Knowing-*Wh* and Embedded Questions

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ABSTRACT: Do you know who you are? If the question seems unclear, it might owe to the notion of "knowing-*wh*" (knowing-who, knowing-what, knowing-when, etc.). Such knowledge contrasts with "knowing-that," the more familiar topic of epistemologists. But these days knowing-*wh* is receiving more attention than ever, and here we will survey three current debates on the nature of knowing-*wh*. These debates concern, respectively, (1) whether all knowing-*wh* is reducible to knowing-that ("generalized intellectualism"), (2) whether all knowing-*wh* is relativized to a contrast proposition ("contrastivism about knowing-*wh*"), and (3) whether the context-sensitivity of knowing-*wh* is a semantic or purely pragmatic phenomenon ("contextualism vs. invariantism about knowing-*wh*").

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The ancient injunction to "know thyself" can be puzzling. In many respects, knowing who you are is banal: You know your name, your job, your address, where you were born, etc. You know more intimate details about yourself than anyone else. Yet the injunction apparently recommends "knowing who you are" in some *further* way. But what way is that? A similar unclarity occurs with other cases of "knowing-*wh*." When choosing a career, one is advised to "know what" one wants. But what does that mean? Again, you probably know more about your desires than anyone. So if "knowing what" requires something additional, what more is required?

Knowing-*wh* includes knowing who, knowing what, knowing which, knowing where, knowing why, and knowing how (or "whow" if you're a stickler).[1] Often, knowing whether is included also, and the semantics of [knowing + INF] and [knowing + DP] are closely related.[2] Epistemologists traditionally have focused on knowing-that, as in infamous "S knows that *p*" cases.[3] But when picking a career, for instance, the nature of knowing-*wh* can have real practical import. Moreover, interest in knowing-*wh* has increased in the wake of Stanley & Williamson's (2001)[4] "intellectualism"— a view where knowing-how is wholly reduced to knowing-that.[5] This is contra the Rylean orthodoxy, where "know how" is instead identified with abilities (Ryle 1949/2000, ch. 2). (See Fantl 2008; 2012 for summaries of the knowing-how literature.[6]) As I shall later explain, one positive reason why Stanley & Williamson are intellectualists is that it comports with a well-regarded, general intellectualist view of knowing-*wh*. Their Rylean

opponents have thus been led to scrutinize this more generalized intellectualism, and inquire into knowing-*wh* more broadly.

Knowing-*wh* also figures into other key philosophical issues. For one, Anscombe (1963) and Strawson (1965) think that intentional or responsibility-bearing action normally requires the agent to "know what" she is doing. On a rather different topic, Quine (1977) holds that in order to have *de re* propositional attitudes about Ortcutt the spy, one must "know who" Ortcutt is. (He then rejects the former, given the perceived unclarity in the latter.)[7] Third and relatedly, as made famous by Evans (1982), there is a question about "Russell's principle," viz., whether thinking about an object requires "knowing which" object is being thought about. More recently, some suggest that qualia disputes about "knowing what it is like" depend crucially on our understanding of "knowing what" (Lycan 1996, Tye 2011, Brogaard 2011; see also Lormand 2004 on the embedded 'what it is like'). Finally, it is plausible that the externalism/self-knowledge debates turn crucially on what it is to "know what" one is thinking (Parent ms.).

Epistemologists typically vary between talk of *knowledge* and talk of knowledge-*ascriptions*—and in the latter case, formal semantics is often recruited for insight.[8] The knowing-*wh* literature is no exception, especially concerning "embedded questions" (a.k.a. "concealed" or "indirect" questions). In a knowing-*wh* ascription, the embedded question is the clause headed by the *wh*-word;[9] for instance, in 'Han knows who painted *L'Ange du Foyer*', the embedded question is "who painted *L'Ange du Foyer*."[10] In formal semantics, studies of these things go back at least to Hamblin (1958)—yet the most influential work on philosophers has been Boër & Lycan (1975; 1986), Karttunen (1977), and Groenendijk & Stokhof (1982; 1984). Below, we shall review this work as it becomes relevant. Our main goal, however, is to review, in the most accessible way, three philosophical debates on the nature of knowing-*wh*.

We noted Stanley & Williamson's preference for a general, intellectualist view of knowing-*wh*—yet is such a view satisfactory? This can be dubbed the question of "*generalized intellectualism*," i.e., intellectualism about *all* knowing-*wh* (vs. intellectualism specific to knowing-how). In addition, there is controversy on whether knowing-*wh* should be relativized to "contrast proposition" (in Schaffer's 2004; 2005 sense). Call this the dispute over "contrastivism about knowing-*wh*." Finally, there is a "semantics/pragmatics" disagreement. The question is whether the context-sensitivity of knowing-*wh* ascriptions is best explained semantically, or instead by Gricean norms of conversation. We shall consider these three debates in turn.

1. The Generalized Intellectualism Debate

Again, Stanley & Williamson hold that knowing-*wh* generally reduces to knowing-that; this is one reason for their intellectualism about knowing-how (see §II of their 2001; see also Stanley 2011a, ch. 2).[11] But why think that such generalized intellectualism is true? The main reason is that the standard semantic analysis from linguistics (cf. Karttunen, Groenendijk & Stokhof, op. cits.) interprets knowing-*wh* ascriptions in terms of knowing-that. So apparently, such interpretations imply that knowing-*wh* is a species of knowing-that (by disquotation; see Stanley 2011a, p. ix and p. 144).[12] Since a generalized intellectualist thinks we should endorse the standard analysis, she thus has a positive case for intellectualism about knowing-*wh* in general.

To illustrate all this in more detail, consider:

(1) Kalpesh knows which team is winning.

(2) Kalpesh knows who the leading scorer is.

(3) Kalpesh knows why the Trailblazers are winning.

Following the standard analysis, generalized intellectualism interprets (1)-(3), respectively, as:

(1*) Kalpesh knows, of some team t, that t is winning.

(2*) Kalpesh knows, of someone s, that s is the leading scorer.

(3*) Kalpesh knows, of some reason r, that r is the reason the Trailblazers are winning.[13]

More systematically, the view is that a knowing-*wh* ascription is true iff the known proposition is

an *answer* to the embedded question.[14] So (by disquotation) it appears that in each case,

knowing-*wh* is just a matter of possessing the appropriate knowing-that.

Notably, this assumes that the embedded question (qua syntactic type) is an embedded

interrogative. And the meaning of an interrogative is rather different from a declarative. After all,

an interrogative is not "true" or "false;" so unlike a declarative, it does not represent the

condition on which it is "true." Instead, an interrogative is often assumed to denote *the set of its*

answers. Generalized intellectualism then says the same of embedded questions.[15] Consequently,

a more detailed, intellectualist view of (1) might be:

(1**) Kalpesh knows, of some team t, that t is winning—where "t is winning"[16] answers

      the embedded question "which team is winning" i.e., it is in the set of answers A =

      {"The Trailblazers are winning," "The NBA team from Portland is winning," etc.}

For brevity, however, normally I will refer back to the shortened analyses like (1*).

