Question-Directed Attitudes*

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1 Introduction

In this paper I want to argue that there is a class of attitudes that have questions as contents. These attitudes are a class of inquiry-related states and processes (I'll call them all 'attitudes' here). The ones that I will focus on in this discussion are: inquiry, investigation, wondering, curiosity and suspension of judgment or agnosticism.[1] I do not intend that list as an exhaustive list of question-directed attitudes, in fact I think that there are surely more, but the attitudes on that list will be the focus of this discussion. In virtue of their relations to questions, I will call these focal attitudes, *Interrogative Attitudes (IAs)*. For now then, when I talk about IAs I mean to be talking about the attitudes on the list, but the discussion here will ultimately generalize to other attitudes as well.[2]

The IAs form an interesting class of attitudes. They are the sorts of attitudes we typically have as we move ourselves from ignorance to knowledge. They are the sorts of attitudes we have when we try to figure something out, or work to acquire new information, or when we are searching for new knowledge. Of course,

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[1] I generally use 'suspension of judgment' talk and 'agnosticism' talk interchangeably, although if one wanted distinguish between the states of mind these pick out, that would be compatible with the arguments to come.

[2] I use the term 'attitude' fairly loosely here. First, I mean it to cover both states and processes. In this sense I assume it's relatively unproblematic to think of wondering, curiosity, suspension, and some others as attitudes. But what about inquiry and investigation? Perhaps these feel a bit less like attitudes at first (maybe "activities" is a better characterization). That said, they are at least in part cognitive activities, and they are activities that a subject is engaged in only in virtue of being in a particular sort of goal-directed state of mind. An inquiring subject aims to acquire new information or to find something out so she is (in every case) in some sort of goal-directed mental state; an "inquiring state of mind". In this sense, inquiry and investigation fundamentally involve some sort of attitude. My claim here can then be thought of as the claim that the attitude at the centre of inquiry is a question-directed attitude.

beliefs and knowledge also play their roles in this search for new knowledge, helping to guide or inform the search. But the IAs are the attitudes at the centre of the search. Crucially, they each, in some sense, presuppose ignorance on the relevant matter and are resolved or satisfied when a particular kind of new knowledge comes in. Curiosity, wondering, inquiry, investigation, and agnosticism are all relieved by coming to know (or something similar). So, from the perspective of epistemology, these attitudes seem to be importantly related. I want to argue here that they also all share another key feature: they all have questions (rather than propositions or something else) as contents.

The "questions as contents" thought is not new. As we will see in a moment, the suggestion that questions are the semantic contents of certain kinds of linguistic expressions is now quite standard. Thinking of these as mental contents is less standard (or at least less widely discussed).[3] When it comes to mental contents discussions are almost exclusively focussed on propositional contents and propositional attitudes.[4] My suggestion here then is a suggestion to expand our ontology of mental contents in a way in which we have already expanded our ontology of semantic contents. The suggestion though is not that we can get to this expansion just by thinking about IA ascriptions, but that we'll need to think about the IAs themselves as well.

I am assuming that IAs are contentful attitudes. I am taking it that this is clear: just as when a subject believes or desires there are things those beliefs and desires are about, when she inquires or wonders or is curious or agnostic, there are things she is inquiring or wondering or curious or agnostic about. The things that these attitudes are about seem to be able to stand in logical and semantic relations to each other and the contents of more familiar propositional attitudes. For instance, you and I can wonder about the same thing, or inquire into the same thing or be curious about the same thing (and so on). If I am wondering who ate the last slice of pizza and you believe that someone ate the last slice of pizza, then the thing that I am wondering about presupposes the thing that you believe. If I am curious about whether Alice ate the last slice of pizza and you are curious about who ate the last slice of pizza, then the thing that you are curious about is related to thing that I am curious about in the following way: a proposition the knowledge of which would completely satisfy your curiosity – e.g., *John ate the last slice of pizza* – is also one the knowledge of which would completely satisfy mine (although perhaps I need to draw an extra inference). The reverse need not be true: my coming to know the

[3] Although there are certainly mentions of the thought or something close to it in a few places. For instance, Hintikka (in e.g., Hintikka (1999)) argues that the logic of scientific inquiry is interrogative. Whitcomb (2010) claims that curiosity is question focussed. Higginbotham and May (1981), inspired by Levi (1967), claim that a subject's suspension of judgment should be represented with a partition of the "possible states of nature" (as we will see, one prominent account of questions treats them as partitions of logical space). And the recent discussion of suspension of judgment in Booth (forthcoming) comes close as well.

[4] See Grzankowski (2012) for a discussion of the focus on propositional attitudes in philosophy of mind.

proposition, *Alice did not eat the last slice of pizza*, will completely satisfy my curiosity while your coming to know that proposition will not completely satisfy yours. IAs can stand in normative relations to other IAs and propositional attitudes as well, where whether some IA is normatively appropriate or not will depend on its content. Being agnostic about whether the accused is guilty seems to be in normative conflict with believing that she is guilty, but being agnostic about whether the accused is over 6 feet tall is not obviously in conflict with believing that she is guilty.

The IAs are contentful, but what sort of content do they have? One natural place to start to look for evidence as to their contents is IA ascriptions. And it might look as though these can get us to the conclusion that IAs are question directed right away. First, the words and phrases that pick out IAs (IAPs), embed interrogative complements. All of the following ascriptions ((1) - (6)) are just fine:

(1) Alice is wondering whether the bus is running on time

(2) Alice investigated why Carl left the party

(3) Alice is agnostic about where to buy an Italian newspaper

(4) Alice suspended judgment about how the thief escaped the building

(5) Alice is inquiring into who ate the last slice of pizza

(6) Alice is curious about whether dogs wag their tails/why dogs wag their tails/when dogs wag their tails/what causes dogs to wag their tails

What do these interrogative complements – 'whether the bus is running on time', 'why Carl left the party', and so on – express? I will go into more detail in the next section, but the standard thought is that these embedded interrogatives express questions. The semantic contents of the complements of these ascriptions are questions. Moreover, IAPs seem importantly different from some familiar attitude verbs that embed interrogatives. Verbs like 'know' and 'remember' can embed the whole range of interrogative complements as well, but as we well know, they can also embed declarative complements. IAPs, on the other hand, cannot. None of the following ascriptions ((7) - (12)) are fine:

(7) *Alice is wondering that the bus is running on time[5]

(8) *Alice investigated that Carl left the party

(9) *Alice is agnostic (about) that one can buy an Italian newspaper in Soho

(10) *Alice suspended judgment (about) that the thief escaped through a tunnel

[5]Caveat about 'wonder'. There is an old-fashioned use of 'wonder' according to which wonder-*that* ascriptions are acceptable. 'Alice wonders that it is raining' ≈ 'Alice is amazed that it is raining'. This is not the 'wonder' under discussion here.

(11) *Alice is inquiring (into) that John ate the last slice of pizza

(12) *Alice is curious (about) that dogs wag their tails/that cats cause dogs to wag their tails

It looks as though IAPs embed question-expressing complements, but don't embed the sorts of complements that we standardly take to express propositions. We seem to have IA ascriptions expressing relations between subjects and questions, but – unlike in the case of other, familiar interrogative-embedding verbs – we don't have the straightforward ascriptions expressing relations between subjects and propositions, and so we don't have a clear route to reducing the question relation to a propositional one.

While I do think the sorts of considerations here give us a push towards the conclusion that IAs have question contents, I don't think we can get all the way there. There are a number of different reasons to worry.

The first thing to note is that while IAPs can embed interrogative complements, they can also embed noun phrases. All of the following ascriptions ((13) - (18)) are also just fine:

(13) Alice is wondering about the bus

(14) Alice investigated Carl/the party/Carl's leaving the party

(15) Alice is agnostic about Italian newspapers

(16) Alice suspended judgment about the thief's means of escape

(17) Alice is inquiring into the missing slice of pizza

(18) Alice is curious about dogs/dogs' tails/tail wagging

Second, although there are some important similarities in the embedding patterns of IAPs, there are key differences as well. I've said that, e.g., 'inquire' embeds interrogatives and NPs, but that's not strictly right: 'inquire *into*' and 'inquire *about*' embed interrogatives and NPs. On its own 'inquire' doesn't embed either (nor does it embed declaratives). And the same is true of '(be) agnostic', 'suspend judgment' and '(be) curious'. Officially, these need the help of a prepositional particle to embed interrogatives or NPs. 'Wonder' can embed interrogatives, but not NPs (notice the additional 'about' in (13)), while 'wonder about' can embed both. 'Investigate' can embed both interrogatives and NPs, but prepositional constructions aren't available. So things are not entirely straightforward here.[6]

[6]While ultimately I don't think that these prepositions are doing any serious semantic work in these cases, this might not be true for attitude verbs across the board. See, Boër (1978) for some discussion of places in which '*S* ϕs *Q*' and '*S* ϕs about *Q*' can diverge in meaning. Also see Egré (2008) for a related discussion.

