Expand-*p*, Contract-*q*, Replace-*p*, Replace-*q*, or any or inferential patter over K*spq* is difficult. Examples tend to be *contrived* and *artificial*. I take this to reflect more of a conceptual difficulty with the principles themselves rather than an explanatory difficulty. Reflecting this problem, commentators themselves offer different interpretations of these schemes (Kelp 2009, Kvanvig 2008, Pritchard 2008) and often invoke similarly contrived examples of contrastive Closure "in action" (Kvanvig 2007). To the extent that generating cogent examples of contrastive Closure is difficult, it likely betrays a deeper problem.

Closure is a difficult subject at the best of times. The conceptual circumstances surrounding Closure over K*sp*—(Ksp_1 & ($p_1 \rightarrow p_2$)$\rightarrow$Ksp_2)—soon become complicated. Thinking about closing knowledge contrastively—in effect, adding a third argument slot in the structure of knowledge—complicates matters. In any case, this Chapter systematized the most widely cited approach to contrastive Closure. This approach is consistent with recent developments about Closure in a binary context.

Chapter Five

Contrastive Knowledge and its Critics: A Reply

Discussions about contrastive knowledge are a one sided affair. Many commentators are critical and suspicious about what contrastivism offers. This is a healthy attitude, certainly. But it tends to obscure the positive contributions that result from thinking seriously about the epistemics of questions.

Criticisms of contrastive knowledge come in better and worse varieties. The better criticisms are the ones that appreciate contrastivism's foundations in a partition semantics for questions. The worse criticisms are the ones that neglect this aspect of contrastivism entirely. In the following two Chapters I evaluate the critical literature. I begin this Chapter by reviewing the erotetic foundations for contrastive knowledge (§1), then I detail and discharge a collection of objections (§2-§4).

§1

Why be a contrastivist about knowledge? The principled reasons to be a contrastivist about knowledge are based on the following arguments. In summary form,

(1) All well-formed questions are multiple-choice questions.

(2) The ability to answer a question is an epistemic capacity to identify the correct answer from a series of possible answers.

This argument concludes that when a subject knows the answer to a question the subject knows the *correct answer* from a multiple-choice slate. Knowing the answer to a question can thus be characterized as the

contrastive relation "*s* knows *p* rather than *q*". Here, *p* is the correct answer to a question and *q* is a disjunctive set of rejected alternatives. This is the *Foundational Argument* for contrastive knowledge, based upon a partition semantics for questions (Chapter Two, §1).

Given that contrastivism is put forward as a general theory of knowledge, we want a *general* argument for contrastive knowledge and the Foundational Argument doesn't provide that. The Foundational Argument provides the conclusion that in the context of knowing the answer to a question knowledge is a contrastive relation. How can we use this argument to show that all knowledge is contrastive? Jonathan Schaffer (2005*a*: 237, 2005*b*: 115*n*3, 2007) adds this premise:

> (3) Knowledge ascriptions certify that a subject is able to answer a question.

If knowledge ascriptions certify that a subject is able to answer a question, and if the ability to answer a question is the capacity to identify the correct answer from a multiple-choice slate, then knowledge ascriptions display the contrastive relation "*s* knows *p* rather than *q*." So if we add (3) to (1) + (2) we have the result that all knowledge is contrastive.

A second general argument for contrastivism can be made using the foundations (1) + (2). Instead of (3) we might add,

> (4) For any ascription "*s* knows that *p*", *p* is the answer to a contextually recoverable question.

If *p* is the answer to a contextually recoverable question, and if all well-formed questions are multiple-choice questions, then to know *p* is to know *p* rather than *q*. So if we add (4) to the foundations (1) + (2) we again have the conclusion that all knowledge is contrastive. This argument can be made if someone rejects (3) or in addition to (3).

In sum, three arguments for contrastive knowledge are in play. The first is the Foundational Argument. This argument concludes that in the context of knowing the answer to a question knowledge is contrastive. The second is the Foundational Argument *plus* (3). This argument concludes that knowledge-in-general is contrastive. The third is the Foundational Argument *plus* (4). This argument also concludes that knowledge-in-general is contrastive. These arguments jointly constitute the rationale for viewing contrastive knowledge as the direct implementation of a partition semantics for questions (Chapter Two, §1).

Many commentators critical of contrastivism (but particularly contrastivism of the erotetic variety) pay insufficient attention to its erotetic motivations. This makes appreciating their objections something

of a delicate matter, since the objectors themselves don't obviously appreciate the trio of arguments above. This is understandable. A partition semantics for questions is clearly present although never explicitly discussed in Schaffer's work. On the other hand, it would be difficult to avoid recognizing these arguments. Schaffer frequently references partition theorists and his key discussions are directly linked to the relevant literature.[83]

Given this oversight, some critical discussion about contrastivism misfires. Let's say that an objection to contrastive knowledge *misfires* when the objection in question misconstrues or otherwise distorts the contrastive view. Nonetheless some objections offered by theorists whose criticisms misfire hit the mark, so to speak. So one shouldn't let misfires prejudice the critical appraisal of contrastivism these commentators offer. In any case, I consider misfire objections in §2 and §3 and an objection that hits the mark in §4.

§2

The first class of misfire objections concerns the Foundational Argument (1) + (2). Kelly Becker (2008: 9) dismisses the first premise of this argument (i.e., that all well-formed questions are multiple-choice questions) as simply "implausible." In a similar vein, Kent Bach (2005) says:

> ...it's not clear why [Schaffer] supposes that "all questions are multiple-choice questions"…It seems to me that all his examples show is that any question, if intended to be taken as a multiple-choice question, can be *turned into* a multiple-choice question by explicitly adding a list of choices. The fact that any interrogative sentence or indirect interrogative clause can be expanded into a multiple-choice question doesn't show that it is one...Not all questions are multiple-choice questions (5).

Consider the objection this way. Suppose we have two questions (e.g.):

Q_1: *Who got the philosophy job?*
Q_2: *Who got the philosophy job?* {Boo, Hick, Riley}.

[83] See, e.g., (2004): 95*n*5, (2005*a*): 241*n*7, (2007): 251*n*16, (2007): 388*n*9, (2008): 4.

The difference between Q_1 and Q_2 is the multiple-choice slate in Q_2. Bach's objection is that questions of the first type can be "turned into" questions of the second type by "explicitly adding a list of choices." But the fact that an interrogative question "can be expanded into a multiple-choice question doesn't show that it is one..." The result is that it's not clear why "all questions are multiple-choice questions."

My reply to this objection is to deny the apparent lack of clarity. Schaffer accepts that all questions are multiple-choice questions because Schaffer takes Hamblin's dictum as basic. Hamblin's dictum just is that all well-formed questions are multiple-choice questions.[84]

What is the *rationale* for the dictum? The rationale is simple, and it is this: any analysis of questions needs to account for the multiple answers questions allow. Once we have more than one possible answer to a question we have *options* and once we have options we have a *multiple-choice slate*. In this sense, any theorist who studies the semantics of natural language interrogatives accepts Hamblin's dictum. In the terms of Ferenc Kiefer (1983: 1): "In almost all principled accounts of questions questions are related to the corresponding answers." Rodney Huddleston (1994: 413) offers similar comments: "The distinctive property of a question is that it defines a set of answers", and Hamblin (1973: 254) himself articulates the dictum in these terms: "…a question sets up a choice situation between a set of propositions, namely, those propositions that count as answers to it." Hamblin's dictum is such a natural constraint upon questions that Sigrid Beck and Kim Shin-Sook (2006: 158) recently codified it as the very definition of a question.[85]

The view Bach regards as *unclear* and Becker dismisses as *implausible* has been a basic semantic constraint upon questions for the past half century. That's not to say that Hamblin's analysis of questions (the analysis of questions that result from Hamblin's postulates) has not been challenged, it has.[86] But it is to say that no theorist I'm aware of challenges the dictum Becker and Bach so easily dismiss.