Naturally, generalized intellectualism faces objections. It is indeed contentious whether

'which team is winning' in (1) is, semantically, just like an interrogative (Ginzburg 1995a, b;

1996; 2011, Ginzburg & Sag 2000). Observe that if 'which team is winning' is a question, we

would expect it to co-refer with 'the question of which team is winning'. Yet there is evidence

against this. We cannot substitute such expression-pairs *salve veritate*, nor can we existentially

generalize in expected ways. On substitution failure, consider:

(4) Jamaal knows/discovered/revealed an interesting question.

Assume that the interesting question = "who left yesterday?" Even so, it does not follow:

(5) Jamaal knows/discovered/revealed who left yesterday.

And the substitution failure tells against co-reference. As for existential generalization, consider:

(6) Jamaal discovered/knows who left yesterday.

From this it does not follow:

(7) There is a question that Jamaal discovered/knows.

So here too, contra generalized intellectualism, it seems a so-called "embedded question" does not actually express a question.

One might complain, however, that these examples exploit a subtle equivocation (Stanley 2011a, ch. 2, following King 2002). Verbs like 'know' express different relations, depending on whether the verb is followed by a noun phrase or by a whole sentential clause. Observe:

(8) Jamaal discovered a new element.

(9) Jamaal discovered who left yesterday.

In (8), 'discovered' denotes a relation between Jamaal and an object, a chemical element. But in (9), it denotes a different relation, one that holds between Jamaal and something of a *different* sort, namely, the semantic content of 'who left yesterday'. Stanley argues that the difference is even clearer when comparing the relations expressed in (4) and (5). After all, "[t]he former relation would be expressed in German by 'kennen', and the latter by 'wissen'" (p. 66).

Regardless, a different worry is that generalized intellectualism ignores the *context-sensitivity* of "answering" an embedded question (Ginzburg & Sag, Ginzburg op. cits.; Hookway 2008). Suppose Sama asks:

(Q) What is roentgenium?

Thus far, generalized intellectualism seems to allow that Sama's question is answered by:

(10) Roentgenium = unununium.

But will this serve as an answer? It might not. After all, Sama might have never heard the term 'unununium' before—and even if she has, she may not be sufficiently informed about it for (10) to satisfy her. In which case, her question just gets "pushed back." That is so, even though (10) is a true, substantive statement which expresses the identity-condition on roentgenium.

In reply, some would distinguish answers to a question from answers that satisfy an inquisitor (see section 3). Others might instead say that an "answer" to a question must be couched in more familiar terms. Yet sometimes less familiar terminology is precisely what's desired, as when a chemistry student asks "what is water?"

It may be safer, then, just to say that "answering" is a context-sensitive affair: In some contexts (10 answers (Q), in other contexts not. This context-sensitivity is further illustrated by comparing the following cases (Ginzburg & Sag, Ginzburg op. cits.):

(11 (Context: Lucia about to step off plane in Johannesburg.)

Flight attendant: Do you know where you are?

Lucia: Johannesburg.

(12) (Context: Lucia about to step out of taxi in Johannesburg.)

Taxi driver: Do you know where you are?

Lucia: Johannesburg.

Intuitively, Lucia answers the question in the first context, but not the second. That is so, even though she gives the very same response to the very same interrogative.

Such context-sensitivity also carries over to knowing-*wh* ascriptions: In the context of (11), it is true to say Lucia "knows where" she is, though this may be false in (12). Yet

generalized intellectualism predicts that the knowing-where ascription must be true in both contexts. After all, in each case Lucia knows, of some locale *l*, that she is located at *l*.

In reply, Stanley (2011a) explains this by contextual restrictions on the domain of objects.[17] (The stock example of domain-restriction: If I check the fridge and say "There's no beer," I don't mean there's no beer anywhere at all in the universe—for context is restricting the domain just to objects in the fridge.) Of course, Stanley's contextual restrictions concern answers, rather than the objects our answers are about. Yet no matter; assume that answers are in the domain as well. (But n.b., if "element with atomic number 111" is ever an answer where "unununium" is not, then answers are intensionally individuated.) And if answers are in the domain, they can be contextually included or excluded by means of domain-restriction.

Beyond all this, however, a separate difficulty for generalized intellectualism is that some knowing-*wh* ascriptions seem clearly to imply the existence of an ability. Stanley & Williamson (p. 425) take note of this in the following case:

(13) John knows where to find an Italian newspaper.

On a natural reading, (13) entails that John *can* find such a thing, where 'can' has the sense of "has the ability." But not to be outdone, Stanley & Williamson offer an alternative construal:

(13*) John knows, of some locale *l*, that Italian newspapers are found at *l*.

Nevertheless, one might complain that no motivation for this alternative has been given, beyond the desire to salvage generalized intellectualism (Glick 2012).[18] Moreover, especially with knowing-how, there are other cases where an ability-entailing reading seems even harder to avoid. (See Cath 2011 and Brogaard 2011.)

Despite the worries about generalized intellectualism, there is a virtual consensus against "generalized anti-intellectualism," i.e., the view that knowing-*wh never* reduces to knowing-that.

One exception is Hetherington (2008; 2011): He holds that nothing just reduces to knowing-that—for all knowing-that ultimately reduces to knowing-how! Still, perhaps the largest obstacle for generalized anti-intellectualism, noted by many, concerns "book knowledge" of a skill. Suppose Kalpesh has read voraciously on perfecting the 3-point shot, yet remains unable to execute on the court. Then, generalized anti-intellectualism insists there is *no* sense in which he "knows what" to do. Yet this seems too strong—after all, he knows that you should keep your eye on the rim, take the time to set your feet, relax, follow through, etc. Such "book knowledge" seems to provide one sense in which he "knows what" to do. Yet this knowledge patently reduces to his knowing-that, contra generalized anti-intellectualism.[19]

A more common competitor to generalized intellectualism is a hybrid view, which says that some knowing-*wh* wholly reduces to knowing-that, and other knowing-*wh* does not. The hybrid view enjoys some independent evidence. For instance, if the answers to an embedded question are all "negative," the knowing-*wh* ascription will behave rather differently from the norm (Sgaravatti & Zardini 2008). Suppose Amparo overhears that a co-worker hosted a party where no one showed up. Amparo is then related to the set of (contextually suitable) answers to "Who went to the party?," such as "No one," "Nobody," etc. Generalized intellectualism thus implies:

(14) Amparo knows who went to the party.

Now (14) may be awkward, but it is plausible to say it is true. For its denial ("Amparo does not know who went to the party") is pretty clearly false (ibid.). In contrast, consider:

(15) Nam knows what to do to square the circle.

Suppose Nam knows it is impossible to square the circle. Then, Nam is related to the set of (contextually suitable) answers to the embedded question, like "There is no way," "By no means

whatsoever" etc.[20] Since he is so related, generalized intellectualism similarly implies that (15) is true. Yet unlike (14), (15) is *false*. And the sense is that a different kind of account is needed, since Nam's epistemic relation to these negative answers does *nothing* for his knowing-*wh*.

