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# COMPARATIVISM, QUESTION-SENSITIVITY AND EXPERIMENTS

**Abstract:** In my paper I try to throw some doubt upon the motivation behind epistemic comparativism (Schaffer & Szabó 2014), which is a version of epistemic contextualism in which knowledge ascriptions are sensitive to the question under discussion. Schaffer and Szabó propose a semantics for "know" which makes it question-sensitive and which is based on an analogy with adverbial quantifiers, such as "always." They claim that the question-sensitivity of "know" has been empirically confirmed (2014, p. 495) and they describe an experiment which supposedly demonstrates such question-sensitivity. Firstly, I will argue that it might be better to regard sentences such as "Claire always steals the diamonds" as ambiguous and not merely context-sensitive. Secondly, I will try to show that the experiment has not been properly designed and it does not prove what it was supposed to prove. Finally, I will claim that while knowledge ascriptions are presupposition-sensitive (and question-sensitive only in a derivative sense), such sensitivity cannot be used as an argument for contextualism.

## 1. Epistemic Contextualism and Question-Sensitivity

Epistemic contextualism is the view that knowledge ascriptions such as "*S* knows that *p*" can have different truth-values in different contexts, where the difference in truth-value is traceable to the verb "know." One might distinguish between indexical epistemic contextualism and nonindexical epistemic contextualism. The proponents of the former view argue that "know" is a covert indexical akin to expressions like "I" and "here." In different contexts it picks out different relations of knowing. The proponents of the latter view claim that "know" is not an indexical, but is a relational term involving a covert contextually sensitive argument (for instance a standard). In their paper Schaffer and Szabó propose a version of contextualism in which knowledge ascriptions are sensitive to the question under discussion: "the question under discussion plays a role in truth evaluation" of knowledge ascriptions (Schaffer & Szabó 2014, p. 494).[1] They dub their version "comparativism." Comparativism is akin to contrastivism in that it involves a comparison between two propositions, one of which is explicitly given and one is contextually supplied.[2] While contrastivism assumes that the proposition contextually supplied is incompatible with the proposition given, comparativism does not make this assumption.

Schaffer and Szabó propose a semantics for "know" which makes it question-sensitive and which is based on an analogy with adverbial quantifiers,[3] such as "always". In what follows I will not argue with the semantics they offer, which is extremely subtle and sophisticated, but I'll try to throw some doubt on the motivation behind it. Their version of epistemic contextualism is motivated by the following example:

Claire always steals the diamonds.

[1] N.B. Schaffer (2007) also argues that knowledge-*that* includes a question: To know- *wh* is to know that *p*, as the true answer to *q*. According to him knowledge-that is not a 2-place relation between a person and a proposition, but a 3-place relation between a person, a proposition and a question, which is usually implicit in the context. Knowledge is a question-relative state: "Knowledge-*that* claims express the same relation as knowledge-*wh* claims, and since the latter express K*spQ*, so must the former" (Schaffer 2007, p. 397).

[2] Contrastivism is the view that "*s* knows that *p*" should be read as "*s* knows that *p* rather than *q,*" where *q* is the implicit argument for contrast (see Schaffer & Knobe 2012).

[3] Previously analogies have been drawn between "know" and indexicals, gradable adjectives and quantificational determiners. Schaffer and Szabó review all these options.

It is argued that this sentence is context-sensitive and has different truth-values in different contexts. Schaffer and Szabó describe two situations:

> (*WhoAlways*) Claire has stolen the diamonds. Ann and Ben are wondering who stole the diamonds, and Ann learns that there have been numerous recent diamond and ruby thefts and that Claire has been the thief every time. So Ann says:
>
> 1. Claire always steals the diamonds.
>
> (*WhatAlways*) Claire has stolen the diamonds. Ann and Ben are wondering what Claire stole, and Ann learns that there have been numerous recent diamond and ruby thefts and that Claire has been the thief every time. So Ann says:
>
> 1. Claire always steals the diamonds. (Schaffer & Szabó 2014, p. 508)

They argue that 1 is true in the former context and false in the latter context. In the context set by *WhoAlways*, 1 is true because Claire is the person who has stolen the diamonds in every case in which someone has stolen the diamonds. In the context *WhatAlways*, 1 is false because Claire sometimes steals diamonds and sometimes rubies. The idea is that the context imposes certain restrictions on relevant situations. "Always" is interpreted as a universal quantifier, quantifying over a contextually variable domain of situations. The domain of relevant situations depends on context: in some contexts (such as *WhoAlways*) only situations in which someone steals the diamonds are relevant, in other contexts (such as *WhatAlways*) only situations in which Claire steals something are relevant. If the domain of relevant situations consists of situations in which someone steals the diamonds, then 1 will be true of this domain (because all situations are such that Claire is doing the stealing). If it consists of situations in which Claire steals something, 1 will be false (because in some of those situations Claire steals rubies). Schaffer and Szabó put forward a hypothesis according to which the contextual restriction on A-quantifiers[4] (such as "always") is constrained by the question under discussion. Their plan is to prove this hypothesis and then show that "know" has a semantics which is analogous to that of A-quantifiers. Hence, if A-quantifiers are question-sensitive, so is "know." Their key claim is:

> (*Key*) Knowledge requires having evidence that involves a contextually variable domain of situations.[5] (Schaffer & Szabó 2014, p. 516)

Schaffer and Szabó argue that "know" is analogous to "always" in that it also acts as a restrictor on situations that are relevant to truth-evaluation in a given context. They construct two analogous scenarios:

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[4] A-quantifiers ("Adverbs, Auxiliaries, Affixes, etc.") include "usually," "always," "mostly," "often," "rarely," "never," "sometimes"; "must," "may"; whereas D-quantifiers ("Determiner") include "every," "each," "many," "most," "all," "no," "the," "a," "some."