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[84] For Schaffer's references to Hamblin's dictum, see (2005*a*): 241*n*7, (2007): 251*n*16, (2004): 95*n*5, (2007): 388*n*9, (2008): 4.

[85] As Kyle Rawlin recently pointed out to me in conversation, this constraint upon questions is so natural probably people since Hamblin have had it in mind but no one stated it formally until recently. Note that Hamblin's dictum is distinct from Hamblin's analysis of the meaning of questions (Chapter Two, §1) for which it might be confused. Hamblin explicitly identifies the *meaning* of a question with its possible answers. Hamblin's dictum identifies the *semantic constituents* of questions (i.e., their possible answers).

[86] So, for example, Jeroen Groenendijk and Martin Stokhof (1997) argue that Hamblin's analysis of questions (see Chapter Two, §1) wrongly presupposes that every question has an answer. Groenendijk and Stokhof also deny Hamblin's jointly exclusive constraint upon questions: answers to questions can be sets of propositions that don't exhaust every

A second misfire objection is due to René van Woudenberg (2008). van Woudenberg summarizes what I call the Foundational Argument in these terms:

(i) To know is to be able to answer a question.
(ii) A question presents a set of alternatives.
(iii) To know the answer to a question is to be able to select the true proposition from a set of alternatives that is presented by the question.
(iv) Hence, to know is to be able to select the true proposition from a set of alternatives that is presented by the question.

He then offers these comments:

> The conclusion [(iv)] is just another way of phrasing contrastivism's core claim…that the knowledge relation involves three relata: a subject, a proposition (what the argument refers to as 'the true proposition') and a set of contrastive propositions (alternatives that are presented by the question *minus* 'the true proposition') (283).

As stated, the conclusion of this argument is "to know is to be able to select the true proposition from a set of alternatives that is presented by the question." van Woudenberg adds that this conclusion is "just another way of phrasing contrastivism's core claim...that knowledge involves three relata." But the conclusion is *not* 'just another way of stating contrastivism's core claim.' What follows from *this* argument is that in the context of *knowing the answer to a question* knowledge is contrastive (i.e., 1 + 2 of the Foundational Argument); the conclusion is *not* that knowledge-in-general is contrastive. Recall that to reach that conclusion either (3) or (4) is required, (§1).

Without noting that the conclusion does not follow from the premises, van Woudenberg adds: "but I do not think the argument goes far to establish that the knowledge relation is ternary" (283). van

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possible answer. In a similar vein, Nuel Belnap (1982) and Lauri Karttunen (1977) argue that questions can have more than a single true answer (e.g., *What is a prime number?*). Belnap and Karttunen thus deny that answers to questions are mutually exhaustive. Ronald Hausser (1983) and Remko Scha (1983) reject Hamblin's first postulate: perfectly appropriate answers to questions can be communicated though a variety of (non-sentential) linguistic utterances. And Jonathan Ginzburg (1996: 400) argues that it is possible to understand an interrogative without have any idea of counts as an answer (e.g., *What is the word for 'relaxation' in Chukotian?*).

Woudenberg is right: *this* argument does not show that knowledge is contrastive. But *this* argument isn't meant to. This argument only shows (and is only intended to show) that in the context of answering a question knowledge is a contrastive relation.

A second class of misfire objections concerns the motivations for contrastive knowledge. So, for instance, Duncan Pritchard (2008: 305) says: "The motivation contrastivists offer for this form of epistemic revisionism [i.e., the inclusion of a contrast class in knowledge-attributing sentences] is that it best captures our *intuitions* in this regard" (*italics added*). Now it is true that Schaffer claims our intuitions about knowledge are sensitive to contrasts (see, e.g., 2008, 2010)—and I discuss this in detail in the next Chapter—but this is not the principle reason to be a contrastivist about knowledge. The principle reasons to be a contrastivist about knowledge are given by the trio of arguments above (i.e., the Foundational Argument (supplemented with (3) or (4) or both)). In a similar vein, Peter Bauman (2008: 190) says: "...contrastivism *assumes* that knowledge is ternary" (*italics added*). Baumann is just wrong here. Contrastivists don't assume *anything*. Schaffer vigorously argues for (1) and (2), supplemented with (3) or (4) or both. Finally, Christoph Kelp (2009: 1) says: "One of the chief motivations for contrastivism is its ability to offer a certain kind of response to the sceptical paradox." One of the chief motivations (I would say *the* chief motivation) for contrastive knowledge is to uncover whatever episemic consequences thinking about questions are. A solution to scepticism is an attendant benefit of that project (Chapter Three), not its motivation.

Other motivation-based misfires concern the role of perceptual discrimination and inquiry in connection to contrastive knowledge. I discuss these topics in turn.

One major motivation for contrastive knowledge (at least among its opponents) is based on perceptual knowledge. So Baumann says: "Perhaps the best case for contrastivism is perceptual knowledge based on discriminatory abilities" (190). And Ram Neta (2008: 293) attributes this argument to Schaffer:

> The exercise of perception produces knowledge. But perception is an ability to discriminate one's actual situation from other possible situations. Since knowledge is produced by the exercise of this ability, knowledge must involve discrimination of an actual situation from other possible situations. But this is just to say that the knowing subject discriminates the truth (p) from some contrast (q). And that is just what contrastivism says.

Well, that's not quite what contrastivism (or Schaffer) says or argues. Schaffer (2005: 243) is explicit: "The contrastive *structure* ["*s* knows *p* rather than *q*"] *fits perceptual discrimination*, by logging both the reported stimulus: *p*, and what the stimulus was discriminated from: *q*" (*italics added*). Schaffer's position is that (*i*) knowledge is sensitive to discrimination; and that (*ii*) the best way to model knowledge sensitive to discrimination is contrastively. Hence contrastivism "*links* knowledge to discrimination" (2005: 235, *italics added*) and "*befits* the nature of perception" (2005: 242, *italics added*). Contrastivism links knowledge to discrimination and befits the nature of perception because (as Neta rightly recognizes) contrastive knowledge ascriptions record both the precept (*p*) and what the precept is discriminated from (*q*) (2005: 242). As Neta interprets Schaffer, the capacity to record the precept and what the precept is distinguished from is an argument for contrastivism, but careful consideration suggests a different point. Given the contrastive nature of perceptual abilities, "*s* knows *p* rather than *q*" is better suited to model knowledge than its competitor (i.e., ascriptions of the form "*s* knows that *p*").

A fourth misfire objection concerns role of contrasts in inquiry. Once more Neta offers a summary argument:

> [I]nquiry produces knowledge by producing, at each stage, the ability to answer the question at that stage. But this means that…inquiry produces knowledge by producing, at each stage, the epistemic ability to select the correct choice from the multiple choices at that stage. So the relation that is produced by each inquiry is a relation among three relata: a knowing subject, a correct choice that the subject is able to select, and a slate of multiple choices (i.e. the contrast). This is what knowledge must be like, if it is produced by inquiry (293).

Well, that's not quite what contrastivism (or Schaffer) says or argues. Once again, Schaffer (2005: 241) is explicit: the contrastive structure "*s* knows *p* rather than *q*" "*models inquiry* by measuring progress." Schaffer's position is that (*i*) knowledge is produced in the context of inquiry (as Neta rightly recognizes); and that (*ii*) the best way to model knowledge produced in the context of inquiry is by using a contrastive ascription. Given the close association between inquiry and the process of asking and answering questions, contrastive knowledge ascriptions record which question was asked and which answers were given. Ascriptions of contrastive knowledge thus "links knowledge to *inquiry*" (235) and "*befits* the structure of inquiry" (242). As Neta interprets Schaffer, the

capacity to record which question was asked and which answer was given is an argument for contrastivism. But careful consideration suggests a different point. Given the contrastive nature of inquiry, contrastivism is better suited to model knowledge produced in the context of inquiry than its competitor (i.e., ascriptions of the form "*s* knows that *p*").