Accordingly, in lieu of generalized intellectualism, a hybrid account of knowing-*wh* may be for the best. Sgaravatti & Zardini's final remark here is classic:

> Unifying all forms of human cognition is a grandiose task; our suspicion however is that there is a humble and too simple answer to the question of how to accomplish it—pretty much the same one as the answer to the question of how to square the circle (2008, p. 256).

2. Contrastivism about Knowing-*Wh*

Schaffer (2007) raises a different objection to generalized intellectualism, connected to the broader issue of whether knowledge is *contrastive*. The type of generalized intellectualism at issue he calls "orthodox reductionism:"

(OR) S knows-*wh* iff S knows that *p*, where *p* is an answer to the embedded *wh*-question.

(N.B., Schaffer 2009 slightly revises this; see below.) Schaffer says, against (OR), that knowing an answer to the embedded question is insufficient for knowing-*wh*. For knowing-*wh* also requires the subject to know *that it is the answer* to the question (cf. Heim 1994, pp. 132-133).

Schaffer motivates the idea by raising the "problem of convergent knowledge" (cf. Hookway 1996). The problem starts in noticing that a proposition *p* often answers *more than one question*. However: Someone who knows that *p* should not always count as knowing-*wh* in relation to every such question. To illustrate, consider:

(Q1) Is that George W. Bush or Will Ferrell playing George W. Bush on T.V.?

(Q2) Is that George W. Bush or Janet Jackson on T.V.?

Suppose "Bush is on T.V." answers both questions. And suppose Bubba knows it answers (Q2), but he does not know it answers (Q1). The intuition, then, is that Bubba does not know whether Bush or Ferrell is on T.V.—even though he knows whether Bush or Jackson is. However, (OR) implies that he knows-whether in both cases, for he knows a proposition that *de facto* answers each question. Schaffer thus concludes that (OR) does not demand enough for knowing-*wh*. Going by the examples, one must also know that an answer *is* an answer to the question at hand.

This, moreover, is thought to vindicate a *contrastivist* view about knowing-*wh*. In earlier work, Schaffer (2004; 2005) defends contrastivism about knowing-that, where knowing that *p* is not seen as a binary relation. (The surface grammar of "S knows that *p*" is misleading in this regard.) Instead, to know that *p* is for a ternary relation to hold between S, *p*, and a further proposition *q*. The second proposition is a "contrast proposition;" it is intended to reflect that if S knows that *p*, then S knows that *p* obtains as opposed to *q*. As Schaffer (2005) makes clear, the driving intuition is that knowledge is always *discriminatory*: "There is no such thing as discriminating that *p*, unless one adds: *from what?* And likewise…there is no such thing as knowing that *p*, unless one clarifies: *rather than what?*" (p. 235, his italics).

Similarly, Schaffer's argument against (OR) suggests that knowing-*wh* is a ternary relation between S, *p*, and a question *Q*. Since *Q* seems not to be a contrast proposition, this initially seems incongruous with contrastivism. However, Schaffer views an embedded question much like the standard analysis; he holds that an embedded question denotes the set of responses to the question, which includes alternative responses to *p*. The contrast proposition to *p* thus can be seen as the disjunction of all these alternatives (2009, p. 479).[21]

At any rate, the basic idea of contrastivism about knowing-*wh* is:

(CON) S knows-*wh* iff: S knows that *p*, where *p* is an answer to the embedded question, and S knows that it is an answer to the question.

Notice that (CON) still counts as a kind of generalized intellectualism. Schaffer rejects (OR) not because he thinks that knowing-*wh* is sometimes a matter of irreducible abilities, but rather because (OR) fails to note the contrastive aspect of knowing. Concurrently, even though his target is "orthodox reductionism," it is not as if Schaffer is a kind of anti-reductionist. Rather, he opposes the *orthodox* way of reducing of knowing-*wh* to knowing-that; he is just *revising* the reduction to include a contrast proposition.[22]

So should a generalized intellectualist be a contrastivist? One issue can be given the label 'the problem of others' knowledge' (on the model of 'the problem of other minds'). Imagine that our car is parked on Main St., and Holly knows this while Médoune does not. Yet if Médoune knows that Holly parked the car, he might assert:

(16) Holly knows where the car is parked.

However, (CON) implies that Médoune's assertion means:

(17) Holly knows that the car is parked on Main (rather than on Elm, on Roosevelt, etc.)

But Médoune himself is agnostic about the car's location, so it is implausible that he is asserting *that* (Brogaard 2008; 2009, Kallestrup 2009). Yet if (CON) is true, how could Médoune attribute knowledge-*wh* to Holly if he himself lacks it?

In contrast, (OR) properly formulated does not seem to suffer this set back (Brogaard 2009). If we follow more closely the analysis from Karttunen (op. cit.) and Groenendijk & Stokhof (op. cits.), the content of (17) is better understood as:

(17*) Holly knows, of some (unspecified) locale *l*, that the car is parked at *l*.

The variable '*l*' here is not to be instantiated on any particular locale; it is to remain an existentially quantified variable. This is what allows Médoune to assert something like (17) without knowing any particular value of '*l*'—as it should be.

In reply, Schaffer (2009) decides to allow the point, and revises both (OR) and (CON) to reflect this.

(OR*) S knows-*wh* iff there is some (unspecified) proposition *p* such that S knows that *p* and *p* answers the embedded question.

(CON*) S knows-*wh* iff: There is some (unspecified) proposition *p* such that S knows that *p*, *p* answers the embedded question, and S knows that it answers the question.

Still, Schaffer prefers the contrastivist option, since (OR*) also suffers the convergent knowledge problem. Again, suppose Bubba knows that Bush is on T.V., where this is an answer to both (Q1) and (Q2). From this, it immediately follows that Bubba knows *some proposition or other* that answers both (Q1) and (Q2). So the right-hand side of (OR*) is again satisfied. But as before, Bubba does not know whether Bush or Ferrell is on T.V., even though he knows whether Bush or Jackson is.

Alternatively, an orthodox reductionist can confront the issue head on. One may agree that knowing whether Bush or Ferrell is on T.V. is different from knowing whether Bush or Jackson is—yet disagree that this falsifies (OR*). For it can be retorted, with some plausibility, that "Bush is on T.V." is not really an answer to either (Q1) or (Q2) (Kallestrup 2009, Stanley 2011a). Rather, a bona fide answer to (Q1) is "Bush *and not Ferrell* is on T.V.," and a bona fide answer to (Q2) is "Bush *and not Jackson* is on T.V." This avoids the convergent knowledge problem since neither of these answers *both* questions. So if Bubba knows only the latter, the orthodox reductionist can concur that Bubba knows only whether Bush or Jackson is on T.V.

Yet another response to Schaffer first concedes that orthodox reductionism is inadequate. Still, it does not follow that *contrastivism* is the best alternative. There are others to consider. A third option keeps (OR*) much as it is, yet adds that knowing-*wh* requires also knowing, of some proposition *q*, that *q* is *not* an answer to the embedded question (Kallestrup 2009, Stanley 2011a; also cf. Groenendijk & Stokhof op. cits.). Alternatively, if (OR*) regards knowing-*wh* as a binary relation between S and *p*—and if (CON*) sees it as a ternary relation between S, *p*, and a question *Q*—then another view is as a binary relation *between S and* Q (Bach ms., Masto 2010). Yet a further tactic from Brogaard (2008; 2009; 2011) modifies (OR*) so that (17) is not analyzed as (17*) but rather as:

(17**) Holly knows, of some (unspecified) locale *l*, that *l* is where the car is parked.