Third, a good deal of work in the linguistic argument for the conclusion that the IAs are question directed is being done by the failure of IAPs to embed declaratives. But it isn't clear just how much the argument should be able to lean on these sorts of considerations. As we've just seen, in many cases we can't make any sort of IA ascriptions without the help of a preposition. But those prepositions ('about', 'into') are not happily followed by 'that'-complements. It isn't clear that this reveals any deep fact about curiosity or wondering though. Moreover, given that IAPs all embed NPs, we have access to a different way of making IA ascriptions in which the complement of the IAP seems to express a proposition: rather that using a declarative complement we can use NPs like 'the proposition p' or 'the propositions p, q, r' and so on.[7] We can say that Alice is wondering about the proposition that the bus will be late or that Alice is curious about the proposition that dogs wag their tails, or that Alice is agnostic about the proposition that John ate the last slice of pizza and the proposition that Ringo ate the last slice of pizza, and so on.

Even at the best of times it is not obvious just what we can learn about attitudes from the words and phrases we use to pick them out. These are not the best of times. IAPs show somewhat diverse embedding patterns, a number of them need prepositions to embed interrogative complements, and even if they cannot embed declaratives, they can embed closely related NPs. So while the data coming from IA and related ascriptions is suggestive, it is sufficiently nuanced that it should be treated with more care before drawing the relevant sorts of conclusions about the IAs themselves. My goal in this paper is not to sort out these specifically linguistic issues, but to say something about the IAs themselves. As we have already seen, the IAs do seem to pick out a somewhat unified class of attitudes and so I think the task now is to look at those attitudes directly.

To press this need we can focus on another sort of complication the various prepositional particles add to the linguistic story. While many familiar attitude verbs cannot embed interrogative complements, e.g., 'believe', 'hope', with the help of the relevant sorts of prepositions, we can just about get them to. For instance, we can say that Alice has beliefs about who robbed the bank or that Alice has hopes about when the war will end, and so on. But in these cases we don't want to say that this means that Alice has an attitude whose content is a question.[8] What these sorts of ascriptions say is that Alice has a propositional attitude whose content is about or on some question: when the war will end or who robbed the bank. Moreover, this isn't (merely) due to some feature of 'beliefs' or 'hopes', but to a feature of beliefs and hopes – these are propositional attitudes. Perhaps then what it is to be

[7] Corner quotes would have been better here. This is true in a number other spots as well, but on the assumption that no confusion will ensue, I've just stuck to single quotes.

[8] It is worth noting that following inference seems fine: Alice has beliefs about who robbed the bank; so, there is some question about which Alice has beliefs. The following inference also seems fine: Alice has beliefs about an interesting question; that question is how a steam engine works; so, Alice has beliefs about how a steam engine works. This is just to say that we need to be very careful about what we take these sorts of inferences to show. See Ginzburg and Sag (2001), esp. p. 66.

curious about when the war will end or wonder about or be agnostic about (and so on) that question is also to have some attitudes with contents that are related in some relevant way to that question, but not to have an attitude directly towards the question itself.

To decide that we can look at the IAs and see whether or not there are any plausible non-question candidate contents for these attitudes. This is what I intend to do in the remainder of this paper. I will show that other plausible candidates fail, and then argue that we should be thinking of the IAs as genuinely question-directed attitudes, as attitudes that have questions as their contents. I will proceed in most of the discussion by way of IA ascriptions involving interrogative complements. This will help keep things neat. At the end of the paper I will come back to the IA-NP ascriptions and show that they are easily accommodated on the view that IAs are question-directed attitudes.

The more specific plan is as follows. First, I will go into more detail about questions and answers. This will give us some necessary background. The suggestion that IAs have non-question contents should not be confused with the claim that the semantic content of an interrogative is not a question; I assume interrogative sentences express questions here. This paper is an investigation into whether wondering about or inquiring into or being curious about or being agnostic about or investigating a question Q is a matter of having an attitude towards Q itself or towards some other content that is related to Q in the right sort of way – as in the case of having beliefs about Q or (for many) knowing Q. To decide that question I will look more carefully at a series of alternative accounts of the contents of IAs. Most are forms of "propositionalism" about IAs. Some of these alternative suggestions can be found in the literature, others will draw inspiration from discussions of other, closely related attitudes and attitude verbs and from the literature on the semantics of interrogatives. I will argue that all of these alternatives fail. Along the way some key features of the IAs will come into view. In the end I will conclude that we should think of these (and likely other) attitudes as genuinely question directed.

2 Questions and Answers

Before we get to the main arguments I want to give a brief overview of central treatments of questions and answers. It is standard to take it that the semantic content of a direct interrogative sentence – 'Where did Jack go?', 'Which way is the nearest tube station?', 'Who ate the last slice of pizza?' – is a question (i.e., the questions of where Jack went, which way the nearest tube station is, who ate the last slice of pizza).[9] What are questions? First and foremost, they do not seem to be propositions, at least not in the familiar sense of 'proposition'. A salient consideration here is that questions do not seem to have truth conditions. In no straightforward

[9]Some canonical discussions here are, Hamblin (1958), Hamblin (1973), Karttunen (1977), Groenendijk and Stokhof (1982), Belnap (1983) and Groenendijk and Stokhof (1984).

sense are there conditions under which the question of who ate the last slice of pizza is true (or false).[10] But propositions are truth conditional or evaluable; this is their hallmark. So the semantic content of a direct interrogative is a question and a question is not a proposition in any straightforward sense. What about indirect or embedded interrogatives (the ones in our IA ascriptions)? It is also standard to treat those on a par (semantically) with their direct counterparts. For instance, 'Where did Jack go?' and 'where Jack went' in, e.g., the ascription '*S* wonders where Jack went', should have the same content.

What more can we say about questions? To start, they bear key relations to answers: questions have answers. What are answers? First, answers are propositions. Further, it is standard to distinguish between possible answers and true answers. For instance, take the question, *Did Tenzing Norgay reach the summit of Mount Everest?* (Q). At the actual world the true answer to that question is the proposition, *Tenzing Norgay reached the summit of Mount Everest* (q). Of course there are possible worlds where Norgay didn't make it to the top. At those worlds the true answer to the question of whether Tenzing Norgay reached the summit of Mount Everest is the proposition, *It is not the case that Tenzing Norgay reached the summit of Mount Everest* ($\neg q$). q and $\neg q$ both count as possible answers to Q (at any world). In fact, it is standard to take it that q and $\neg q$ are Q's only possible answers. The thought there is that the question of whether Norgay made it to the summit can only be answered in two ways: in the affirmative (q) and in the negative ($\neg q$). As such, questions like Q are commonly called *yes/no* or *polar* questions (many embedded 'whether' interrogatives express polar questions). So Q has two possible answers, q and $\neg q$. Moreover at any world w at which Q's presuppositions hold (Norgay and Everest exist, and so on), Q also has a true answer: whichever of q or $\neg q$ obtains at that world.

The notion of answerhood being discussed here should be distinguished from what we might think of as a response to a question. If I ask you whether Tenzing Norgay reached the summit of Everest, you might respond with any of the following: 'I don't know', 'Who is Tenzing Norgay?', 'What is Mount Everest?', 'Mountains don't really have summits', and so on. For our purposes, these do not count as possible answers to the question even if they can count as appropriate (in some sense) responses to being asked the relevant question. What does count as a possible answer to a question? While this matter is somewhat straightforward in the case of polar questions, it becomes less so when we turn to non-polars, e.g., *Who played in the Wimbledon final?, Why did the car crash? How come it got windy all of a sudden?*. While I will talk a lot about questions and answers here, I don't think that the ar-

[10] Although, see Lewis (1970) for a view according to which questions are truth conditional. Lewis argues that non-declarative sentences (including interrogatives) ought to be treated as paraphrases of performative sentences, e.g., 'Are you late?' is a paraphrase of 'I ask you whether you are late'. On this view 'Are you late?' has the same meaning, intension, truth conditions, and so on as, 'I ask you whether you are late'. And Lewis thinks that these performative sentences are declarative sentences. As far as I know, no one currently subscribes to a view like this.

guments to come depend upon some specific conception of answers. That said, to fix ideas I'll work from a fairly standard treatment that starts from two postulates from Hamblin (1958):

(i) An answer to a question is a statement.

(ii) The possible answers to a question are an exhaustive set of mutually exclusive possibilities.

For present purposes, we can treat (i) as equivalent to the claim that possible answers are propositions, a claim that we have already taken on board.[11] (ii) tells us that the truth of any one possible answer implies the falsity of the others. It also tells us that the possible answers to a question are exhaustive, but this is less important for our purposes.