It would be safe to say, then, that there are some popular misconceptions about the motivations for contrastive knowledge in the literature. I turn now to extended criticisms of contrastive knowledge. These criticisms are offered by René van Woudenburg (§3), Kelly Becker (§3.1), and Peter Baumann (§3.2).

§3

van Woudenberg begins by offering a few clarificatory worries about contrastive knowledge; then develops a series of objections. To begin with, van Woudenberg summarizes contrastive knowledge in these terms: "…the gist of the claim is that whenever someone knows that *p*, there always is a set of propositions *q* that contains contrasts to *p*" (282). He then adds: "Now this is...rather unspecific" (282), and gives content to his worry in these terms:

> [H]ow exactly, on contrastivism, does *s*'s knowledge that *p* involve contrasting propositions? How is *p*, or *s*'s belief that *p*, supposed to be 'connected to', or 'dependent upon', or 'impossible without' contrastive propositions? As far as I can see Schaffer has not explicitly pronounced on this (282).

van Woudenberg's worry is that he hasn't found a discussion about the connection between known propositions and contrast classes in the literature ("Schaffer has not explicitly pronounced on this") and this is one of the reasons he calls contrastivism "unspecific."

Perhaps van Woudenberg didn't look hard enough. Schaffer's discussions about contrastive knowledge are essentially extended discussions defending and articulating this point exactly.[87] What is the connection between *p* and a *contrast class* (i.e., between *p* and *q*?). Known propositions and contrasts span the denotation of possible answers to a question. More precisely, '*p*' is the correct answer to a question and '*q*' is a non-empty set of possible but false alternatives.

[87] See (2004): 95*n*5, (2005*a*): 241*n*7, (2007): 388*n*9, (2008): 4.

van Woudenberg characterizes his second clarificatory worry in these terms:

> [W]here do contrasts *come from?* What determines which propositions find their way into the contrast set? Is it, whatever it is, what makes certain contrasts live options? I must confess I did not find much by way of an answer to this in the still small corpus of literature on contrastivism (282 *italics added*).

Maybe we can borrow a page from the literature on contrastive explanation. In many cases the contrast class is not explicitly described because it's obvious. In the terms of Bas van Fraassen (1981: 128): "…the contrast class is not explicitly described because, *in context*, it is clear to all discussants what the intended alternatives are." Fred Dretske (1972: 412) offers similar comments: "…the setting in which a statement is made will often determine which element within it, if any, are contrastively dominant." In any case, Schaffer is explicit on this topic too. The conceptual content of *q* is determined contextually by whatever discourse participants recognize as live conversational options.[88] Schaffer thus appeals to Robert Stalnaker's (1999) notion of a *context set* to explain the contextual mechanism that populates contrast classes. According to Stalnaker, context can be modeled as a set of possible worlds (the 'context set') "which include all the situations among which speakers intend to distinguish with their speech acts" (99). The context set is "the set of possible worlds recognized by the speaker to be the 'live options' relevant to the conversation" (84-5). The set of live options recognized by conversational participants disjoin answers. So if the question is *Who shot Plum?* in the context in which Mustard, Peacock, and Scarlet are the possible answers, the context set takes the form {*w*: Mustard, *w*: Peacock, *w*: Scarlet}.[89]

I turn now to van Woudenberg's objections to contrastive knowledge. The first objection is that it doesn't follow from the fact that I know an answer to a question that knowledge *is* an answer to a question. So, for instance, suppose I know *p*: *that my desk is brown*. From a contrastive perspective, what this amounts to is that I know the answer to a question. van Woudenberg then queries:

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[88] (2005*a*): 236, (2008): 4.

[89] Generally speaking, Schaffer identifies a wide variety of linguistic mechanisms that saturate contrast classes. These include explicit "rather than"-clauses, foci, and presuppositions (see, e.g., 2004, 2007: 251*n*19, 2008). But in terms of questions and question answering (the heart of the erotetic epistemology), Schaffer appeals exclusively to Stalnakerian context sets. I discuss these mechanisms in the Chapter Six.

> But *what* question? Well, there are many candidate questions here, many questions to which "My desk is brown" is a good and true answer. Here is a sample:
>
> Q3: What is the colour of your desk?
> Q4: Is your desk blue?
> Q5: Is your desk blue or brown?
> Q6: Do you own brown furniture?
>
> As I said, to all of these questions "My desk is brown" is a good and correct answer. But does it follow from this that to know *is* to be able to answer a question? (284, *italics added*).

Strictly speaking, *no*: in the context of knowing the answer to a question knowledge is conceptualized as an epistemic capacity to identify the correct answer from a multiple-choice slate, §1. But it does not follow that knowledge is an answer to a question. To reach that conclusion we need to add the thesis that knowledge ascriptions certify that a subject is able to answer a question or that known propositions are answers to contextually recoverable questions. This is the Foundational Argument (1) + (2), supplemented with (3) and (4) respectively, (§1).

van Woudenberg's second objection is based on the connections between contrastivism and inquiry. He summarizes the role of inquiry in discussions about contrastivism in these terms:

> (i) Inquiry is the engine of knowledge.
> (ii) Inquiry is driven by a question and answer process.
> (iii) Answers are relative to questions.
> (iv) Progress in inquiry, and hence progress in the acquisition of knowledge, is measured by (a progressive series of) answers that are relative to questions.
> (v) Therefore the knowledge relation is ternary.

Again, the conclusion doesn't follow. The conclusion van Woudenberg identifies is that "the knowledge relation is ternary." But *this* argument does not support *that* conclusion. The conclusion that follows from this argument is that *in the context of inquiry* knowledge is contrastive.

van Woudenberg continues: "The first premise tells us that inquiry is the engine of knowledge" (285). To this he adds: "I take this to mean that all knowledge is the result of inquiry" (285). He then argues that there are many things he knows but has never inquired about. So, for instance, he knows his name ("my name is René") and where he went to school ("I went to school in the Hague") but denies that he knows these things as a

result of inquiry, and thus identifies *knowledge-without-inquiry* as a problem for contrastivism.

I offer two replies to this objection. To begin with, Schaffer and van Woudenberg understand different things by 'inquiry is the engine of knowledge.' For van Woudenberg, what this means is that *all* knowledge is the result of inquiry. I don't know whose view this is but it's not Schaffer's. Schaffer's view in the relevant article is that when knowledge is produced within the context of inquiry knowledge is contrastive. But of course that's quite different from the view van Woudenberg attributes to him—namely, that every instance of knowledge is a result of inquiry.[90]

My second reply is to note that propositions are answers to contextually recoverable questions (Chapter Two, §2). "Questions" denote options which are their possible answers. So when one knows *p*, one knows *p* rather than any non-*p* option induced by the question. The point is that independently of the context of inquiry knowledge is contrastive. In the present case, what this amounts to is that if van Woudenberg knows his name and where he went to school, then van Woudenberg knows the answer to questions about what his name is and where he went to school. Questions denote options. The best analysis of knowing the answer is a contrastive analysis.[91]

van Woudenberg's third objection to contrastivism is that inquiry can be modeled declaratively just fine. Contrastive knowledge ascriptions aren't needed. So, for instance, the chemist who discovers that the sample is potassium out of a list of possible alternatives {sodium, chloride, bicarbonate} might say (e.g.): "I know that the element is potassium" (full-stop). There's no reason for the contrastive ascription (e.g.) "I know that the element is potassium rather than sodium." More generally, the objection is that it's perfectly allowable to articulate known propositions declaratively in the context of inquiry (or at any other time).

My reply to this objection is to note that no contrastivist denies that we attribute knowledge using declarative sentences. But given that knowledge is contrastive, every declarative knowledge ascription is interpreted as an implicitly ternary relation where the contrast is yet to be specified. So whenever a speaker utters "*s* knows that *p*", the information

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[90] That is: the difference is that van Woundenberg attributes to Schaffer the view that whenever a person knows that person's knowledge results from inquiry. Schaffer's view is just that whenever someone knows through inquiry, that knowledge is contrastive.