The difference is that (17**) retains the syntactic form of the embedded question. Yet semantically, the clause is not a *question* but rather a *predicate* satisfied by the location *l*. This avoids the problem of others' knowledge in just the way that (17*) does. But what is most impressive is that this predicate view accommodates a *wide* variety of *wh*-complements—much wider than (OR*)—including "free relatives" (see n. 9) and "scalar" constructions like: 'Jozell knows how passive Shaun is' or sentences featuring phrases like 'knows how much', 'knows how many', etc. (ibid.). (For more, see Brogaard's 2008 *Philosophy Compass* article, §§4-5.)

As a final reply to Schaffer, one can call upon the context-sensitivity of knowing-*wh*, *vide* section 1 (Stanley 2011a). Recall that in some contexts but not all, Lucia expresses knowledge-where if she says that she is in "Johannesburg." Schaffer himself explains this by different "contrast" questions or propositions in the different contexts. (Lucia knows that she is in Johannesburg as opposed to Cape Town—but not that she is in Johannesburg rather than West Rand, the western part of the greater Johannesburg metropolitan area.) Yet the problem is that

there are other, non-contrastivist ways to explain context-sensitivity, which seem to afford solutions to the Convergent Knowledge problem. In Stanley, for instance, the context-sensitivity of knowing-*wh* is explained by different contextual restrictions on the domain of discourse, whereby some responses are excluded as answers to the embedded question. Thus, in a context where (Q2) is at issue, we might suppose that Bubba's answer 'Bush is on T.V.' is included in the domain of answers. This makes it true in that case that Bubba knows whether Bush is on T.V. But in a context where (Q1) is salient, 'Bush is on T.V.' would be contextually excluded from the domain of answers, thus indicating a failure to express knowing-*wh*.

3. The Semantics/Pragmatics Debate

The context-sensitivity of knowng-*wh* is perhaps its most intriguing aspect. Notice it is *not* the more familiar context-sensitivity advocated by epistemic contextualists (see Cohen 1986; 1998; 1999; DeRose 1992; 1995; 2009, Lewis 1996). These contextualists focus on how high the *evidential standards* are in a context when deciding who counts as knowing. (Thus, in a skeptical context, you might not meet the standards for knowing—even though in ordinary contexts, you do.) But in contrast, the context-sensitivity of knowing-*wh* concerns the *information* needed to settle the embedded question (Boër & Lycan 1986, ch. 2). Consider here that, even if Lucia knows with skeptic-proof certainty that she is in Johannesburg, she still fails to express knowing-where in response to the cabbie. For in that context, "Johannesburg" does not convey the *right* information, even if her answer enjoys overwhelming evidence. On the other hand, when queried by the flight attendant, the same answer may well express knowing-where, even if Lucia has comparatively little evidence to back it up. For her answer there communicates the *right* information, even admitting the relative dearth of evidence.

However, what determines that it is the "right" information? The most developed theory on the matter is from Boër & Lycan (1975; 1986). The essential idea is that the "right" information is determined by the inquisitor's *goals* or *purposes*. (Ginzburg, Ginzburg & Sag op. cits. concur, as does Hookway 2008.) To illustrate, imagine that (Q) appears on a chemistry exam, and the instructor's purpose is to test students on the exact atomic number of the stuff. Then, a student fails to provide the right information if the response is:

(18) Roentgenium is an artificially created element, with some atomic number over 100. Equally, the student would not count as "knowing what" roentgenium is, relative to these testing-purposes. But alternatively, suppose (Q) is raised in a context where a geologist's goal is just to distinguish artificial elements from naturally occurring ones that she might find in the field. Then, (18) may well provide the right information, since the answer serves the geologist's purposes, i.e., it informs her which side of the distinction roentgenium falls on. So relative to that goal, the speaker of (18) could be said to "know what."[23]

Generally, what does it mean for a response to "serve" one's purposes? In elaborating this, Boër & Lycan limit themselves to "information-seeking" purposes—where the subject's only goal is to gain a specific type of information. (Paradigm examples of practical purposes are thus left aside.[24]) Here we can say assuredly that an answer serves information-seeking purposes only if it communicates the information sought. But when a person asks (Q), how can we tell which kind of information she seeks? She cannot say "I am seeking the information that roengentium is artificial," for this presumes she already has this information. (Shades of the *Meno* paradox.) Yet how else can she be more precise about the desired information?

Glossing a galaxy of details, Boër & Lycan think the desired information can be indicated by the *vehicle* which communicates it, such as a picture, a name, or a descriptor (further typed by

heading and format).[25] Thus when asking (Q), the inquisitor can add "I'm looking for an alternate name specifically," or "I'm wondering if you can show me a sample," or "I'm hoping you can describe the smell since there may be some in my running shoes, " etc. In this manner, she is able to be more specific about the type of information she wants, and she also gives clues about the "important predicates" of the context, i.e., the predicates that would communicate the right type of information.[26] (The possibility of important names/indexicals can be accommodated via predicates like '= unununium' and '= *that*' [attended by a suitable ostension]).[27]

Boër & Lycan's account of questions and answers then feeds directly into the theory of knowing-*wh* (limited to information-seeking purposes). In the case of knowing-who, the result is:

> (BL) S knows who N is for purpose P iff: S knows-true[28] the answer that N is F, where F is an important predicate relative to purpose P, and where P = the goal of gaining the information-type conveyed by the sort of vehicle that F is (e.g., a vehicle featuring a name, a demonstrative, a descriptor (of such-and-such heading and format), etc.).

This may be extended to other types of knowing-*wh* in the expected ways.

As in Stanley (2011a) and Ginzburg (op. cits.), Boër & Lycan assume that the context-sensitivity is a *semantic* phenomenon.[29] Context is said to affect the *truth-value* of a knowing-*wh* ascription, as illustrated in Lucia's case. Yet one might reject this semantic approach (Braun 2006; cf. Richard 1993, p. 239). Instead, one could explain the context-sensitivity via *norms of conversation* in roughly Grice's (1975) sense. This would then allow an "invariantist" semantics for knowing-*wh* ascriptions—where the content of such ascriptions does not vary from context to context. And keeping the semantics "pure" in this way may be desirable. (The pros and cons mostly parallel those in the debates on epistemic contextualism. On the parallels and non-parallels, see DeRose 2009, ch. 2 appendix, esp. the footnotes.)

The invariantist view, in more detail, is that no matter what the context, *p* answers a question *Q*, semantically speaking, iff *p* "provides information about the subject matter of the question" (Braun op. cit., p. 26). This can seem much too weak, since it would mean virtually *any* proposition about roentgenium answers (Q). As long as it isn't completely uninformative ("roengentium = roengentium"), the proposition answers Sama's question, no matter how irrelevant or obscure she may find it. The corresponding laxity on knowing-*wh* is just as surprising. In his opening lines, Braun (2006) makes no bones about it: "Hong Oak Yung is over three inches tall. And now you know who Hong Oak Yung is" (p. 24). Apparently, given that "over three inches" says *some*thing informative about Hong Oak Yung, your knowing this now qualifies *you*, dear reader, as knowing who this is.