The claim that possible answers are mutually exclusive suggests the following picture. Let's say that a question is *sound* at a world iff it has a true answer at that world.[12] We can say that Q is sound at w just in case there is some proposition that completely and truly answers Q at w, e.g., it says of everyone who made it to the summit that they did and that no one else did, or says of every place at which one can buy Italian newspapers that one can buy Italian newspapers there, and that there are no other places to buy them, and so on. This proposition is Q's true complete answer at w, and that answer is logically incompatible with any other possible complete answer to Q. These look like the sorts of answers Hamblin is describing.

Here is an intuitive way into this this picture. We can think of non-polar questions as closely related to or associated with properties, e.g., *Who went to the party?* can be associated with the property of having gone to the party. In this sense we can think of a question as having an extension at any world at which it is sound. For instance, if the question, *Who went to the party?* is sound at w, then it will have the set of all party-goers at w as its extension at w. So, take any non-polar question Q and take a function f from worlds to sets of worlds that, for each world at which Q is sound, takes that world to the set of worlds with the same extension. For instance, say $Q =$ *Who went to the party?*. Then if Alice, Bill and Carl were the only party-goers at w, f takes w to the set of worlds at which exactly those people and only those people went to the party as well. This set of worlds is then the set of all worlds at which Alice, Bill and Carl went to the party and no one else went (and only those worlds). We can think of this set of worlds as roughly equivalent to the proposition that Alice, Bill and Carl went to the party and no one else went. This proposition truly and completely answers Q at w (and at any other world in the set that is the value of f when w is the argument).

[11] In fact, while I simply stated that answers are propositions, this is not universally accepted. See footnote 17 for an example of dissent. I will not otherwise discuss these accounts of answers here.

[12] I am borrowing this terminology from Bromberger (1992).

More generally, for any non-polar Q, the sets of worlds in the range of f can be thought of as the question's *possible complete answers*. These answers are mutually exclusive and they count as possible compete answers to Q at any world. Any answer to Q entailed by one of these answers is a *possible partial answer* to Q at any world. If Q is sound at a world w, then w will be a member of one (and only one) of these possible complete answer sets, and that one set is the *true complete answer* to Q at w (this is the set that is the value of f at argument w).[13] The true complete answer to Q at w will be the logically strongest true answer to Q at w, and any true answer to Q at w entailed by this logically strongest answer is a *partial true answer* to Q at w. There are other sorts of answers that get discussed as well, but we don't need to say much more about them here.[14] Typically, when I just talk about answers I mean partial possible answers. Usually I'll be clear about which sorts of answers I mean to be discussing.

So that's more about answers – possible and true, complete and partial – but what about the questions themselves? Linguists have offered a number of different treatments of the sort of object that is to be associated semantically with an interrogative sentence, and some erotetic logics have been developed that offer some suggestions as well. Very roughly, we can divide the space of views into two: Sets of Answers (SOA) views and Open Proposition (OP) views.[15] SOA accounts surely dominate. These accounts effectively treat questions as sets of propositional answers, and vary according to which answers they take to be in the relevant sets. Here is a very brief overview.

Hamblin (1973) argues that the denotation of an interrogative is a set whose members are a special class of partial possible answers to a question (here he departs somewhat from his earlier view), ones we can think of as *direct answers*. For Hamblin, the denotation of 'Who walks' at w is the set of propositions {Mary walks, John walks, ...}. This set contains propositions expressed by sentences of the form 'x walks' where 'x' is replaced with a name or description of an individual. Karttunen (1977) argues instead that the denotation of an interrogative at w is effectively a subset of this "Hamblin-denotation" at w: one that consists just in members of that set that are true at w. So if only Mary walks at w, then, for Karttunen, the denotation of 'Who walks?' at w is the singleton set {Mary walks}.

For Groenendijk and Stokhof, the denotation or extension of an interrogative at a world w is not a set of propositions, but just a proposition – the proposition that truly and completely answers the question at that world. So if Mary, John, and Fran are

[13] I've been assuming that each set of worlds in the range of f is associated with just one proposition, and so that propositions are fairly coarse-grained (and also unstructured if we identify these sets with propositions). This is obviously not uncontroversial and versions of familiar problems quickly crop up. These are, of course, issues that will need to be dealt with in a more fleshed out account of the contents of question-directed attitudes, but for now we can put them aside.

[14] See George (2011) for a good discussion of the different notions of answerhood and the purposes they serve.

[15] These are my labels, although the different sorts of views are often divided in this sort of way. Sometimes the first family of views are called "propositionalist" and the second "functional" or "categorial".

the only ones who walk at *w* then the Groenendijk and Stokhof-denotation of 'Who walks?' at *w* is the proposition *Mary, John and Fran walk, and no else walks*. Given that this is a proposition (rather than a set of propositions), it might not be clear why Groenendijk and Stokhof's account should go under the SOA umbrella. But if the extension/denotation of an interrogative is a complete answer, then its intension is a function from possible worlds to complete answers. This function partitions logical space (or the portion of logical space in which the question's presuppositions hold; see Groenendijk and Stokhof (1994) for discussion) dividing it up such that each block of the partition answers the question in the same way. For Groenendijk and Stokhof questions are partitions of logical space, they are sets of sets of worlds. And if we think of sets of worlds as propositions (as Groenendijk and Stokhof do), then it is easy to see why the Groenendijk and Stokhof view qualifies as an SOA account.[16]

A competing family of views – the ones that I am calling OP views – treat questions as something closer to open propositions, e.g., propositional functions, propositional abstracts. These sorts of views typically treat many questions as of the same semantic type as properties, e.g., a unary question like 'Who walks?' denotes a function from individuals to truth values, although sometimes questions are thought of as functions from individuals to propositions instead. Here, questions are thought of as (structured) entities that when applied to the right sort of thing yield a proposition.[17]

This is all that I want to say about questions for now. My goal in this paper is to show that IAs have questions as their contents, and these views give a good idea of what that might amount to. But it is not my intention to settle questions about the metaphysics of questions here. That said, these views all come to us largely by way of reflections on the meaning of interrogative sentences rather than by way of thinking about the nature of attitudes that have questions as contents.[18] Some of what will emerge in the arguments to come might well bear on the question of which treatment of questions we should adopt if questions are going to serve as mental

[16]It is worth making the following distinction between the various SOA accounts clear. For Hamblin and Karttunen an interrogative *denotes* a set of answers at a possible world, where for Groenendijk and Stokhof this is not the case. They take interrogatives to denote propositions, and interrogative *intensions* to be sets of answers. It should also be clear then that the intension of an interrogative is not a set of answers for either Hamblin or Karttunen, but is a function from worlds to sets of answers. For our purposes we can think of all of these as SOA views. See Groenendijk and Stokhof (1994) for a good overview of the positions here.

[17]See Hausser and Zaeffer (1979), Ginzburg and Sag (2001), Krifka (2001), and Ginzburg (2005) for some discussion. It is worth pointing out though that while these views, like the SOA views, maintain a close relationship between questions and propositional answers, that may not be the best way to characterize many of these approaches. For instance, Krifka remarks that his approach (and some others like it) is motivated by the thought that question meanings yield propositions when applied to answer meanings. A question like *Who walks?* – $\lambda x.\text{walks}(x)$ – yields propositions when applied to, e.g., individuals. On these views then, individuals and the like count as answers. These views often aim to capture the "short answer" phenomenon: that 'Mary' seems to count as an answer to the question of who walks. I am not going to discuss this aspect of these views here.

[18]There are some accounts of questions that come via treatments of erotetic logic. There is some variation here, but dominant accounts treat questions as set of propositions as well. See Wísniewski (2001) and Harrah (2002) for some discussion.

contents. Given this, I will revisit this question about the nature of questions in the final section. For now I want to turn to the IAs themselves and to some alternative proposals for their contents.

3 Higher-Order Propositionalism

While there hasn't been all that much written on the IAs, there has definitely been some. Inquiry and suspension are discussed by epistemologists, curiosity as well perhaps, but also by psychologists. One train of thought one finds running through these discussions is that the IAs involve metacognition – thoughts about our thoughts. In fact, in places there is even the thought that a given IA is reducible to a propositional attitude with some higher-order content. Here discussions typically avert to beliefs and desires about our first-order epistemic standing.

Here are a couple such suggestions. Russell claims that the agnostic, "thinks it impossible to know the truth in matters such as God and the future life with which Christianity and other religions are concerned. Or, if not impossible, at least impossible at the present time."[19] According to Russell, agnosticism is or involves higher-order beliefs (I'm assuming 'thinks' ≈ 'believes' here). George Loewenstein argues that a focus on missing information is necessary for curiosity: in order to be curious, Loewenstein says, we must take there to be a gap in our knowledge.[20] He also joins others in thinking that curiosity involves some sort of desire to know.