[91] van Woundenberg isn't alone in attributing this view to Schaffer. According to Kelly Becker (2008): "Contrastivism is...driven by inquiry and its progress, the suggestion being that if there is no explicit or implicit inquiry, knowledge ascriptions are at best inert, at worst meaningless." Contrastivists are forced to say no such thing. There is good independent reason for thinking (3) (i.e., that knowledge ascriptions certify that a subject is able to answer a question) and (4) (i.e., that known propositions are answers to contextually recoverable questions). See Chapter Two (§2), Chapter Four (§5).

conveyed must be decoded in reference to the question *p* is the answer to. The result is that expressing knowledge declaratively has no anti-contrastive implications.

§3.1

A second extended criticism of contrastive knowledge is offered by Kelly Becker (2008). I call Becker's first objection the *no-antecedent-knowledge-objection*. To begin with, one erotetic consequence in epistemology is that answers to questions are question-relative (Chapter Two, §3). I may know the answer to one question but not know the answer to a closely related question. So, for instance, suppose I know the answer to the question about which type of bird is in the fountain: "raven or canary?" by eliminating the canary possibility. In that case I know the bird is a raven rather than a canary. But I might not know the answer to the closely related question: "raven or crow?" I might not know the answer this question because I cannot discriminate ravens from crows. But if so, it doesn't look like I know the bird is a raven rather than a canary in the first place. For if I don't know if the bird is raven or a crow, how could I have known the bird was a raven rather than canary?

Becker's calls his second objection the *root problem*. The root problem is that the questioner provides alternatives to a questionee that require elimination, but there may be other alternatives besides, and these additional uneliminated but relevant alternatives ruin *s*'s knowledge. An illustration makes this objection clear. Suppose I ask you *What kind of bird is in the fountain?* with possible answers {canary or raven}. Notice the way these possible answers are presented—they're *given* to you. Becker's point is that these options aren't "relevant alternatives" proper; they're just what the questioner provides. As such, they exclude what the questionee might consider relevant but uneliminated alternatives. So, to return to the bird example, the questioner provides only two options: canary or raven. But surely the bird might be a member of different species besides—say, a robin. So it seems strange and wrong to say that *s* knows the bird is a canary rather than a raven when all the relevant alternatives haven't been eliminated. If contrastivism about knowledge is going to be at all plausible, it can't artificially restrict "relevant alternatives" to the options the questioner provides. Contrastivism needs to tell a different story about relevant alternatives.

Piecewise, reflection about what it means to know the answer shows that the *no-antecedent-knowledge-objection* is apparent only. To begin with, to know the answer to the question "canary or raven?" one of these alternatives must be true (this is the implementation of Hamblin's

mutually exclusive constraint upon questions, Chapter Two, §1). So, for instance, suppose that (*i*) *s* can rule out the canary possibility and that (*ii*) the correct answer to the question is raven. In that case, *s* knows the bird is a raven rather than a canary. So far so good. Now suppose the question is "raven or crow?" with the true answer: raven. Since *s* cannot discriminate crows from ravens, *s* doesn't know if the bird is a raven or a crow. The upshot is that *s*'s inability to answer {raven or crow} does not imply an inability to answer {canary or raven}, as Becker supposes. It just means that *s* does not know the answer to a comparably difficult question.

Second, the "root problem" is that contrastivism neglects alternatives which are intuitively relevant, so tells the wrong story about "relevant alternatives". Contrastivism tells the *right* story. Contrastivists conceptualize possible answers to a question as a joint logical space of inquiry among conversational participants. Possible answers to a question ("relevant alternatives") are the set of possible worlds that describe what the actual world could be like as far as discourse participants are concerned. So if I ask Bob, *What kind of bird is in the fountain?*, possible answers are whatever Bob and I recognize as 'live' options {*w*: robins, *w*: ravens, *w*: canaries, *w*: crows, etc}. By indexing alternatives to whatever discourse participants identify as live conversational options, contrastivism readily accounts for alternatives Becker thinks constitute problem cases.

§3.2

A third extended criticism of contrastive knowledge is offered by Peter Baumann (2008). Like the family of epistemic contextualsims, different contrastive views share a family resemblance but differ considerably in detail. I carved out these views in Chapter Two. On the one hand, contrastive knowledge can be viewed as a direct implementation of the "erotetic epistemology"; on the other hand, contrastive knowledge ascriptions can be viewed as supplementing our knowledge-attributing practices. Other versions are possible besides and both versions remain (relatively) unexplored. Part of the difficulty appreciating Baumann's objections is that family differences are *neglected*. Surprisingly, both versions of contrastivism are lumped together as denoting the *same view*.

This mistake is clear in some introductory comments Baumann offers:

> A contrastivist analysis of knowledge of some type is plausible only if there are for a given subject S a lot of

> triples of propositions p, q and r such that S knows that p rather than q but S does not know p rather than r (191).

Here, Baumann explicitly identifies a "contrastive analysis" with what I described in Chapter Two (§6) as a "hyper-contrastive" knowledge ascription. A hyper-contrastive knowledge ascription is one that is sensitive to the ways in which a thinker's belief might fail to be knowledge. These knowledge ascriptions are explicitly associated with the work of Adam Morton and Antti Karjalainen (2003) and Adam Morton (2010, *forthcoming*). So, for instance, Jed might know there's a cup of Starbucks on the counter rather than a cup of Java Jive, but not know if the Strarbucks is a latte rather than a drip coffee or an americano. Here, Jed's belief is knowledge with respect to the contrast {Starbucks, Java Jive} but not with respect to the contrast {latte, drip coffee, americano}. I'm sympathetic to this version of contrastivism because mileage can be had from it. But it's false and misleading to say contrastivism is "plausible only" for this view. To be clear: this is *not* at all the picture of knowledge that results from a partition semantics for questions, or Schaffer's version of contrastivism, and it is Schaffer's version of contrastivism that appeals to the most powerful and principled arguments to accept contrastivism about knowledge generally. It's strange, then, that Baumann explicitly identifies hyper-contrastive knowledge ascriptions with Schaffer's work—not Morton and Karjalainen's.[92] One might dismiss Baumann's criticisms as misfires on this basis alone. But since Baumann raises issues that should be dealt with in any case, a discussion proves useful.

Baumann's first objection is based on some perceived limitations of contrastive knowledge. He puts the objection in these terms:

> Take knowledge of obvious mathematical truths, like the simple one that 2 + 2 = 4. Does anyone who knows that know it in contrast to something else? In contrast to what, then? To 2 + 2 = 5 (Or 2 + 2 = .7? Or 3 + 3 = 4? Or 12 x 12 = 1212?)? There simply does not seem to be a plausible contrast proposition around. The problem is that [contrastive knowledge] does not seem to hold for this kind of knowledge. It is hard to imagine, for instance, how there could be two numbers x and y (not equal to 4) such that S knows that 2 + 2 = 4 rather than 2 + 2= x but that S does not know that 2+2=4 rather than 2 + 2 = y (191).

[92] (2008): 191.

Baumann adds:

> All this suggests that not all knowledge is contrastive. More cautiously: nobody so far has shown (and it does not seem likely) that all types of knowledge admit of contrastive analyses. To put it more positively: It seems that contrastivism is most plausible and probably only plausible with respect to a particular kind of knowledge: knowledge of propositions which involves the use of discriminatory cognitive abilities (192).

In short, Baumann objects that contrastivism cannot be a general theory of knowledge. Contrastivism cannot be a general theory of knowledge because it cannot explain all types of knowledge.

As indicated, Baumann's discussion is predicated upon hyper-contrastive knowledge ascriptions (or the version of contrastivism offered by Morton and Karjalainen). The problem for Baumann must be that this version of contrastivism is *not* intended to be a general theory of knowledge.[93] Hyper-contrastive knowledge ascriptions supplement our knowledge-attributing practices only. So when Baumann says contrastivism (so understood) cannot be a general theory of knowledge his point is moot. Worse, the version of contrastivism intended to be a general theory of knowledge is Schaffer's and Schaffer's version can account for the type of knowledge Baumann identifies as missing, at least in principle.