But for the invariantist, the shock wears off once we distinguish what answers a question semantically speaking, from what kind of response *satisfies an inquisitor*. The latter certainly depends on the details of the context, including the desires of the inquisitor and so forth. But the former may well be independent of all that. Braun argues:

> Just as one proposition may entail another though no agent ever considers or asserts the propositions, or considers the fact that one entails the other, so a proposition may answer a semantic question, though no agent ever considers the proposition or the semantic question, or ever poses the question or answers it by asserting the proposition. This agent-independent notion of answer is deeply embedded in our ordinary thinking. (p. 26)

Yet if this is correct, how could we have been so mistaken? Why were we so ready to say that Lucia's response failed to answer the cabbie's question, and failed to express knowing-where?

The explanation appeals to Grice's (op. cit.) Co-operation Principle; this is roughly that a speaker is expected to be co-operative in achieving mutual understanding with her interlocutors. The hypothesis is that, because of this cooperative attitude, one is strongly disinclined to say "I

know who Hong Oak Yung is" just by knowing that the person is over 3 inches tall. For the

assertion would conversationally implicate that you know something more specific about Hong

Oak Yung, which is uncooperative. So the idea is that you deny of yourself that you know-who

(Braun 2006, p. 33), even though strictly speaking you *are* in the know.

Given this error-theory, the invariantist can go on to argue that the evidence does not

favor a purpose-relative semantics any more than an invariantist semantics. After all, the

evidence is just our inclination to say that, e.g., Lucia knows-where in one context, but not in the

other. Yet the Co-operation Principle can explain that just as easily.

On the other hand, one can object that the purpose-relative semantics has an advantage,

for it does not attribute *widespread error* to speakers (DeRose 2009). The invariantist holds that

we regularly speak falsely when we deny knowing-who to ourselves and to others. Whereas, the

purpose-relativity view (at worst) attributes widespread ignorance of the purpose-relativity. Yet

to be ignorant is not to have a mistaken view; after all, ordinary speakers have *no* view about the

formal semantics of knowing-*wh* ascriptions. But on the opposing side, the invariantist must

construe speakers as systematically making mistakes about who knows who. (In fairness, Braun

2006 argues that the purpose-relativity view also attributes systematic error to speakers regarding

a different type of case. Yet see Masto 2010 for a rejoinder.)

4. Closing Remarks

We have reviewed three contemporary debates on the nature of knowing-*wh*. Not only is there

more to say on each debate, however, there are other issues worth debating as well. For instance,

Michaelis (2011) asks how we can give a uniform, compositional semantics to embedded

questions. (Generalized intellectualism, on its face, precludes such a semantics; yet see Egré

2008 for progress on this front.) But apart from all that, we have seen three areas where important questions remain open. It remains unknown:

- ➢ whether knowing-*wh* reduces to knowing-that,

- ➢ whether knowing-*wh* is relative to a contrast proposition, and

- ➢ whether the context-sensitivity of knowing-*wh* is semantic or purely pragmatic.

One can expect much more discussion before any convergence on the answers occurs. And absent these answers, answers to other questions may remain elusive as well, including, perhaps, the haunting Delphic query: Do you know who you are?[30]

Notes

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[1] In a previous draft, I attempted to list every type of knowing-*wh*—but there are a surprising number of *wh*-words. (And don't forget the use of 'if' as a replacement for 'whether'.) 'Where' especially has a number of variants, since many function-words can be added to it, as in 'wherein', 'whereas', 'wherefore', 'whereby', 'whereabout(s)', etc. Other *wh*-words have stylized variants like 'whence' and 'whither', plus there are case-marking versions like 'whom' and 'whose'. Many of these also allow the addition of 'ever' as in 'whichever', 'whomever', etc. Even so, there are additional examples that do not fit quite any of these descriptions, such as 'whosoever', 'whatnot', and 'wherewithal'.

[2] Square brackets mark off clauses, and 'INF' and 'DP' are metavariables for infinitivals and determiner phrases, respectively. Often, there is good reason to treat knowing-whether separately from other cases of knowing-*wh*, since whether-clauses are, essentially, embedded multiple-choice questions (Lewis 1982). This normally makes them quite unlike *wh*-questions: The "answer" to a multiple choice question is not context-sensitive in the same way (sections 1 and 3 discuss context-sensitivity further). Schaffer (2007), however, argues that there is no real difference here ("All questions are multiple-choice questions," p. 388). But see Bach (ms.) for opposition.

[3] Knowing-that is often called "propositional knowledge," yet as Bach (ms.) observes, this misleadingly suggests it concerns only knowledge *de dicto*. Be that as it may, 'knowing-that' is not ideal either, thanks to some cases of [knowing + DP] like 'I know that guy', and cases of ellipsis as in 'I know he is trustworthy' (cf. Schaffer 2007, n. 2). But to avoid undue complexity, we shall ignore these and assume there is a uniform type of "knowing-that."

[4] All references to Stanley & Williamson are to their (2001).

[5] Caveat: Stanley & Williamson are clear that they are not trying to reduce *talk* about knowing-how to *talk* about knowing-that (see pp. 433-434). Their project is not to *analyze away* knowing-how talk, but rather to identify knowing-how as a species of knowing-that.

[6] Glick points out (in conversation) that reducing knowing-*wh* to knowing-that should not mean that knowing-*wh* *never* implies an ability. Suppose, for instance, you are a skilled chicken-sexer. If knowing who is a skilled chicken-sexer is knowing *inter alia* that *you* are a chicken-sexer, then knowing-who in this case necessitates that you have the chicken-sexing ability. Still, this is an oddball case—and for a generalized intellectualist, knowing that you have

the skill remains a state of knowing-that, even if the skill itself is not. Such knowing-that remains constitutive of knowing-who in the case (whereas the skill is not a constituent of the knowing, but rather of the fact known.)

[7] Quine's connection between *de re* belief and "knowing who" may be dubious; see Michael (2010) for a three-way distinction between these and singular thought. Even so, the distinctions will depend on what is meant by the notorious term '*de re*'. For six different senses of '*de re*', see Lycan (1986).

[8] There is of course an important question about whether this switch between levels is legitimate. But for our introductory purposes, I shall assume that it is.

[9] In this, I am ignoring "free relatives;" i.e., non-interrogative *wh*-complements (e.g., "She already knew what I told her'); such *wh*-complements are paraphrasable into a DP ("She already knew the statements I told her.").

[10] One might regard a "question" as a kind of *linguistic expression* (an interrogative), or as the *semantic content* of the expression. One could also think of a "question" as a kind of *speech act.* The term 'answer' also allows the same syntactic-semantic-pragmatic equivocation. In this literature, 'question' and 'answer' normally do not denote speech acts; but otherwise, there is no consistency on whether they denote expressions or the contents thereof. For my part, I try to use 'question' and 'answer' consistently to denote interpreted (or better: meaningful) sentence-tokens of some linguistic type. This should not be seen as dogmatic—it is just an attempt at uniformity.