I think that there is another view in the neighbourhood worth mentioning as well. Jaakko Hintikka argues that (at least a "large class" of) sentences with interrogative complements are semantically equivalent to sentences involving declarative complements only. For instance, 'Alice knows who passed the test' is semantically equivalent equivalent to 'Any person is such that, if they passed the test, then Alice knows that they passed the test'. Hintikka argues that this sort of analysis will work if we replace 'knows' with 'remembers' or 'sees' and some others. Of course, the suggestion is going to run into trouble with our IA ascriptions. On Hintikka's behalf, Karttunen (1977) suggests (although does not endorse) some ways we might try to "lexically decompose" some IAPs to bring them in line with Hintikka's treatment. For instance, he suggests attempting to lexically decompose 'wonder' into a phrase like 'wish to know', and 'investigate' into 'attempt to find out'. This also then seems to get us to the thought that IAs involve metacognitive beliefs and desires, and even that having an IA is just a matter of having some metacognitive attitudes.[21]

Some sort of relationship between the IAs and higher-order beliefs and desires might seem quite natural. The IAs are a central class of inquiry-related attitudes – attitudes we have as we move from ignorance to knowledge. How should we char-

[19] See Russell (1997), p. 91. For similar claims see Crawford (2004) and Bergmann (2005).
[20] See, e.g., Loewenstein (1994).
[21] The account in Lewis (1970) described in footnote 10 might also push one towards a metacognitive treatment of IAs.

acterize such a transition? One natural way is that it begins when a subject realizes that there is some knowledge that she lacks; she desires to have that knowledge and so she makes attempts to get it. Inquiry is a search, and so just as we explain a search for one's keys with beliefs about the missing keys, and desires and efforts to get the keys, we can try to explain inquiry as a search for missing knowledge along similar lines. Crucially, the attitudes that we have along the way are beliefs and desires about our epistemic standings.

So, could having an IA – wondering, inquiring, suspending, being curious – just be a matter of having some beliefs and desires (and maybe some other sorts of propositional attitudes) about our epistemic standing? We can call the view that they are so reducible, *Higher-Order Propositionalism (HOP)* about IAs. I want to argue that HOP fails. While I think that there is quite a bit to say about the relationship between IAs and higher-order attitudes, I will stay focussed on a small set of key issues here.

Part of the success of HOP hangs on a series of local reductions: each IA must be reducible to some (cluster of) higher-order attitudes. We have some working suggestions from the literature already: agnosticism about Q is reducible to beliefs about our deficient epistemic standing with respect to Q (beliefs that we don't know Q or that it's impossible to know Q or that our evidence doesn't settle the question of Q, and so on), wondering Q is wishing to know Q, curiosity about Q is wanting to know Q plus believing that we don't know Q, and so on. As it stands, these local reductions look false. Wondering about Q is not wishing to know Q. If nothing else wishing to know is a state and wondering seems to be a process. Right now I wish to know the answers to a whole range of questions having to do with the origins of the universe, but I'm not currently wondering about each of those questions. Even if we try to reduce wondering to something more process-like, it is difficult to avoid counterexample. We might try to say that wondering is attempting to know (or something like this). But attempting to know Q is surely not sufficient for wondering about Q. Eavesdropping into a conversation about Q, asking Q of others, and a whole gamut of searching behaviours can be described as attempts to know Q, but not episodes of wondering Q. Agnosticism also doesn't look reducible to believing that one doesn't know (or similar). I may believe that Norgay reached the summit of Everest but recognize that my evidence for that belief isn't quite as good as it should be and so also believe that I don't know whether Norgay made it to the top. But I am not agnostic about whether he got to the top in this case, I believe that he made it. So these local reductions will need more tinkering with if they are going to be plausible reductions. As it stands, it is not clear that HOP can arrive at local reductions that avoid easy counter-examples.

A general problem with making having metacognitive beliefs and desires necessary for having IAs, is that it makes it that only fairly sophisticated subjects can have IAs. If having some higher-order attitudes is necessary for having IAs, then having

IAs always involves representing our first-order epistemic standing by way of beliefs about what we don't know and desires to know (and so on). This would mean that only creatures capable of representing their own epistemic standings could have IAs. But very simple creatures – creatures not thought to have the relevant sort of metarepresentational capacities – can have at least some of the IAs under discussion, e.g, curiosity, wondering.[22] I take it that this sort of objection is familiar enough, but powerful nonetheless. In fact, I think a significant virtue of the view of IAs that I will ultimately propose here is that these attitudes stand to be captured with first-order contents alone. This leaves attitudes like curiosity and wondering available to those without the capacity to represent their epistemic standings.

This is a very general worry about making having an attitude with mind-directed content necessary for having an IA, but there are specific worries lurking as well. For instance, a number of views mentioned make having some sort of belief about one's deficient epistemic standing necessary for having an IA, e.g., Russell on agnosticism, Loewenstein on curiosity. Demanding this would make a certain kind of higher-order epistemic caution incompatible with first-order agnosticism, curiosity, wondering, inquiring (and so on). Say S does not believe that her epistemic standing with respect to Q is deficient (q). If believing q is necessary for (say) being agnostic or curious about Q, then this S is barred from those first-order Q-IAs (= IAs directed at Q). But imagine a subject convinced by the evidence that introspection is less reliable than we might have thought. This S – as much as possible – refuses to form beliefs about her first-order epistemic standing. This subject displays a sort of higher-order epistemic cautiousness. Say she refuses to judge either that she knows what time the train to Paris departs or that she doesn't know this, in fact she takes no doxastic stand at all on her first-order doxastic or epistemic standing with respect to the question of when the train departs. On the versions of HOP proposed here, this subject could not be agnostic or curious about what time the train to Paris departs. But this is not a very good result. If she wants to go to Paris then she may be highly curious about when the train goes despite her refusal to judge either that she does or that she doesn't know (etc.) what time it will depart. In general, higher-order caution should not get in the way of inquiry at the first order.[23]

It isn't just the claim that the relevant sort of metacognition is necessary for having an IA that is worrying, but the claim that those sorts of beliefs and desires might be sufficient is as well. Some of the general problem emerged in the last paragraph. All sorts of higher-order positions look compatible with first-order curiosity or wondering, largely because the latter are fundamentally world-directed and not mind-directed attitudes. Whatever we say about IAs and higher-order contents, IAs must have some sort of first-order contents. Think about the religious

[22] See Whitcomb (2010) for a good discussion of related issues about curiosity specifically.

[23] We can push on the thought that anything like desires to know are necessary as well. For instance, couldn't the inquirer simply love their inquiry into Q so much that they do not want to know Q since that would serve to bring the beloved inquiry to a close?

agnostic (a familiar IA-haver). What she is agnostic about is whether or not God exists. Her agnosticism is, in the first instance, directed at the world, and not at her own epistemic standing. Even if she does have some higher-order attitudes, her being agnostic about the existence of God is an attitude about God's existence, and not about her own mind. The same is true of the other IAs. When our detective is wondering who robbed the bank, she is not merely reflecting on her own mind or desiring that she improve her epistemic standing with respect to the bank robbery; she is thinking about the bank robbery itself and who could have done it. These are world-directed and not mind-directed thoughts. Whatever we say about higher-order contents, IAs need to get some first-order content as well.

In responding to claims that interrogative sentences can be given metacognitive paraphrases, Hamblin (1958) claims that the suggested higher-order "reductions" give us something like descriptions of the circumstances in which questions are being asked, but fail to give us accounts of the contents of the interrogatives themselves.[24] We might say something similar here. At best, these higher-order suggestions can give us descriptions of the circumstances in which subjects often have IAs (e.g., when they believe that they don't know and want to know), but these (attempted) descriptions of the circumstances don't give us the contents of the attitudes themselves. Even if a subject wonders Q because she wants to know Q, what it is she is contemplating in wondering Q is not merely her own epistemic standing with respect to Q.

I think that for creatures like us, a range of meta-investigative beliefs will typically guide inquiry, curiosity, wondering, suspension (and so on). We have thoughts and desires about our epistemic standing (roughly), beliefs about where information that will help to improve it is likely to be and how likely we are to be able to get it. For us, having IAs plausibly often involves higher-order thought. But that sort of thought is neither necessary nor sufficient for having an IA.[25]

4 First-order contents

IAs should be attitudes with first-order contents. Questions fit the bill here, but do we have any other plausible options? I think we do. My plan here is to draw inspiration from treatments of other related attitudes – mostly other *wh*-attitudes – to get to some further suggestions for first-order IA contents. While each of these suggestions has some appeal, none ultimately succeeds.

[24] See p.160-1.