To begin with, mathematical knowledge is an important lacuna in the contrastive literature, and one that deserves separate treatment.[94] I won't provide that treatment here, but sketching out the contours of a contrastive reply proves useful. Once again, known propositions are answers to contextually recoverable questions (Chapter Two, Chapter Four). Since there is no principled reason to exclude mathematical knowledge from this group, it seems plausible that known mathematical propositions are answers to contextually recoverable questions too. So, for instance, if Mikey knows that 2+2=4 Mikey knows the answer to the question about what twice two equals: 4 rather than {5, 10, 4…*n*}.[95]

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[93] Here, Morton and Karjalainen (2003: 81) are explicit: "...we are *not* claiming that all knowledge is contrastive" (*italics added*). They further note that there may be ascriptions of contrastive knowledge that do not fit any standard pattern, and that their general effort is make contrastivism about knowledge an intelligible and useful idea (76).

[94] Contrastivism thus keeps good company: mathematical knowledge is a headache for other epistemologies too.

[95] An objector might claim that we never consider contrasts in cases of mathematical knowledge. I offer two responses to this worry. The first is that this objection is unsurprising. We don't typically consider contrasts to questions we antecedently know

Likewise, if Mikey knows the square root of 9 equals 3, Mikey knows the answer to the question about what the square root of 9 equals: 3 rather than {4, 5, 6...*n*}. What this points to is that when Baumann says "nobody so far has shown (and it does not seem likely) that all types of knowledge admit of contrastive analyses", he's neglecting the Foundational Argument (1) + (2), supplemented with (4), (§1).[96]

In sum, I have discussed and discharged a series of misfire objections to contrastive knowledge. In the last section of this Chapter, I consider an objection that hits the mark, so to speak.

§4

The final objection to contrastive knowledge I discuss is based on *giveaway questions*. The objection from give way questions is based on the fact that sometimes knowing the answer to a question can be acquired thanks to the very asking of a question.[97] Consider an illustration from Martin Montminy (2008: 131). Suppose Mary does not know who the President of Tajikistan is. She vaguely remembers that Tajikistan used to be a Soviet Republic and is aware that Tajikistan is now a country. But this is the extent of what we would say Mary knows about Tajikistan. It's correct to say that Mary does not know that Emomali Rahmon is the President of Tajikistan. (We can suppose further that Mary has never even heard the name "Emomali Rahmon" before). Yet, if asked the question *Is the President of Tajikistan Emomali Rahmon or Koko the gorilla?* Mary would provide the correct answer. The answer to this question is thus "given away." The result of giveaway questions are attributions of knowledge to subjects more plausibly thought of as ignorant.

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the answer to. In these situations, there are no 'live options' other than the answer. But this objection does not show that all questions are not multiple-choice questions. It just shows that the connections between questions and answers are nuanced. Should we expect anything else? (See Kallestrup 2009: 475).

Second, although we do not typically explicitly consider and reject contrasts in questions such as *What is 2+2?,* if we posed this question to a child the set of possible answers expands considerably. Again, this is because the joint space of inquiry accounts for whatever discourse participants recognize as live conversational options. In this case, "5" or "10" (or whatever) *are* live options.

[96] In correspondence, Morton suggested mathematical knowledge isn't as problematic for his version of contrastivism as Baumann suggests. For example, a child that knows 2+2=4 rather than 2+2=5 typically does not know that 2+2=4 rather than 2+2=e (Euler's e), 2+2=i (the square root of -1), or 2+2 = s^aleph null (the cardinality of the continuum).

[97] In the terms of John Hawthorne (2004: 78): "the very asking of a question may provide one with new evidence regarding the subject matter at hand."

How should a contrastivist handle giveaway questions?

Schaffer (2005: 257-8) offers two replies. To begin with, Mary knows the answer to the question about who the President of Tajikistan is, so Mary deserves epistemic credit. After all, Mary can now answer the question about who the President of Tajikistan is, and this is an epistemic achievement. (Compare Mary's epistemic position to someone who does not know who the President of Tajikistan is because this person does not know Tajikistan is a country in the first place. Mary is in a better epistemic position than this person).

Schaffer's reserves a second reply as back-up. This reply stipulates a further condition upon contrastive knowledge. In addition to the elimination of *q*-alternatives, to know *p* rather than *q* requires some sort of positive evidence for *p*. On this view, for Mary to know the President of Tajikistan is Emomali Rahmon is for Mary to possess independent evidence for *p*, rather than to simply dismiss the *q*-alternative, Koko the gorilla.

I now assess the merits of these replies, beginning with Schaffer's back-up reply first. Here, I side with Montminy. Montminy observes that by stipulating some sort of positive evidence for *p,* Schaffer is defending something *other than* contrastivism about knowledge.[98] This is because knowledge is no longer the ability to answer a question. Knowledge is the ability to answer a question *and* to possess independent evidential support for *p*.

Schaffer's principle reply is to attribute Mary with knowledge anyway, despite the question being given away. This is because Mary now knows the answer to the question about who the President of Tajikistan is, and this is an epistemic achievement. Schaffer's reply thus echoes a trend in recent epistemology that emphasizes that knowledge is something for which a subject deserves *credit*.[99] In the terms of John Greco (2007: 57): "…knowledge attributions can be understood as credit attributions: when we say that someone knows something, we credit them for getting it right." Wayne Riggs (2002: 94) offers similar comments: "Being in the state of 'knowing that *p*' entails of a person that she have a true belief for which she deserves a certain degree of epistemic credit."

Is knowledge always a creditable achievement? Jennifer Lackey (2007, 2009) denies that knowledge is always a credible achievement. Conceptualizing knowledge attributions in terms of credit attributions neglects entirely knowledge based on testimony, for which a subject isn't creditable at all.[100] Consider Lackey's illustration:

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[98] (2008): 33.

[99] See, e.g., Sosa (2007), Riggs (*forthcoming*), Greco (2003).

[100] Jonathan Kvanvig (2009) and Duncan Pritchard (2005) also deny that knowledge is always a creditable achievement. Kvanvig criticizes the credit view based on *innate knowledge* and Pritchard offers criticisms based on *perceptual knowledge*.

> Having just arrived at the train station in Chicago, Morris wishes to obtain directions to the Sears Tower. He looks around, approaches the first adult passerby that he sees, and asks how to get to his desired destination. The passerby, who happens to be a Chicago resident who knows the city extraordinarily well, provides Morris with impeccable directions to the Sears Tower by telling him that it is located two blocks east of the train station. Morris unhesitatingly forms the corresponding true belief (2007: 352).

Lackey's point is that despite possessing knowledge, Morris cannot in any plausible sense be thought of as being credit worthy. Lackey adds that there is nothing unusual about this case and that it is nearly universally accepted cases like Morris' result in testimonial knowledge (352). The connection to giveaway question is predicable. Possessing knowledge is not always a creditable achievement. It can be that, of course, but plausible counterexamples are cases where the question is given away. In cases of giveaway questions there is no achievement as such: the questionee is simply positioned into the epistemic state of knowing the correct answer. If this is correct, answers to giveaway questions count as knowledge but not as creditable achievements.

I offer a few general comments by way of closing. Any new epistemology faces at least this problem. There are more detractors than there are proponents. Of course the merits of the detractions matter. My overall conclusion is that many detractors unintentionally misconstrue or otherwise distort the motivations and arguments for contrastive knowledge. Legitimate problems remain. I turn to these in Chapter Six.

Chapter Six

Is an Erotetic Epistemology Contrastive?

The standard view in epistemology is that knowledge is a two-place, binary relation K*sp*. Here, K is the knowledge relation, *s* is the subject, and *p* is the proposition that *s* knows. The standard view can thus be rendered "*s* knows that *p*."