[11] N.B., the point is separate from Stanley & Williamson's *negative* project of opposing Ryle's regress argument (which is perhaps the better known project). Note that even if Ryle's argument fails, this is not yet *positive* reason to support intellectualism about knowing-how. Generalized intellectualism is thus enters in to supply such a reason.

[12] For objections and replies regarding this disquotational move, see Noë (2005), Devitt (2011), and Brown (2013).

[13] Unlike (1*) and (2*), it is less clear in (3*) whether knowing *one* item of the relevant sort is sufficient for knowing-*wh*. Is it enough for Kalpesh to know only *one* reason why Portland is winning? It might. Though if he is a sportscaster expected to give a thorough analysis of the game, Kalpesh would need more in order to know-why. (Cf. the "mention some" vs. "mention all" equivocation noted by Stanley & Williamson, citing Groenendijk & Stokhof 1984, ch. 6, and discussed in more detail in Stanley 2011b.) Plausibly, this is the context-sensitivity of knowing-*wh* at work, discussed later.

[14] Here and henceforth, 'answer' denotes a *true* reply to the question. When I wish to speak of replies that are either true or untrue, I talk of "responses" to the question.

[15] Groenendijk & Stokhof (1982; 1984) have a slightly different analysis of questions. (What I describe above is Kartunnen's view.) Groenendijk & Stokhof instead interpret a question by a set of pairs <W, *p*> where W is a possible world (or "index") and *p* is the answer to the question in W. (This is also Stanley's 2011a preferred way of doing things.) However, the difference will not matter to our discussion, so I mention it here only. But see Heim (1994) for an important face-off between the two accounts.

[16] Here and occasionally elsewhere, double-quotes are used as corner quotes.

[17] Notably, although there is some precedent in Aloni (2002), this account is entirely in keeping with Stanley (2007).

[18] Even so, Stanley might have the resources for a response. Early in ch. 2, he argues that generalized intellectualism should be the "default view," given that knowing-that is patently intellectualist. This, after all, supports a unified account of knowledge tout court—which should be the aim, absent any special reason to go pluralist. Nonetheless, Glick might respond that this "default" is just an unsupported bias.

Glick adds (in conversation) that (13) forces generalized intellectualism to admit, at least, that *some* paraphrases of knowing-*wh* ascriptions entail an ability. So generalized intellectualism must hold that such ability-entailing paraphrases are not the preferred ones; perhaps they are less fundamental, or some such thing.

[19] See Ginzburg (1995a; 2011) and Brogaard (2011) for further problems with generalized anti-intellectualism. But n.b., there is a distinction between a strong and a weak version which seems insufficiently appreciated in the literature. (One exception is Glick 2011, p. 412ff; Bengson & Moffett 2011a also make a similar distinction.) Strong generalized anti-intellectualism is that knowing-when (for instance) is *wholly* identified with an ability, in just the way that Ryle identifies know-how with an ability. However, the strong form is unneeded to resist the *reduction* of knowing-*wh* to knowing-that. It is enough if knowing-*wh* in a particular case is *partly* a matter of having an ability (assuming the ability does not itself reduce to knowing-that). This weak type of generalized anti-intellectualism is articulated in Parent (ms.). (In conversation, Glick also notes that *primitivism* about knowing-*wh* would be a third type of generalized anti-intellectualism.)

[20] Sgaravatti & Zardini run the example on knowing-how, but I have changed this to make its present relevance clear. Boër & Lycan (1986) also note the issue with squaring the circle, and take it as showing that "There is no way" or "It's impossible" are not really *answers*. To offer such a response "is not to answer the question but to nullify it, by pointing out it is misguided in light of the facts" (p. 98).

[21] Schaffer (2009) is especially clear that the relevant set includes *false* responses to the question, besides any additional true responses (if any). (Masto 2010 also seems to assume this.) But strictly speaking, this is a departure from Kartunnen (1977) and Groenendijk & Stokhof (1982; 1984) (though it is in line with Hamblin 1973). Per section 1, Kartunnen-Groenendijk-Stokhof instead interpret an embedded question by a set defined in terms of just the *true* answers. (Groenendijk & Stokhof 1996/2011 contains a nice discussion of Hamblin's view, and the history of why it gained detractors. See also Stanley 2011a, ch. 2, for an impressive, close reading of Kartunnen's and Groenendijk & Stokhof's papers.)

[22] I thus depart from Brogaard (2007) and Masto (2010), who use 'anti-reductionism' in labeling Schaffer's view.

[23] "Non-continental" philosophers often have a strong negative reaction to any suggestion that knowledge is interest-relative (cf. Sterelny 1988, Braun 2006, Kripke 2011, n. 21). However, Boër & Lycan's (1986, ch. 1) discussion of Kaplan (1969) is revealing on this matter. Note that on the Boër-Lycan view, the *truth* of a response to (Q) is not relative to interests or purposes. Truths about roentgenium hold regardless of what we are interested in. Consequently, when asking "What is roentgenium?," it is not as if the metaphysics of roentgenium itself shaped by our interests. Rather, the idea is just that when asking (Q), not just any bit of information about roentegenium will be of interest. But which information is of interest is, trivially, relative to one's interests. That is the *only* sense, I take it, in which a successful "answer" to (Q) depends on interests or purposes. (It certainly should not suggest that "answers" to questions depend *merely* on interests.)

[24] But see Parent (ms.) for an attempt to generalize Boër & Lycan beyond information-seeking purposes.

[25] The "format" concerns how the description should bear on one's topic of interest. For instance, if you are hiring a new philosophy faculty member, and you ask "who is Fulbert Cipher?" for the purpose of getting information about his merits qua job candidate, the heading is 'philosopher', and the format of the description is of the "job application" format. Such a format would concern descriptions of the person's training, technical accomplishments, connections, teaching skills, etc. (Boër & Lycan 1986, p. 36).

[26] 'Predicate', 'sentence', 'question', 'answer', etc., in Boër & Lycan are (linguistic or mental) representations—specifically *tokens* thereof (p. 75)—where the tokens are typed by their *functional role*. The consequences of this for the view are significant. (These consequences are what Richard 1993 has in mind, when cautioning that "readers [of Boër & Lycan] who weary around p. 68 will depart with a misleading picture of the authors' finished views;," p.

235.) Unfortunately, delving into this is prohibited due to space considerations. Yet these details *are* important; the functional typing explains various kinds of opacity, as well as referential vs. attributive uses of a descriptor within *wh*-complements. (See also Richard's paper for a good critical discussion of these details.)