[25] Notice: the main arguments in this section would go through with much the same force if we replaced 'wanting to know Q' or 'believing that one doesn't know Q' (and so on) with 'wanting to know about M' and 'believing that one doesn't know about M' (and so on) where 'M' is a noun phrase – John's haircut, the laws of electrostatics, demography, bees, etc.

4.1 True Answer Propositionalism (TAP)

I think that one obvious, although perhaps quickly unsatisfying, place to look for guidance as to the contents of our IAs is to discussions of knowledge-*wh*. Since 'know' permits interrogative complements, knowledge-*wh* ascriptions – e.g., *S* knows who ate the last slice of pizza, *S* knows where to buy an Italian newspaper – look very much like some of our IA ascriptions. Moreover, reductionists about knowledge-*wh* argue that knowledge-*wh* is just a kind of propositional knowledge. That is, *S* knows who ate the last slice of pizza just by knowing some proposition. More specifically, *S* knows who ate the last slice of pizza at *w* just by knowing the proposition that is the true answer to the question, *Who ate the last slice of pizza?* at *w*. More generally, according to the reductionist about knowledge-*wh*, *S* knows *Q* at *w* iff *S* knows *p* at *w* and *p* is *Q*'s true answer at *w*.[26]

Could having an a IA towards *Q* be a matter of having an attitude towards *Q*'s true answer? We can call this view, *True Answer Propositionalism (TAP)* about IAs. I take it that the suggestion will seem badly counter-intuitive. In particular, in most cases subjects have IAs exactly when they are ignorant of what the true answer to some question is, so that true answer doesn't look like a very good candidate for the content of the attitude: it's exactly what the subject is after in inquiry, and so we don't want to think of that answer as the content of her thought already. Making it the content of her thought seems to somehow imply that she already knows that that proposition is the true answer, and that's not a result we want here. I think that the spirit of this thought is basically right, but some of the reasoning is far from decisive and so it's worth making clear why the IAs shouldn't be modelled after knowledge-*wh* in the relevant way.

The immediate worry about TAP is that it seems to make it that an inquiring or curious or wondering or agnostic (etc.) subject already knows the true answer to the question when this is exactly what we take her to be lacking and looking for in having an IA. But this seems to assume a sort of transparency of the mental. But aren't there are all sorts of familiar ways in which the contents of our thoughts are less than perfectly transparent to us? If this is right, then it doesn't follow from the fact that we have an attitude whose content is *Q*'s true answer that it is clear to us that that proposition is the content of our attitude or that we know that we have an

[26] See Masto (2010) for a good overview of the debate between reductionists and anti-reductionists about knowledge-*wh*. I haven't specified whether the true answer that the subject needs to know in order to know *Q* is the complete true answer to *Q* or merely a partial true answer to *Q*. In most cases we want the complete true answer. If Alice, John, and Fran all went to the party (and no one else did), then if I know that John went, but don't know whether Alice or Fran went (I may be agnostic about whether they went or even think that they didn't go), then I don't know who went to the party, despite my knowing a true, partial answer to that question. There are recalcitrant cases though. Some knowledge-*wh* ascriptions are more naturally given "mention-some" readings, where knowing a specific sort of partial true answer to *Q* seems sufficient for knowing *Q*. A subject who knows that one can buy an Italian newspaper in Soho seems to know where one can buy an Italian newspaper whether or not she knows everywhere else that one can buy those papers. I leave the matter unspecified here since either way one fills in the details, the arguments in this section go through.

attitude with that content or know that true answer or know that that proposition is the true answer to Q. Perhaps this is just another sort of case in which the contents of our attitudes are less than clear to us. Moreover, the true answer to a given question clearly plays a central role when it comes to the IAs: it is the thing being pursued in inquiry, the thing the knowledge of which will satisfy the subject's curiosity or bring her wondering or agnosticism to an end (or at least ought to). The true answer to Q (or bearing the right sort of epistemic relation to just that answer) is the aim of inquiry and so in some important sense that proposition looks like the object of the IAs. It is what we pursue when we have some IA. So perhaps when it comes to the IAs we should be thinking of their content as their object or aim.

Given these sorts of considerations let me give a couple more quick reasons to worry about TAP.

First, there is a granularity worry looming. Many different questions can have the same true answer. For instance, *Who killed Tom last night? Who did Jerry kill last night? What did Jerry do last night?* and *Did Jerry kill Tom last night?* can all have the same true answer (at w), e.g., the proposition *Jerry killed Tom last night*. But having an IA towards one of these questions should not amount to having an IA towards all of them. The detective wondering about who killed Tom last night is not thereby wondering about who Jerry killed last night (she is wondering about who the murderer is, not who was murdered).

We want to be able to distinguish between subjects who are wondering or curious or agnostic or inquiring about different questions with the same true answer. Jerry's friend might be curious about what Jerry did last night, but he is thereby curious about something different from what our detective is curious about when she's investigating Tom's murder and curious about who killed Tom. TAP cannot make these distinctions.

Second, plausibly, not every question that can be asked at a world has a true answer at that world. For instance, questions with false presuppositions at w seem to have no true answer at w (we can just focus on the actual world here), e.g., *How long did it take Norgay to reach the summit of Rum Doodle?, How fast will we fall if we jump off the edge of the earth?, Was the couple that won the dance pleased?*, and so on. But I can ask you any one of these questions. And when I do you might wonder about it, suspend judgment about it, be curious about what the answer to it is, inquire into or investigate it further despite the fact that the question has no true answer at the relevant world and time. When we believed that the Earth was flat it may well have made good sense in a range of ways to investigate all sorts of questions about what what would happen when we got to one of its edges despite those questions being unsound.

TAP says that the content of a Q-IA is Q's true answer. But a subject can have an IA towards Q at w even if Q is unsound at w. TAP then has the result that these IAs are contentless, but it is hard to see how that could be right. I can meaningfully

express what it is that I am curious about or wondering about or agnostic about (etc.) even if the relevant question is unsound. You and I can investigate (etc.) the same thing even when the relevant question is unsound. And even, it seems, if it's unsound at my world but sound at yours. If I'm inquiring into how long it took Norgay to get to the summit of Rum Doodle, I can bring evidence to bear on my inquiry: I can try to get information about the height and grade of Rum Doodle, I can then bring my knowledge of Norgay's average climbing pace to bear and narrow down the space of possible answers to the question. It is hard to see how any of this could make sense were these IAs contentless.

While we might be able to open up a bit of space for TAP by thinking about the aim of inquiry and leaning on the non-transparency of content, it's still a tough sell. If TAP were true there would have to be a sort of radical lack of clarity about or ignorance of the contents of our own thoughts that I take it many will be uncomfortable with. The additional considerations in the last few paragraphs should help to shut that small space opened at the section's start.

4.2 Possible Answer Propositionalism (PAP)

Thinking about the sort of thing that happens in a typical inquiry can help us get to a different form of "answer propositionalism". Say Alice is wondering about which of her co-workers ate the last slice of pizza. She wonders whether it was John or whether it was Fran or whether it was Mary, and so on. She thinks about each of these hypotheses, maybe rules some out and comes to see some others as more plausible, and so on. In this case, Alice is evaluating the question's possible answers with the aim of reducing the possible answer space and arriving at a true answer to the question. A natural suggestion then is that her attitude has those possible answers as its content. We can call this view *Possible Answer Propositionalism (PAP)* about IAs.

According to PAP, the IAs are effectively n-ary propositional attitudes (or perhaps a bundle of unary propositional attitudes; I won't worry about this distinction here). There is some question about just how many or which of a question's possible answers need to serve as the content here. The arguments to come will be general in this respect, aimed at all such versions of PAP. I want to raise a few different worries about PAP, but they all pick up on ways that we can be (even quite radically) ignorant in inquiry that PAP does not respect.[27]

[27] Another sort of worry may be lingering from the last section. On some ways of thinking about possible answers, some questions will have no possible answers either. For instance, if a possible answer to a question is just the set of worlds at which that answer is true, then questions with necessarily false presuppositions – *How does one square the circle? Where will John be when he realizes that* $2+2=20$*?* (and so on) – will have no possible answers at all. However, it isn't at all clear that these shouldn't be possible objects of wonder or inquiry or suspension. It is not obvious that a circle cannot be squared, and it at least seems as though the question of how to square a circle was an object of curiosity and wonder, and a question into which subjects inquired further, and became agnostic. If this is right then PAP will have the result that these attitudes are contentless. This result looks problematic in just the way that the corresponding one from the last section did.