Contrastivists about knowledge deny that knowledge is a binary relation. Contrastivists say 'knows' denotes a three-place, ternary relation K*spq*. Here, K is the knowledge relation, *p* is the proposition that *s* knows, and *q* is a *contrast class*. According to the contrastivist, knowledge ascriptions are rendered "*s* knows *p* rather than *q*."

One challenge to contrastive knowledge offers alternative explanations of "rather than"-clauses. The threat posed by this challenge can be stated precisely. Contrastive knowledge ascriptions *reduce* to binary knowledge ascriptions. What is it for a contrastive knowledge ascription to "reduce" to a binary one? A *reduction* is any attempt to explain K*spq* in K*sp* terms, suitably understood. According to arguments in this family, contrasts are analyzed semantically as conditional, conjunctive, or adjunctive constructions. If K*spq* can be explained within the K*sp* framework, there nothing uniquely contrastive about knowledge. Contrastivists deny that K*spq* can be so reduced.[101]

I aim to join this discussion by offering two "erotetic" reductions of contrastive knowledge. These reductions deny that the ability to answer a question is contrastive in all cases, either on the grounds that answers to questions can be articulated in a non-contrastive format or on the grounds that questions generate answers that can only be understood in non-contrastive terms. If these reductions are successful, the erotetic epistemology is not necessarily a contrastive epistemology. I wish to emphasize at the outset that this is not an *anti-contrastive* conclusion. It's

[101] See Jonathan Schaffer (2008), Adam Morton and Antti Karjalainen (2003, 2008). For an *epistemic* reduction of contrastive knowledge, see my (2010).

just a result that emphasizes the breadth and scope of the epistemics of questions.

This Chapter has three sections. In the first section I critically assess the variety of strategies anti-contrastivist epistemologists use to explain contrasts. In the second and third sections I offer my own "erotetic" reductions.

§1

The conditionals strategy is one explanation of K*spq* at the level of K*sp*.[102] According to this strategy, K*spq* is treated as:

K*s*((*p*v*q*)→*p*)

On this view, the contrastive ascriptions:

1. Jones knows that Smith drives a Ford rather than a Chevy.
2. Jackson knows that Boo got the philosophy job rather than Hicks.
3. Martha knows that the department hired the candidate from UC Irvine rather than the candidate from Stanford.

are explained within the binary framework as:

4. Jones knows that if (Smith drives a Ford or a Chevy), then Smith drives a Ford.
5. Jackson knows that if (Boo or Hicks got the philosophy), then Boo got the philosophy job.
6. Martha knows that if (the department hired the candidate from UC Irvine or Stanford), then the department hired the candidate from UC Irvine.

Since knowledge ascriptions which feature conditionals are complex binary ascriptions, K*spq* reduces to K*sp*.

The conjuncts strategy is the second semantic explanation of K*spq* at the level of K*sp*.[103] According to this strategy, K*spq* is treated as:

K*s*(*p*&~*q*)

[102] A versions of this objection is offered by Ray van Woundenberg (2008).

[103] Versions of this objection are offered by David-Hillel Rubin (1987) and Denis Temple (1988).

On the conjunctive strategy, ascriptions 1-3 are explained as:

7. Jones knows that (Smith drives a Ford and Jones knows that Smith does not drive a Chevy).
8. Jackson knows that (Boo got the philosophy job and Jackson knows that Hicks did not get the philosophy job).
9. Martha knows that (the department hired the candidate from UC Irvine and Martha knows that the department did not hire the candidate from Stanford).

If contrastive knowledge claims are interpreted conjunctively, K*spq* reduces to K*sp*.

The adjuncts strategy is the final semantic explanation of K*spq* at the level of K*sp*. On the adjuncts strategy, contrasts are interpreted as optional elements that add circumstantial information to a knowledge-attributing sentence.[104] According to this strategy, K*spq* is treated as:

$Kspq_{(adj)}$

On the adjuncts strategy, ascriptions 1-3 are explained as:

10. Jones knows that Smith drives a Ford (rather than a Chevy).
11. Jackson knows that Boo got the philosophy job (rather than Hicks).
12. Martha knows that the department hired the candidate from Arizona (rather than Toronto).

If contrast classes are treated adjunctively, K*spq* reduces to K*sp*.

Are any of these reductions successful? Does K*spq* reduce conditionally, conjunctively, or adjunctively to K*sp*?

As a preliminary, the sentence "*s* knows *p* rather than *q*" is ambiguous in at least this respect. Stated just so, we have no information about how the *q*-slot is generated (or better: we have no information about what gives conceptual content to the contrast class). In previous Chapters I characterized the contrast class "erotetically." The conceptual content of *q* is determined by possible answers to a question, generated contextually by whatever discourse participants recognize as 'live' conversational options. This has a strategic rationale, which is to follow whatever epistemic consequences thinking about questions are. But it's worth emphasizing that a variety of linguistic mechanisms can be used to generate contrasts besides, and sometimes discussions about contrastivism

[104] *Martijn* Blaauw (2008) offers a version of this objection.

are predicated on these mechanisms entirely (see, e.g., Schaffer 2004, 2005, 2007).[105]

Jonathan Schaffer (2008) offers one defense of contrastive knowledge against these reductions, utilizing these mechanisms. To articulate this reply, I briefly present Schaffer's discussion of these mechanisms.

Schaffer views questions, explicit "rather than"-clauses, clefts, foci, and presuppositions as distinct linguistic mechanisms for encoding contrasts. He elicits what he calls the "contrast sensitivity" of knowledge ascriptions using these mechanisms in the following pairs of cases (236-237):

Who/what:

(a) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know who stole the bicycle?
(b) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know what Mary stole?

Whether:

(a) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know whether Mary or Peter stole the bicycle?
(b) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know whether Mary stole the bicycle or the wagon?

Rather:

(a) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that Mary rather than Peter stole the bicycle?
(b) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that Mary stole the bicycle rather than the wagon?

Cleft:

[105] Morton and Karjalainen (2003) also discuss contrast classes non-erotetically. On their view, contrasts can be generated by varying degrees of visual accuracy, conceptual repertoire, and the limited discriminatory power of evidence.

(a) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that it was Mary that stole the bicycle?
(b) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that it was a bicycle that Mary stole?

Focus:

(a) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the scene. Does the detective know that *Mary* stole the bicycle?
(b) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the scene. Does the detective know that Mary stole *the bicycle*?

Presupposition:

(a) *Someone* has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that Mary stole the bicycle?
(b) Mary has stolen *something* from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that Mary stole the bicycle?

Differences in (a)/(b) cases are differences in contrasts. In the (a) cases contrasts pick out alternative *thieves*. In the (b) cases contrasts pick out alternative *thefts*. The point Schaffer emphasizes is that our intuitions about whether knowledge obtains in these cases depends not only upon *p*: the known proposition, but also upon *q*: which contrast proposition is in question. In the (a) cases we correctly intuit K*spq* and in the (b) cases we correctly intuit ~K*spq*. Schaffer thus explains the differences in the (a)/(b) cases by appealing to the *contrast sensitivity* of knowledge ascriptions. Schaffer notes that these intuitions are stable across his informants and that "It is natural to take the contrastive data as an argument for contrastivism" (237).[106]

How does the contrast sensitivity of knowledge ascriptions amount to a defense of K*spq* against attempts to reduce them conditionally, conjunctively, or adjunctively to K*sp*? Schaffer's principal argument is that reductive strategies are *linguistically implausible*. Semantic sensitivity

[106] Jonathan Schaffer and Joshua Knobe (2010) recently tested a range of related case pairs, and found empirical evidence for contrast sensitivity.

to questions, explicit "rather than"-clauses, clefts, foci, and presuppositions is sensitivity to contrasts—not conditionals, conjunctions, or adjuncts. Schaffer puts the point in these terms: "In general, the best semantic treatment of questions, "rather-than"-clauses, clefts, foci, and presuppositions is in term of contrasts. Semantic sensitivity to these features is sensitivity to contrasts" (237).[107]

The point I wish to emphasize is that Schaffer's anti-reductive strategy turns on whether our willingness to ascribe (or deny) knowledge to a subject is sensitive to shifts in contrast (see, e.g., Blaauw 2008 for an argument that rejects these intuitions). But the debate can be moved in a different direction entirely.