Caveat: Even though Boër & Lycan (1986) endorse the functional typing of representations, they do not necessarily endorse a functional or conceptual role *semantics* for those representations. In fact, their view is that "meaning" is equivocal between functional-conceptual role and truth-conditional role (see especially pp. 54-55), though in recent conversation, Lycan wished to distance himself from this view (cf. ch. 7 of his outstanding 1994). But in the (1986) book, whether a conceptual role "semantics" holds depends on which sort of "meaning" you mean. An important consequence: The "semantics" of knowing-*wh* ascriptions is also equivocal. One can explain the opacity of ascriptions if "meanings" are conceptual roles—equally, one can portray ascriptions as transparent if "meanings" are truth-conditional. The choice here just depends on one's interests. Contra Richard (1993, p. 236), this does not imply that the ascriptions *themselves* are equivocal. Once you choose a notion of "meaning," *all* knowing-*wh* ascriptions behave transparently (or all behave opaquely, as the case may be). The point is that the "meaning" of a knowing-*wh* ascription depends on what is meant by "meaning." (Be that as it may, Boër & Lycan spend much more time on opacity than transparency. Yet this seems due to the difficulties in explaining opacity. As should be clear, the opaque ascriptions are also what I focus on above.)

[27] But in the end, Boër & Lycan themselves regiment every predicate as fronted by the *copula*. Inter alia, this is because descriptors (rather than names or indexicals concatenated with '=') are seen as the predicates that ultimately halt "the regress of questions," at least for an earnest inquirer. (This is the regress where a *wh*-question is "pushed back" ad infinitum: "Who is N?" N is M. "But who is M?" M is L. "But who is L?" etc.)

[28] The use of 'knows-true' is owing to answers being representations rather than propositions. (Merely "knowing" a representation could misleadingly indicate knowledge *de re* of the representational vehicle as such.) Even so, "knowing-true" a representation is NOT to have *meta*-representational knowledge that the representational token is true. Rather, "knowing-true" is for the token to have a specific functional role: "It is for the token to perform the sort of job…which distinguishes beliefs from desires, intentions, and other attitudes" (p. 185, n. 4).

[29] Although Stanley is on the semantics side of the dispute, Stanley (2011a, pp. 67-68) follows Lahiri (2002) in opposing the *way* that Boër-Lycan-Ginzburg handle context-sensitivity. The latter build context-sensitivity into the

answerhood-relation—whereby answering is a three-place relation. ("*p* answers *Q* for purposes P.") However, the Lahiri-Stanley view is that answerhood is a two-place relation between *p* and *Q*. But purposes enter in by restricting or expanding the domain of possible answers. So for Lahiri and Stanley, context affects what the "answers" are just at the extensional level—context does not condition the intension of 'answer'.

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Bibliography

Aloni, M. 'Questions under Cover.' *Words, Proofs, and Diagrams*. Eds. D. Barker-Plummer, D. Beaver, J. van Benthem, & P. Scotto de Luzio, Stanford: CSLI Press, 2002. 1–24.

Anscombe, E. *Intention*, 2nd ed. Oxford: Blackwell, 1963.

Bach, K. 'Questions and Answers, comments on Jonathan Schaffer's 'Knowing the Answer.'' Bellingham Summer Philosophy Conference, August 2005. Retrieved 31 May 2013 from: http://userwww.sfsu.edu/~kbach/Bach.Q&A.pdf.

Belnap, N. & T. Steel. *The Logic of Questions and Answers*. New Haven: Yale UP, 1976.

Bengson, J. & M. Moffett (eds). *Knowing How: Essays on Knowledge, Mind, and Action*, Oxford: Oxford UP, 2011.

_____. 'Non-Propositional Intellectualism' in *Knowing How*. Eds. J. Bengson & M. Moffett, 2011a. 161-195.

Boër, S. & W. Lycan. 'Knowing Who.' *Philosophical Studies* 28 (1975): 299–344.

_____. *Knowing Who*. Cambridge, MA: Bradford Books, 1986.

Braun, D. 'Now You Know Who Hong Oak Yun Is.' *Philosophical Issues* 16. Eds. E. Sosa and Villanueva, 2006. 24–42.

Brogaard, B. 'Knowledge-The and Propositional Attitude Ascriptions.' *Knowledge and Questions*. Ed. F. Lihoreau, 2008. 147–191.

_____. 'Attitude Reports: Do you Mind the Gap?' *Philosophy Compass*, 3.1 (2008a): 93–118.

_____. 'What Mary Did Yesterday: Reflections on Knowledge-Wh.' *Philosophy and Phenomenological Research* 78 (2009): 439–467.

_____. 'Knowledge-How: A Unified Account.' *Knowing How*. Eds. J. Bengson & M. Moffett, 2011. 136–160.

Bromberger, S. 'Questions.' *Journal of Philosophy* 63 (1966): 597–606.

Brown, J. 'Subject-Sensitive Invariantism and the Knowledge Norm for Practical Reasoning', *Noûs* 42.2 (2008): 167-189.

_____. 'Knowing-How: Linguistics and Cognitive Science.' *Analysis* 73 (2013): 220–227.

Cath, Y. 'Knowing How without Knowing That.' *Knowing How.* Eds. J. Bengson and M. Moffett, 2011. 113–135.

Castañeda, H. N. 'The Theory of Questions, Epistemic Powers, and the Indexical Theory of Knowledge.' *Midwest Studies in Philosophy, Volume V: Studies in Epistemology*. Eds. P. French et al. Minneapolis: University of Minnesota Press, 1980. 193–237.

Cohen, S. 'Knowledge and Context.' *The Journal of Philosophy* 83 (1986): 574–583.

_____. 'Contextualist Solutions to Epistemological Problems: Skepticism, Gettier, and the Lottery.' *Australasian Journal of Philosophy* 76.2 (1998): 289–306.

_____. 'Contextualism, Skepticism, and The Structure of Reasons.' *Philosophical Perspectives* 13 (1999): 57–89.

DeRose, K. 'Contextualism and Knowledge Attributions.' *Philosophy and Phenomenological Research* 52.4 (1992): 913–929.

_____. 'Solving the Skeptical Problem.' *The Philosophical Review* 104 (1995): 1–52.

_____. *The Case for Contextualism I*. Oxford: Oxford University Press, 2009.

Devitt, M. 'Methodology and the Nature of Knowing-How.' *Journal of Philosophy* 108 (2011): 205–218.

Egré, P. 'Question-Embedding and Factivity.' *Knowledge and Questions*. Ed. F. Lihoreau, 2008. 85–126.

Evans, G. *Varieties of Reference*. Oxford: Clarendon Press, 1982.

Fantl, J. 'Knowing How and Knowing That.' *Philosophy Compass* 3 (2008): 451–470.

_____. 'Knowledge How.' *The Stanford Encyclopedia of Philosophy*, Ed. E. Zalta. Retrieved 31 May 2013 from: http://plato.stanford.edu/entries/knowledge-how/.

Ginzburg, J. 'Resolving Questions: I.' *Linguistics and Philosophy* 18 (1995a): 459–527.

_____. 'Resolving Questions: II.' *Linguistics and Philosophy* 18 (1995b): 567–609.

_____. 'Interrogatives.' *The Handbook of Contemporary Semantic Theory*. Ed. S. Lappin, 1996. 385–422.

_____. 'How to Resolve *How to*.' Eds. J. Bengson & M. Moffett, 2011. 215–243.

Ginzburg, J. & I. Sag. *Interrogative Investigations: The Form, Meaning, and Use of English Interrogatives*, Stanford: CLSI Publications, 2000.