PAP looks like a plausible suggestion for capturing the contents of a subject's IAs over some range of questions to be sure, e.g., *Did Joe go to the party?*, *How many people were at the party?*.[28] For some other questions though, the suggestion doesn't obviously fare as well. For instance, "explanatory" questions, e.g., a range of *why*, *how*, and *what* questions, are going to have explanatory hypotheses as possible answers. The question, *Why is the sky blue?*, will have as possible answers hypotheses that explain the blueness of the sky. This set of possible explanations can be quite vast and diverse and the mere fact that a subject can ask the question is no guarantee that she has any idea of what those possible answer hypotheses are. Here, PAP begins to feel strained (in much the same way that TAP did). When it comes to polar questions and a range of non-polars there is a kind of "semantic transparency" from questions to answers. Anyone who understands the question will have a good sense of what the possible answers are. But this is not true for questions across the board, and when this sort of transparency fades, PAP is going to struggle. I want to bring this out further by thinking about a few different sorts of "answer ignorance" that we can expect from subjects with IAs. PAP is going to be hard-pressed, I think, to accommodate these sorts of cases.

In general, we can think of the possible answers to a question as hypotheses. This is clearest in the case of explanatory questions, but we can think of possible answers as hypotheses in any case. As we have seen, sometimes it will be fairly obvious to the subject asking some question what the possible answers to that question are, but in other cases, generating hypotheses that answer the question can be a significant cognitive task in its own right. Whole inquiries can be aimed at coming up with new possible or plausible explanations of some event and individuals and whole communities can dedicate significant time and cognitive resources to these sorts of inquiries: to generating new possible answers/hypotheses that answer some question.

We can think of this sort of hypothesis-ignorance – a sort of ignorance about what the possible answers to a question are (rather than whether some answer is true, say), as *abductive ignorance*. A subject who is abductively ignorant with respect to Q/Q's answers, does not know what Q's possible answers are exactly because she has not generated those hypotheses (and if someone else has they have not been passed down to her). A subject's abductive ignorance about Q comes in degrees that depend upon how much of Q's possible-answer space she is abductively ignorant

[28] It is worth making clear just how well-suited to capturing the truth conditions for IA ascriptions involving embedded polar interrogatives this suggestion is. The sentence, 'Jack inquired into whether Jill went up the hill' might not have a 'that'-complement, but it does have a complement with a complete, proposition-expressing sentence. It's quite natural then to think that the proposition *Jill went up the hill* is an object of inquiry for Jack when that ascription is true. But if Jack is inquiring into whether Jill went up the hill, he must be inquiring into whether she did or did not go up the hill (and not just one of those). So now we have the thought that in a case like this the objects of Jack's inquiry are the two possible answers to the question of whether Jill went up the hill (*Jill went up the hill, Jill did not go up the hill*). When it comes to embedded non-polar interrogatives, PAP won't be able to read the propositional answers off the face of the relevant ascriptions, but will nonetheless turn to possible answers to those questions as well.

about. We can say that a subject is completely abductively ignorant about Q iff she is abductively ignorant about all of Q's possible answers (and in this sense doesn't know what any of Q's answers are), and partially abductively ignorant about Q iff she is abductively ignorant about at least some of Q's possible answers.

We think that subjects can generate new hypotheses as inquiry progresses. So partial abductive ignorance about Q is compatible with having IAs towards Q. What about complete abductive ignorance? Can a subject embark on an inquiry into a question before she has generated any hypotheses? Can she be curious or wonder or be agnostic when she is completely abductively ignorant? I can't see any special reason to rule this sort of thing out. Curiosity is piqued by the mere asking of a question or even just the experience of an event or some object. I don't think that we want to rule out the possibility of wanting to find and looking for potential (say) explanations before we have generated any. Isn't suspension of judgment just the right attitude to have if one is confronted with a question but cannot generate any even possible answers to that question?

So we want IAs to be compatible with even complete abductive ignorance. But can PAP respect this wish? According to PAP, the IAs have at least some of a question's possible answers as their contents. A subject who is completely abductively ignorant about a question Q has not generated any hypothesis answers to Q. According to PAP this subject has some of those un-generated hypotheses as the contents of her thoughts. Anyone uncomfortable with TAP should be uncomfortable with this suggestion as well. As before, one might lean on the non-transparency of content to find some wiggle room here. In the end perhaps the defender of PAP can give us some sort of account of hypothesis generation in these sorts of cases, but until we have at least some idea of how that can go, we should worry about whether PAP can succeed. Moreover, even if PAP can give us some sort of plausible story about hypothesis generation and abductive ignorance, I think that there is going to be a more extreme sort of ignorance in inquiry which will be far more difficult for PAP to accommodate.

A subject who is abductively ignorant about Q has not generated some possible answers to Q, but she may well be in the position to generate them in the following respect: she may have the conceptual or representational resources to have attitudes towards those propositions. But she won't be in such a position in every case in which she is abductively ignorant. And when she doesn't have the conceptual or representational resources to have attitudes towards those answers, we can say that she is also *conceptually ignorant* with respect to Q/Q's answers. One is conceptually ignorant with respect to some answer to Q only if one is abductively ignorant about that answer, but abductive ignorance does not imply conceptual ignorance. A subject who is conceptually ignorant about Q lacks the concepts to even think about the answers to Q. And again, we can say that a subject is partially conceptually ignorant about Q iff she is conceptually ignorant about at least some of Q's answers

and completely conceptually ignorant about Q iff she is conceptually ignorant about all of Q's answers.

I take it to be a constraint on having any sort of thought with some content that that content be graspable – that we have the representational or conceptual resources to represent that content in thought. If a subject is going to have any kind of attitude at all towards p, she needs to have the conceptual resources to grasp p or represent p in thought.

A subject with an IA towards Q at a time can be partially conceptually ignorant about Q at that time. When it comes to our explanatory questions we can expect that even the most mundane, e.g., *Why is this train late? How did the window break? What caused the river to dry up?*, will have some possible answers that are ungraspable by the average inquiring subject. But these are questions that the average inquiring subject can investigate or wonder about or be curious about or suspend about. In these cases, at least some of the possible answers to the relevant questions cannot be the contents of the subject's thoughts. This still leaves versions of PAP open, but those too will be closed if complete conceptual ignorance in inquiry is possible. Is it?

While cases of complete conceptual ignorance in inquiry may be rare, I think that there is a principled reason to allow for them.[29] These will be cases in which the inquiring subject cannot grasp any of Q's possible answers, but can nonetheless inquire into or wonder about (and so on) Q.

To se why we should allow for cases like this, we can begin with the idea of the *representational burden* of a bit of content. The representational burden of some bit of content can be thought of as a specification of the (minimum) conceptual or representational capacity a subject must have in order to be in a state of mind with that content, or in order to grasp or understand that content. A subject who believes that the dog is in the yard must have the concepts *dog* and *yard* and so on in order to have that thought. She must be able to represent dogs and yards if she is going to have that belief. At least the same is true of a subject wondering whether the dog is in the yard.

But a non-polar question Q will always have an importantly different representational burden than any of Q's possible propositional answers. Crucially, that a subject cannot meet the representational burden of any of a question's possible answers does not mean that she won't be able to meet the representational burden of the question itself. To fix ideas we can think of a question as an open proposition, e.g., *x caused the Big Bang* (Q). Any possible answer to Q will be that open proposition except with the variable replaced with a possible cause of the Big Bang. But then grasping a possible answer to Q – any – requires conceptual resources that go

[29] Here are some other questions for which it is not hard to imagine significant conceptual ignorance in inquiry: *What function do oxyphil cells play in the parathyroid gland?*, *Why does opium put people to sleep?*, *How can quantum particles transfer information faster than the speed of light?*, *At which restaurant in Antwerp did Jay-Z have lunch on June 3, 2012?*.

beyond those required for grasping just the question itself. This will be true for questions and their answers over a wide swath of cases (almost any non-polar question, for instance). This opens up the possibility of cases in which subjects cannot have thoughts about any possible answers to some question, but can nonetheless grasp the question itself. But if a subject can grasp or understand some question, if she meets the representational burden of the question, why shouldn't she be able to ask and even try to answer that question? Can't she wonder about that question? Isn't agnosticism an appropriate attitude for her to have towards that question? These sorts of considerations make trouble for PAP since they force us to make room for possible cases in which subjects have IAs towards Q but are completely conceptually ignorant with respect to Q. Since we don't want ungraspable contents, these are cases in which subjects have IAs towards Q but do not have attitudes towards any of Q's possible answers.

This marks an important distinction between "questioning" *wh*-attitudes and "answering" ones like knowledge-*wh*. A subject who can grasp or represent Q but none of Q's answers is not in the position to know Q exactly because knowing Q involves knowing an answer to Q. But this is not the case when it comes to questioning attitudes like IAs. One can have attitudes like IAs towards Q before one has any grasp of Q's answers since they are not answering attitudes, but questioning ones. So if the subject meets the representational burden of a question – whether or not she meets the representational burden of that question's individual answers – she can have the relevant IAs.