§2

Let's call contrastivism's *core idea* the idea that to know is to know the answer to a question. Contrastivists express the core idea using the "rather than" locution in a knowledge-attributing sentence (i.e., "*s* knows *p* rather than *q*"). Here, *p* and *q* span the denotation of possible answers to a question. The core idea can be expressed more generally by saying that contrastivism is the expression of an answer to a question in contrastive format. So, for instance, if Smith knows the answer to the question *How did John F. Kennedy die?* Smith knows John F. Kennedy was assassinated rather than died accidentally. But there is no principled reason that the core idea cannot be preserved and expressed *non-contrastively*. That is, there is no principled reason knowing the answer cannot be expressed in a binary rather than a ternary format. Here, we might express the answer to the question Smith knows by saying that Smith knows John F. Kennedy was assassinated *and* Smith knows that John F. Kennedy did not die accidentally. The key point is that so long as the conceptual link between questions and answers is preserved, possible and actual answers to questions can be expressed as complex binary constructions. The only stipulation is that however the reduction is produced (i.e., whatever strategy successfully expresses knowing the answer in a binary format) the proposition(s) that result are conceptualized as answers to a question formally expressed by the "rather than"-clause. Expectedly, there are better and worse methods for conceptualizing answers to question binarily, so methods to be preferred.

[107] By way of diagnostic, Schaffer adds that the thought that contrastive knowledge can be analyzed via conditions, conjunction, and adjuncts, "seems to be a pure invention, fabricated solely to fit the knowledge ascription data onto the Procrustean bed to K*sp*" (237).

Of the methods under discussion, the adjuncts strategy is the worst strategy for reducing K*spq* binarily. The reason is that this strategy interprets circumstantially the close connection between questions and answers. So, for instance, questions are typically conceptualized as partitional structures corresponding to their possible answers (Chapter Two). In the terms of Jeroen Groenendijk and Martin Stokhof (1984: 25): "…where there are questions, there are, fortunately, also answers. And a satisfactory theory of interrogatives will have to deal with those as well." Jonathan Ginzburg (1996: 387) thus refers to question/answer pairs as *dialogue units*, where a dialogue unit denotes the scheme: "Q? $\{p^1, p^2, p^3 \ldots p^n\}$." Here, Q? is the question and $\{p^1, p^2, p^3 \ldots p^n\}$ is a set of possible answers. Answers to questions are thus semantic constituents of questions in interrogative form. They are not merely adjuncts—optional elements that embellish or otherwise add circumstantial information to a knowledge-attributing sentence.

A close second for worst reductive strategy is the conditionals strategy. Here, the conditional ascription C^1: K*s*((*p*v*q*)→*p*) is treated as the conditional question C^2: K*s*((*p*v*q*)?→*p*). C^2 explicitly includes the answer to the question (*p*v*q*)? via *p*, so implements the strategy that contrastive knowledge ascriptions are binary expressions of knowing the answer. So, for instance, the conditional sentence (e.g.): *if Smith knows that John F. Kennedy was assassinated rather than died accidentally, then Smith knows John F. Kennedy was assassinated*, is treated as the conditional question: *If John F. Kennedy was assassinated or died accidentally, how did he die?* via the correct answer, *p*: assassinated.

Is this a plausible reductive strategy?

The conditionals strategy is not a plausible option for the binary theorist. To begin with, consider some semantics of conditional questions. Conditional questions are conditional sentences with interrogative consequents. According to Kyle Rawlins and James Issacs (2006), conditional questions create a temporary context in which the propositional content of the antecedent is obtained, and the question in the consequent is asked relative to this temporary context. So the consequent of the question *If you could have any job, what job would you have?* triggers alternative career options occupying the place of the antecedent (e.g.,): {*firefighter*, *policeman*, *astronaut*}.

The main problem with this strategy is the *backfire problem*. The backfire problem is that treating K*spq* as the conditional question K*s*((*p*v*q*)?→*p*) results in a contrastive ascription of knowledge. So, to continue with the above example, to know the answer to the question *If you could have any job, what job would you have?* is to know *p*: if I could have any job I would be an *astronaut*, rather than *q*: a *firefighter* or a *policeman*. This strategy backfires because the binary theorist wants to analyze answers to questions in a binary format, not a ternary one. Since

conditional questions generate explicitly contrastive knowledge ascriptions, they cannot be appealed to as a reductive strategy.

Is it plausible to avoid the backfire problem by reducing contrastive knowledge ascriptions conditionally *without* invoking the question? Here I side with Schaffer. Interpreting K*spq* as the conditional proposition K*s*((*p*v*q*)→*p*) faces *the problem of false antecedents*.[108] Consider an illustration *via* a variant of *Rather*:

Rather:

(c) Mary has stolen the bicycle from the toy store. The detective finds Mary's fingerprints at the crime scene. Does the detective know that Peter rather than Paul stole the bicycle?

There is no plausible sense in which the detective knows in Rather-(c). Rather-(c) violates the facticity of knowledge. The detective cannot know Peter rather than Paul stole the bicycle unless Peter actually stole the bicycle. The problem is that Rather-(c) comes out true on a conditional interpretation, since it involves knowledge of a conditional proposition with a false antecedent.[109]

The strategy with the most initial plausibility is the conjuncts strategy.[110] Suppose the contrastive ascription "Jones knows Boo got the philosophy job rather than Hicks or Riley" is interpreted according to this strategy as the conjunction of the following propositions:

p^1: Jones knows Boo got the philosophy job;
p^2: Jones knows that Hicks did not get the philosophy job;
p^3: Jones knows that Riley did not get the philosophy job.

On the condition that p^1 is understood, conceptualized, or otherwise treated as the correct answer to a question (in this case *Who got the philosophy job*?) and p^2 and p^3 are treated as possible but non-actual answers to this question, I don't see a principled reason to restrict the epistemics of question answering to explicitly contrastive constructions.

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[108] See his (2008): §2.

[109] So Rather-(c) becomes: the detective knows that ((Peter stole the bicycle or Paul stole the bicycle)→(Peter stole the Bicycle)). This is a knowledge of a (material) conditional with a false antecedent, so the proposition comes out true. For a discussion of how the indicative and subjunctive conditionals turn out, see Schaffer (2008): §2.

[110] Some recent work in epistemology explicitly relies upon the plausibility of analyzing answers to question conjunctively. Jesper Kallestrup (2009: 469-471), for instance, analyses the questions *Is George Bush or Janet Jackson on television?* and *Is George Bush or Will Ferrell on television?* via the true answers "—George Bush is on television *and* Janet Jackson is not on television" and "—George Bush is on television *and* Will Ferrell is not on television" respectively.

The knowledge state rendered conjunctively by Ks(p^1&~p^2&~p^3) appears to be a perfectly allowable non-contrastive analysis of knowing the answer, expressed in a (complex) binary format.

§3

The second reductive strategy I discuss is based on questions that generate non-contrastive answers.[111] To begin with, while all well-formed questions partition options which are their possible answers, some questions generate *bipartitions*. Consider *yes-no* questions. Yes-no questions are questions that can be answered satisfactorily by uttering "—Yes" or "—No." More fully, answers to yes-no questions are declarative sentences that can be acquired from the question (Hamblin 1973, Romero and Han 2004, Wisniewski 2006). So the question *Did Quinn leave?* (e.g.) is interpreted according to the sketch above as expressing the possible answers:

(*a*) – Yes, Quinn left.

(*b*) – No, Quinn did not leave.