Glick, E. 'Two Methodologies for Evaluating Intellectualism.' *Philosophy and Phenomenological Research* 83 (2011): 398–434.

_____. 'Abilities and Know How Attributions.' *Knowledge Ascriptions*, Eds. J. Brown & M.

Gerken, Oxford: Oxford UP, 2012. 120–139.

Grice, H. P. 'Logic and Conversation.' *Syntax and Semantics 3: Speech Arts*. Eds. P. Cole &

L. Morgan, New York: Academic Press, 1975. 41–58.

Groenendijk, J. & M. Stokhof. 'Semantic Analysis of *Wh*-Complements.' *Linguistics and

Philosophy* 5 (1982): 117–233.

_____. *Studies on the Semantics of Questions and the Pragmatics of Answers*. University of

Amsterdam, Dissertation, 1984.

_____. 'Questions.' *Handbook of Logic and Language*, 2nd edition, Eds. J. van Benthem and A.

ter Meulen, London: Elsevier Science, 1997/2011. 1059–1132.

Hamblin, C. L. 'Questions.' *Australasian Journal of Philosophy* 36 (1958): 159–168.

_____. 'Questions in Montague English.' *Foundations of Language* 10 (1973): 41–53.

Heim, I. 'Interrogative Semantics and Karttunen's Semantics for *Know*.' *Israel Association for

Theoretical Linguistics 1*. Eds. R. Buchalla & A. Mittwoch, Jerusalem: Hebrew

University, 1994. 128–144.

Hetherington, S. 'Knowing-That, Knowing-How, and Knowing Philosophically.' *Knowledge

and Questions*. Ed. F. Lihoreau, 2008. 307–324.

_____. *How to Know*. Malden, MA: Wiley-Blackwell, 2011.

Higginbotham, J. 'The Semantics of Questions.' *The Handbook of Contemporary Semantic

Theory*. Ed. S. Lappin (ed.), 1996. 361–383.

Hookway, C. 'Questions of Context.' *Proceedings of the Aristotelian Society* 96 (1996): 1–16.

_____. 'Questions, Epistemology, and Inquiry.' *Knowledge and Questions.* Ed. F. Lihoreau, 2008. 1–22.

Karttunen, L. 'Syntax and Semantics of Questions.' *Linguistics and Philosophy* 1 (1977): 3–44.

Kallestrup, J. 'Knowledge-*Wh* and the Problem of Convergent Knowledge.' *Philosophy and Phenomenological Research* 78 (2009): 469–476.

Kaplan, D. 'Quantifying In.' *Words and Objections: Essays on the Work of W.V. Quine*, D. Davidson & J. Hintikka (eds.), Dordrecht: D. Reidel, 1969. 206–242.

King, J. 'Designating Propositions.' *Philosophical Review* 111.3 (2002): 341-371.

Kripke, S. 'Frege's Theory of Sense and Reference: Some Exegetical Notes.' *Philosophical Troubles: Collected Papers Vol. 1*, Oxford: Oxford UP, 2011. 254–291.

Lahiri, U. *Questions and Answers in Embedded Contexts*, Oxford: Oxford UP, 2002.

Lappin, S. (ed.) *The Handbook of Contemporary Semantic Theory*. Oxford: Blackwell, 1996.

Lewis, D. 'Whether Report.' *Philosophical Essays Dedicated to Lennart Åqvist on his Fiftieth Birthday*. Eds. T. Pauli et al., Uppsala: Filosofi ska Studier. 194–206. Reprinted in his *Papers in Philosophical Logic*. Cambridge: Cambridge UP, 1998. 45–56.

_____. 'Elusive Knowledge.' *Australasian Journal of Philosophy* 74.4 (1996): 549–567.

Lihoreau, F. (ed.). *Knowledge and Questions*: *Gratzer Philosophiche Studien* 77. Amsterdam: Rodopi, 2008.

Lormand, E. 'The Explanatory Stopgap.' *Philosophical Review* 113 (2004): 303–357.

Lycan, W. 'Thoughts about Things.' *The Representation of Knowledge and Belief.* M. Brand & Harnish, Eds., U. of Arizona Press. Reprinted as Boër, S. & W. Lycan (1986), ch. 5.

_____. *Modality and Meaning*. Dordrecht: Kluwer Academic Publishers, 1994.

_____. *Consciousness and Experience*. Cambridge, MA: MIT Press, 1996.

Masto, M. 'Questions, Answers, and Knowledge-*Wh*.' *Philosophical Studies* 147 (2010): 395–413.

Michael, M. 'De Re Belief, Knowing Who, and Singular Thought.' *Journal of Philosophy* 107 (2010): 293–310.

Michaelis, L. 'Knowledge Ascription by Grammatical Construction.' *Knowing How.* Eds. J. Bengson & M. Moffett, 2011. 261–282.

Noë, A. 'Against Intellectualism.' *Analysis* 65 (2005): 278–290.

Parent, T. 'Externalism and "Knowing What" One Thinks.' Ms. available at http://www.unc.edu/~tparent/EXT&KnowingWH.pdf.

Quine, W. 'Intensions Revisited.' *Midwest Studies in Philosophy* 2 (1977): 5–11.

Richard, M. 'Review of *Knowing Who*.' *Noûs* 27.2 (1993): 235–243.

Ryle, G. *The Concept of Mind*. London: Penguin Books, 1949/2000.

Schaffer, J. 'From Contextualism to Contrastivism.' *Philosophical Studies* 119 (2004): 73–103.

_____. 'Contrastive Knowledge.' *Oxford Studies in Epistemology 1*. Eds. Tamar Szabo Gendler & John Hawthorne, Oxford: Oxford UP, 2005. 235–272.

_____. 'Knowing the Answer.' *Philosophy and Phenomenological Research* 75.2 (2007): 383–403.

_____. 'Knowing the Answer Redux: Replies to Brogaard and Kallestrup.' *Philosophy and Phenomenological Research* 78.2 (2009): 477–500.

Sellars, W. 'Meaning as Functional Classification.' *Synthese* 27 (1974): 417–437.

Sgaravatti, D. & Zardini, E. 'Knowing How to Establish Intellectualism'. *Grazer Philosophische Studien: Knowledge and Questions* 77 (2008): 217–262.

Stanley, J. *Knowledge and Practical Interests*, Oxford: Clarendon Press, 2005.

_____. *Language in Context: Selected Essays*, Oxford: Oxford UP, 2007.

_____. *Know How*. Oxford: Oxford UP, 2011a.

_____. 'Knowing (How).' *Noûs* 45.2 (2011b): 207–238.

Stanley, J. & T. Williamson. 'Knowing How.' *The Journal of Philosophy* 98.8 (2001): 411–444.

Sterelny, K. '*Knowing Who* by Stephen E. Boer, William G. Lycan.' *Philosophy of Science* 55 (1988): 654–656.

Strawson, P. 'Freedom and Resentment.' *Proceedings of the British Academy* 48 (1962): 187–211.

Tye, M. 'Knowing What It is Like.' *Knowing How*. Eds. J. Bengson & M. Moffett, 2011. 300–313.