I've tried to bring out a couple of ways in which subjects can have IAs despite being ignorant about the possible answers to questions. These possibilities make it very hard for PAP to succeed. The most troubling cases so far have been ones involving fairly radical sorts of answer-ignorance, and perhaps typical inquiries start in more knowledgeable places. That said, I want to make clear that many cases in which inquirers are merely partially answer-ignorant are still not going to be well captured by PAP. To start to see this we can look to a state that Sylvain Bromberger expounded upon in a series of papers: a state he calls a "p-predicament".[30] Here is Bromberger,

> Let us describe someone as in a *p-predicament* (*p* can be thought of as standing for 'puzzled' or 'perplexed' but for *mnemonic* purposes only) with regard to some question Q, if and only if on that person's views, the question Q admits of a right answer, yet the person can think of no answer, can make up no answer, can generate from his mental repertoire no answer to which given that person's views, there are no decisive objections. (Bromberger (1992): 81)

A subject in a p-predicament with respect to Q (a question that she takes to be sound) can grasp Q, and at least some of its answers, but any hypothesis answer she

[30] Some of these papers are collected in Bromberger (1992).

has generated, she takes to be false. The subject in a p-predicament is in this sense at somewhat of a loss at this point in inquiry. Perhaps a p-predicament is a more common state for a subject to be in than one in which she is completely answer-ignorant (either conceptually or in some less extreme way). In fact, Bromberger claims that p-predicaments are chronic conditions of philosophers and scientists. We are often stuck in just this sort of way.

PAP falters on p-predicaments as well. A subject in a p-predicament can have the whole range of IAs. These subjects are already mid-inquiry (as it were) with respect to their questions since they have generated and ruled out some hypotheses. That they are having some trouble coming up with new possible answers does not bring their curiosity or investigation or agnosticism to a halt. Inquiry into how RNA evolved doesn't end even if best science runs out of possible hypotheses and even if the only way to generate new ones is with genuine conceptual advance. Let's say that a subject cannot generate any new answers to Q – a question about which she is in a p-predicament. This may be because she hasn't met the representational burden of the remaining answer space or just because she has failed for other reasons to generate any further possible answer hypotheses. This sort of case seems no better for PAP than a case in which the subject is completely answer ignorant (either conceptually or merely abductively). Despite the fact that there are some possible answers to Q that the subject has generated now, those answers are all ones that she takes to be false, and so should not serve as the contents of her Q-IAs: they are not objects of wonder or curiosity or agnosticism for her. PAP needs to have some range of propositions from the remaining, open answer space to serve as the contents of the subject's Q-IAs here, but this is going to be problematic in the familiar ways. A subject in a p-predicament seems to be at least abductively ignorant about the remaining, open answer space and can be conceptually ignorant about those answers as well.

PAP does a poor job of capturing a range of grades of answer-ignorance in inquiry, and as such should be rejected. One upshot of this discussion has been a push to one sort of epistemic limit for inquiry. Just how ignorant can an inquiring subject be about Q? Radically ignorant. So ignorant that not only does she not know the true answer to tQ, nor what Q's possible answers are, but she cannot even represent these answers in thought. Theories of inquiry, and of the IAs in general, should be able to capture this sort of radical ignorance. PAP cannot.

The failure of answer propositionalism presents a serious difficulty for propositionalism about IAs generally. We want IA ascriptions to come out true sometimes. When they do come out true, this will be because the subject has the IA being ascribed to her. As we saw this should mean that she is in some sort of contentful mental state. If propositionalism about IAs is true, then that contentful mental state has a propositional content. But if having that propositional attitude is going to make a Q-IA ascription true, then that propositional content will need to be sufficiently

closely related to Q to stand in for it in that way. But higher-order propositions – propositions about one's epistemic standing with respect to Q – won't do, and now it looks as though Q's answers won't do either. It is difficult to see what other sorts of propositional contents we could turn to here.

4.3 Last gasp?

It looks as though we have run out of plausible propositional contents. Given that we want the IAs to have first-order, world-directed contents, I think it is clear at this point that we should take the nudge provided by our IA ascriptions and turn to questions themselves. The IAs look importantly distinct from other familiar *wh*-attitudes like knowledge-*wh*: they seem to be attitudes that we can have once we can grasp the question itself regardless of whether or not we can grasp any answers to the question. It seems obvious at this point that questions are the right sort of contents for attitudes like this.

But in trying to push to one limit of inquiry, perhaps we've stopped too short. Perhaps a subject can have an IA while being even more radically ignorant than I've allowed here. There is some indication that this may be right coming from our early discussion of IA ascriptions. As we saw, we can meaningfully say things like 'Alice is curious about bees' or 'Alice is wondering about John' or 'Alice is investigating the president', and the like. Is there any question that Alice needs to grasp to make these true? It might look as though we can get by with even less than this here. For instance, perhaps in these cases the relevant IAs are quite simply directed at bees, John himself and president (respectively).

This gives us one additional suggestion for capturing the contents of our IAs: IAs are simply relations to individuals (or collections thereof). There are other intentional attitudes sometimes thought to be like this, e.g., fear, respect, attention. I think that there is something to the suggestion, and in the next section I will say more about that, but ultimately the suggestion that the IAs are directed at individuals (or collections of them) is just insufficiently general. While Alice can wonder about bees or John she can also wonder about demography, chemistry, the election, time, poverty, and the like. In these cases it is unclear how our new suggestion will fare. More importantly though, part of what the new suggestion correctly picks up on is that there are cases in which the objects of inquiry look very broad or general. But a very general object is not a good candidate for the contents of the more specific or focussed IAs. Besides a bare curiosity about bees, Alice can also be curious about whether bees have fur, how fast bees can fly, how bees make honey, and so on. These are distinct objects of curiosity and it isn't clear that the suggestion under consideration now has the resources to handle these less general IAs.

Of course, this is not an objection to the proposal's accounting for the contents of some IAs, but I think that a uniform content is preferable. As I will show in the next section, questions can serve as that uniform content.

5 Question-directed attitudes

In this section I want to bring out the overall argument of the paper as well as some additional features of the discussion that point us to the conclusion that the IAs are question-directed attitudes.

5.1 IAs are question-directed attitudes

The strategy in this paper has been fairly straightforward. The goal has been to show that the IAs have questions as contents. Some reflections on IA ascriptions gave us a push in that direction, but were not decisive. The strategy since has been to look at other suggestions for IA contents and show that they fail. With the plausible options canvassed and eliminated, there is really only one place left to turn. As I've already said, we want some first-order content for the IAs that is closely related to the relevant focal question. We might try at this point to muster some other candidate contents, but simplicity, elegance, and just plain obviousness point us to the question itself. There is no content (first-order or otherwise) more closely related to Q than Q itself.

But what about the IA ascriptions that involve embedded NPs rather than embedded interrogatives? I think that we should say that these ascriptions are true (when they are) in virtue of the relevant subject having an IA towards a question as well. Alice is curious about dinosaurs in virtue of her being curious about some question about dinosaurs: *When did dinosaurs live? How much did dinosaurs weigh? Are there dinosaurs in Michigan?*, and so on. There are many and various ways of being curious about dinosaurs. In general, an IA ascription involving an embedded NP is true in virtue of the subject having an IA towards a question about the subject matter picked out by the NP: a question about John's haircut, the president, demography, the first letter of the alphabet, and so on.

Moreover, insofar as subject matters are discussed they are typically identified with one or more questions.[31] On these accounts the subject matter of bees is just equivalent to the most general question of all about bees (very roughly: *What is the (whole) truth about bees?*). For instance, Lewis' view is that a subject matter can be identified with an equivalence relation on worlds: one that partitions the worlds into equivalence classes such that all worlds in a given equivalence class are exactly alike with respect to the subject matter. As we have seen, this is very much like one central treatment of questions, and Lewis is explicit in his identification of subject matters with questions. This means that even in the most general case, it looks as though these IA-*NP* ascriptions are plausibly ascribing attitudes towards questions.

When a subject wonders or is curious or inquires into some subject matter, she is wondering or curious or inquiring into some question on or about that subject

[31] See, e.g., Lewis (1988b) and Lewis (1988a).

matter.[32] That we can get a plausible story about the truth conditions for the whole range of IA ascriptions by using question contents for the relevant attitudes, is further reason to think that that story is the right one.

Other aspects of the discussion so far push us towards question contents as well. Let me mention three. First, in the discussion of HOP we saw that various higher-order characterizations of the IAs were plausible. For instance, Loewenstein's account of curiosity had subjects recognizing gaps in their knowledge and trying to fill those gaps. I have tried to argue though that the IAs should have first-order contents. But when questions are those contents we can flesh out the idea that inquiring subjects are aiming to fill some epistemic gap without going higher-order. For instance, when questions are open propositions this looks fairly straightforward (which may be a mark in favour of thinking of questions this way). Even when questions are sets of answers we can give an interpretation of Loewenstein's claim averting only to first-order contents. For instance, on Groenendijk and Stokhof's partition account, Loewenstein's gap is captured with a set of incompatible answers that the subject is aiming to resolve into a single true answer.