More generally, every yes-no question refers to its (direct) answer and its negation. From an erotetic perspective, an ascription of knowledge in this context amounts to saying *s* knows that *p*: —*Quinn left*, rather than *q*: —*Quinn did not leave*. To put the point more precisely, ascribing contrastive knowledge in this case amounts to saying "*s* knows that *p* rather than not-*p*." But of course saying "*s* knows that *p* rather than not-*p*" is redundant. The ascription "*s* knows that *p* rather than not-*p*" says no more than "*s* knows that *p*."[112] Assuming the question's presuppositions remain stable, the result is that when a person knows the answer to a yes-no question that person non-contrastively knows the answer is *p*.[113]

[111] This reductive strategy thus implements an observation by Maria Aloni and Paul Égré (2010)—namely, that what one knows depends in part upon the nature of the question. Paul Hagstrom (2003: 197) offers similar comments: "Questions...specify the form that an answer will take."

[112] Variant yes-no questions involving "whether" locutions can also be included within this group. So, for instance, if I know whether it is raining I know *p*: it's raining, rather than *q*: it's not raining (see Hookway 2008: 4).

[113] Notice that on standard accounts of the presuppositions of questions (Nuel Belnap and Thomas Steel 1976, Bas Van Fraassen 1981), both direct answers presuppose the question. So there does not appear to be the risk of asking questions with different possible answers, based on different presuppositions. Matters are complicated if we

A non-contrastive analysis of contrastivism's core idea follows from analyses of other question types. Consider so called "mention-some" questions (Groenendijk and Stokhof 1997, Masto 2010). *Mention-some* questions are requests for particular pieces of information. So, for instance, the most natural reading of the question *Where can I buy an Italian newspaper?* is that the questioner is only asking the questionee to mention some place the newspaper can be bought. If so, there are any number of true answers, such as:

(*a*) – Hugo's on Victor Street.

(*b*) – Little Italy on the North side.

More fully, (*a*) and (*b*) stand elliptically for the whole proposition: "—*Hugo's on Victor Street is a place you can buy an Italian newspaper",* and "—*Little Italy on the North side is a place you can buy an Italian newspaper",* respectively. Erotetically speaking, ascribing knowledge in this context amounts to saying *s* knows that p^1: *an Italian newspaper can be bought at Hugo's on Victor street,* and p^2: *an Italian Newspaper can be bought in Little Italy on the North Side*.

Two points about mention-some questions are worth emphasizing. The first is that answers to mention-some questions can be analyzed conjunctively as (two or more) independently obtaining binary propositions (i.e., $Ks\langle p^1 \& p^2\rangle$). The second is that a subject knows the answer to a mention-some question without considering, rejecting, or otherwise thinking about competing alternatives.[114] The upshot is that when *s* knows the answer to a mention-some question, *s* possesses a non-contrastive answer.

Answers to so-called "choice-questions" (Belnap 1982) also analyze out non-contrastively. Consider the question, *What are two cities that have hosted the Winter Olympics?* Intuitively, a true answer to this question mentions two cities and the choice of which two cities is left up to the hearer.[115] So, for instance, Jones might answer this question by replying:

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consider yes-no questions with presuppositions. Since presuppositions can diverge over yes-no pairs, many cases of yes-no questions will generate non-redundant sets of yes-no answers (my thanks to Jonathan Schaffer for pointing this out).

[114] It's possible that someone considers and rejects competing alternatives in these cases prior to answering. For example, someone might initially recall that a location on Lincoln Street also sells Italian newspapers, but may soon realize that she was mistaken. Generally speaking, I suspect that we answer mention-some questions without appealing to the formal mechanisms in a partition semantics for questions.

[115] See Peter Hanks (2006) for a useful discussion.

(*a*) – Turin.

(*b*) – Vancouver.

More fully, (*a*) and (*b*) stand elliptically for the whole proposition "—*Turin is a city that has hosted the Winter Olympics*", and "—*Vancouver is a city that has hosted the Winter Olympics*", respectively. Erotetically speaking, ascribing knowledge in this context amounts to saying that *s* knows that p^1: *Turin is a city that has hosted the Winter Olympics*, and p^2: *Vancouver is a city that has hosted the Winter Olympics*.

Once again, two points are worth emphasizing. The first is that answers to choice-questions can be analyzed conjunctively as (one or more) independently obtaining propositions (i.e., $Ks\langle p^1 \& p^2 \rangle$). The second is that a subject knows the answer to a choice question without considering, rejecting, or otherwise thinking about competing but false alternatives.[116] The result is that when *s* knows the answer to a choice question, *s* possesses a non-contrastive answer.

So what can be concluded?

As I have been using the term, the *erotetic epistemology* is whatever epistemic consequences thinking about questions are. Schaffer's view is that the concept of knowledge in any such epistemology must be contrastive. We are now in position to deny this. Contrastivism's core idea is that to know is to know the answer to a question. But it does not follow that answers to questions can, should, or otherwise ought to be molded as contrastive constructions in all cases. This isn't an anti-contrastive result, necessarily. It's a result that suggests that knowledge within an erotetic framework is more dynamic and nuanced than initially supposed. In short, the epistemics of questions are too complex to be captured in exclusively contrastive terms.

§4

Discussions about contrastive knowledge are almost exclusively predicated upon questions in interrogative form. This emphasis is understandable. After all, interrogatives are the most common types of questions. But to the extent that this emphasis neglects an entire class of non-interrogative questions, contrastive knowledge cannot exhaust the

[116] Once again, it's possible for someone to consider and reject competing alternatives in these cases prior to answering. For example, someone might initially recall that Montreal once held a Winter Olympics, but may soon realize that she was mistaken. Generally speaking, I suspect that we answer choice-questions without appealing to the formal mechanisms in a partition semantics for questions.

epistemology of questions.[117] An analysis of questions in non-interrogative form remains an open—and largely unexplored—area of epistemic research. I sketch out this topography by way of closing.

The analysis throughout this dissertation is predicated upon direct answers to questions. An answer to a question is *direct* when it provides just enough information to answer the question. So, for instance, the question *Are you going to the party tonight?* is directly answered by replying "—Yes, I am going to the party tonight" or "—No, I am not going to the party tonight", respectively. The epistemics of indirect answers to questions deserve attention as well. An answer to a question is *indirect* when it provides *more* information than required to answer the question. So, for instance, the question *Are you going to the party tonight?* is indirectly answered by replying "—I have to wake up early" or "—I'm looking forward to hearing the band."

The practical value of question asking and answering and its connection to knowledge is a second major area open to research. Discussions about the practical value of questions can be understood as attempts to explain *epistemological evaluations*.[118] So, for instance, questions are routinely used to elicit information from a subject (e.g., knowledge from the testimony of others), to judge what a subject knows about a topic (what reasons does the subject have for thinking that a certain proposition is true? How reliable is the subject on this topic? Has the subject included all of the relevant information?), and to guide the process of inquiry. It does this by determining the direction of inquiry and by using questions as a yardstick to measure success.

Finally, it remains an open question as to how thinking about knowledge erotetically affects the ways it makes sense to think about a host of current epistemic debates. Which debates does the eroteitic epistemology inform? The answer depends upon *who* you ask. On my view, the epistemics of questions provides principled responses to questions about why knowledge is valuable and why luck is incompatible with knowledge. The epistemics of questions can also inform discussions about the semantics of non-declarative knowledge ascriptions (i.e., sentences of the form "*s* knows *p* better than *r*" and "*s* knows the

[117] This is as it should be. The epistemology of questions is a research area that includes more than what included in discussions about contrastive knowledge. Perhaps the most important area of neglect concerns *why* questions. "Why" questions don't fit naturally or neatly into discussion of contrastive knowledge. Partly this is because we don't often know what constitutes a possible answer to a why question, and partly because we don't often know how to eliminate answers to why questions. As such, an epistemological analysis of why-question reveal a series of question types that might be considered inconsistent or otherwise inappropriate with Hamblin's postulates.

[118] Hookway's excellent discussions standout as the canonical treatment of this topic (see, e.g., 1995, 1996, 2008).

difference between *x* and *y*"). Discussions about self-knowledge can also be understood in erotetic or contrastive terms. These and other disputed can profit from looking more closely at questions, answers, and knowledge.

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