Second, this way of thinking also helps us to capture some of what was compelling about TAP. There, we saw that the IAs seem to have satisfaction conditions or be goal-directed. There is something being pursued in inquiry. When inquiry is question-directed, this thought also gets an elegant treatment. Questions are themselves incomplete or unresolved sorts of objects: they may have gaps or be logically inconsistent sets. In either case, the goal of inquiry (in very general terms) is to resolve this unresolved object – to answer a question.

Third, as we saw in the discussion of PAP, we want IAs to have a sort of content that ranges over a relevant space of possible answers, but we don't want IAs to end up attitudes towards those answers/possibilities individually. But questions can satisfy both of our desires. One of the main features of nearly any theory of questions is that just as propositions have/are closely related to truth conditions, questions have/are closely related to *answerhood conditions*. This doesn't mean that questions should be answers, but that they should be the sorts of things that can be answered. Moreover, it should be somewhat clear what the conditions under which they will be answered are. The main theories of questions that we looked at do this (albeit in different ways). Each account makes a question the sort of thing that to some extent specifies the conditions under which it will be answered, but each also makes the question itself something distinct from those answers.

So it isn't just a linguistic push plus a lack of alternatives taking us to the conclusion that the IAs are question-directed attitudes, but features of the IAs themselves

[32] What is it for Q to be "on" or "about" a subject matter M? Here is a rough preliminary thought. We can think of a subject matter M at w as the whole truth about M at w. This proposition is effectively a conjunction of all truths about M at w. It is the logically strongest proposition about M at w and entails all truths about M at w. For each w_i that says anything about M, we can call this strongest proposition m_i. Take some question Q. Q is about M only if for every w_i such that Q is sound at w_i, Q's (complete) answer at w_i is entailed by m_i.

that have emerged in the discussion.[33]

5.2 Questions

I think that some of what has been said so far stands to have an impact on our thinking about what questions are, although I think that the issues are more subtle than it might appear. For instance, it might seem as though my arguments against PAP also count as arguments against an SOA account of questions. If subjects cannot represent some individual answers in thought, then shouldn't it also be the case that they cannot represent the set of those answers?

This seems to me too quick. It is at least clear that one can bear a relation to a set despite not bearing that relation to the set's members (and the reverse). One may fear the members of the Hell's Angels individually, but not fear the set of them. Perhaps more on point, one can have all sorts of thoughts about (say) the set of all real numbers, or the set of all truths of biology despite being unable to have thoughts about many individual members of those sets. What goes for the individuals does not need to go for the sets. More thinking about what it takes for a subject to represent a set of things is required to assess the impact of the argument against PAP on SOA accounts of questions.

In fact, we might find inspiration here from one quite commonplace way of thinking about propositional contents. According to this account, propositions too are sets: sets of possible worlds. Here the proposition p is just (roughly) the set of all worlds at which p holds. This set of worlds can have infinitely members each of which is equivalent to the whole truth at some possible world. And while there are many gripes about this sort of view, one doesn't hear the worry that a subject with an attitude towards p must be able to represent everything that obtains at each world in the set of p-worlds. Part of why we think that the set of worlds is a good model for the relevant propositional content is because it represents what holds across that varied space of possibilities, it represents what is common to all the worlds. And it's this that the subject needs to be able to represent in thought to have an attitude with that content.

If we generalized this thought we could say that representing a set of answers requires only that the subject be able to represent that which the various answer propositions have in common. What do all of the answers to a question like, *Who ate the last slice of pizza*, have in common? They are all propositions that say of

[33] Central treatments of 'wonder' often seem to be claiming that wondering is genuinely question-directed. For instance, Groenendijk and Stokhof claim that there are (at least) two sorts of interrogative embedding verbs: extensional ones and intensional ones. Ascriptions involving extensional interrogative embedding verbs express relations between subjects and the extensions of the relevant interrogatives (their true, complete answers). Verbs like 'know' and 'remember' are claimed to be like this. Ascriptions involving intensional interrogative embedding verbs express relations between subjects and the intensions of the relevant interrogatives – relations to the question itself. 'Ask' and 'wonder' are thought to be in this category. For Groenendijk and Stokhof verbs like 'wonder' create "truly intensional contexts" and relate subjects to "the question as such".

some individual that they ate the last slice of pizza. What they have in common is effectively the open proposition, *person-x ate the last slice of pizza*. If this is right then the two views of questions – the SOA accounts and the OP accounts – might well be on equal footing with respect to the sorts of representational capacities they demand of a subject with an IA.

At this point one might wonder though about whether we need to bother with sets of answers. If what is being represented is in effect something like an open proposition, why not just stop here? There is obviously something quite natural and straightforward about the suggestion. This is the question stripped absolutely bare. And given that we want to be very careful about maintaining the possibility of radical ignorance in inquiry, that should be exactly the sort of content we are after. Moreover, while there may be a plausible interpretation of some SOA views that makes them compatible with the sort of radical ignorance that we need to respect, this obviously isn't the only available interpretation and it isn't clear that even this one generalizes to any SOA view. For instance, according to Groenendijk and Stokhof, questions are sets of *complete* answers, while on a more Hamblinian account they are going to be sets of partial answers. These are different sets. A set of complete answers is a special kind of division of the space of possibilities. Are we giving the subject more information than we should by making his IAs have these special sorts of sets as their contents? It simply isn't clear. What is clear is that many of these sorts of questions evaporate when start with something like an open proposition instead.

In the end I think much of the decision as to how we should think of the contents of the IAs and of how we should think of questions, will be determined by the various theoretical advantages of each of the different views (and, of course, we are not limited to those views already in the literature). How successful are they in accommodating the nature and normative structure of inquiry? Answering these sort of questions is obviously beyond the scope of this paper. I hope though that this small discussion starts to make clear that thinking about them and about the IAs stands to impact our thinking about question contents generally.

6 Concluding remarks

This ends my case for the conclusion that IAs are genuinely question-directed attitudes, that they have questions as contents. We should add questions to our ontology of mental contents.[34] We have some linguistic evidence for this conclusion as well as a good deal of evidence coming from the nature of the IAs themselves. I have also tried to say a little bit about how we should be thinking of questions qua mental contents given our initial findings about the nature of the IAs and the

[34]For some related thoughts on why we might need to move beyond propositional contents, see Belnap (1990). These are considerations relevant in the first instance to adding to our stock of semantic contents, but it isn't difficult to find some natural extensions.

possibility of radical ignorance in inquiry.

The IAs seem to be a fairly central class of inquiry-related attitudes, attitudes that we have as we attempt to find answers to questions, attitudes that represent various forms of ignorance in inquiry. Now we know more about what unites these attitudes: they are all question-directed. My discussion has been limited to what I assumed was a non-exhaustive list of question-directed attitudes. I take it that the discussion here can be generalized to other attitudes as well now. We can look for other attitude ascriptions that share the general syntactic features of our IA ascriptions so far. Better though, we can look for other attitudes to which the arguments against the various forms of propositionalism will apply.[35]

In a series of papers Jaakko Hintikka argued that the logic of scientific inquiry was interrogative.[36] The suggestion that IAs are question-directed calls for something of a return to this Hintikkan project. It leads naturally to the thought that inquiry in general is a question-oriented activity. And this thought stands to tell us a good deal about the nature and structure of inquiry, as well as about how rational inquiry proceeds. As we have already to some extent seen there is work coming from linguists about what questions are and the logical and semantic relations between them, and various erotetic logics have been developed.[37] These give us theories that tell us when one question entails another and how much information is contained in a question, that flesh out the sub-question and super-question relations and so on. If inquiry starts when a subject opens a question in thought and ends when she answers or closes that question, then these theories can at least start to give us some insight into how a rational subject proceeds once she opens a question in thought and aims to answer it; that is, they stand to tell us how inquiry in general does and ought to proceed.

[35] Possible candidates: contemplation, deliberation. One potential sufficient condition for some attitude being a genuinely question-directed attitude? In order that $S\ \phi\ Q$ is it necessary that S have attitudes towards any of Q's possible partial answers? No? Then ϕ picks out a genuinely question-directed attitude.

[36] See, e.g., some of the papers collected in Hintikka (1999). Hintikka was not alone in thinking that questions should play a key role in epistemology (broadly construed). We find this thought in some of the papers in Bromberger (1992) as well as in Collingwood (1978). More recent statements of ways in which questions and questioning can take up important roles in epistemology and philosophy of mind can also be found in Hookway (2008) and Yalcin (2011).

[37] For a good discussion of the latter see Harrah (2002).

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