[5] And the semantics they offer for "know" is this:
[[know]]$c$ = $\lambda E \lambda P \lambda x \lambda s$. every $s'$ such that $s'$ is consistent with $x$'s evidence in $s$, $C(s')$, and $E(s')$, is also such that $P(s')$; and $C(s)$; and $x$ believes ($P$ given C and $E$) on the basis of her evidence in $s$, where $E$ is an explicit restrictor, $P$ is the known proposition, $C$ is contextual restrictor and $s$ is a situation argument. See Schaffer & Szabó (2014, pp. 512, 521).

(*Who*) Claire has stolen the diamonds. Ann and Ben are wondering who stole the diamonds, and Ann finds Claire's fingerprints all over the safe. So Ann says to Ben:

I know that Claire stole the diamonds.

(*What*) Claire has stolen the diamonds. Ann and Ben are wondering what Claire stole, and Ann finds Claire's fingerprints all over the safe. So Ann says to Ben:

I know that Claire stole the diamonds. (Schaffer & Szabó 2014, p. 524)

Schaffer and Szabó claim that in the first scenario Anna's utterance is true, whereas in the second scenario it is false (especially if the focus is put on "the diamonds"). They conclude: "Given that *Who* and *What* differ only over the question under discussion in the context under consideration, it seems that the question under discussion plays a role in truth evaluation" (2014, p. 494).

The first thing to notice is that their view takes for granted that "always" is an A-quantifier. Someone who doesn't buy into the event semantics and doesn't want to have quantifiers ranging over events or situations will not be convinced.[6] Such a person will regard the sentence "Claire always steals the diamonds" as (syntactically) ambiguous rather than context-sensitive.[7] They will claim that "Claire always steals the diamonds" has two different logical forms depending on the reading adopted. It can either mean that it is always Claire who steals the diamonds and then its logical form looks like this:

$\forall x \forall y((Dy \wedge Sxy) \rightarrow x = c)$

or it might mean that it is always diamonds that Claire steals and then it has the form:

$\forall x\ (Scx \rightarrow Dx)$.

If we agree that the above formulae are both acceptable renditions of the logical forms of "Claire always steals the diamonds" then it seems that we have to conclude that "Claire always steals the diamonds" is ambiguous.[8] This is the conclusion that for instance Stainton would be most likely to draw, since he writes that

[6] Admittedly semantics treating "always" as a quantifier quantifying over a contextually variable domain of situations is pretty standard.

[7] Following Perry (1997) one may distinguish the presemantic, semantic and postsemantic context. One might then talk about presemantic, semantic and postsemantic context-sensitivity. Since it is the presemantic context that disambiguates an ambiguous expression, one might say that "Claire always steals the diamonds" is *pre-semantically* context-sensitive.

[8] One of the anonymous referees has pointed out that my claim that "Claire always steals the diamonds" is ambiguous and is unsupported in a formalism with restricted quantification as well as in situation-semantics. The relevant formulas

1. It is always Claire who steals the diamonds
2. It is always diamonds that Claire steals

will have the same logical form (differing only with respect to what is presupposed):

1. Every x [x = Claire][x steals the diamonds].
2. Every y [y = diamonds][Claire steals y].

However, the other referee has suggested an argument which—after some revision—might be used to strengthen my claim. The argument (based on the referee's suggestion but significantly modified) can be stated in the following way. Consider two scenarios:

> an univocal expression, though it can express many different propositions ((…) because of indexicality), cannot express propositions with different logical forms: the logical form of an expression is not the sort of thing that is context-dependent. (Stainton 2006, p. 88)

Moreover, it appears that that a similar conclusion should be reached by someone who agrees with what Stanley and Szabó write in their paper:

> Despite the clarity of the sound and despite his perfect linguistic knowledge, the hearer may not have enough information to identify the sentence uttered. For example, suppose (…) the speaker produces a sequence of sounds much like you would reading (7) aloud:
>
> (7) Visiting friends can be annoying.
>
> There is a legitimate sense of `grammatical structure' in which the hearer could say that he does not know which grammatical structure to ascribe to this sequence of sounds, and, consequently, does not know which sentence was uttered. (Stanley & Szabó 2000, p. 226)

If so, then it might be argued that someone who hears the sentence "Claire always steals the diamonds" is in the dark as to which sentence was actually uttered. In particular it is unclear whether it is a sentence about Claire (stealing the diamonds) or about diamonds (and who steals them).[9]

Analogously the sentence:

I know that Claire stole the diamonds

can either be read as saying that:

I know that it is Claire who stole the diamonds,
(I know that someone *x* stole the diamonds and that *x* is Claire).

or as

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"(*WhoAlways*) Claire has stolen the diamonds. Ann and Ben are wondering who stole the diamonds, and Ann learns that there have been numerous recent diamond and ruby thefts and that Claire has been the thief every time. So Ann says:
*Claire* always steals the diamonds.
(*WhatAlways*) Claire has stolen the diamonds. Eve and Darren are wondering what Claire stole, and Eve learns that there have been numerous recent diamond thefts and that Claire has been the thief every time. So Eve says:
Claire always steals *the diamonds*.
It seems to me that it might be argued that in these situations what Ann and Eve are saying is true and we may report it by saying "Ann knows that *Claire* always steals the diamonds" and "Eve knows that Claire always steals *the diamonds*." We cannot, however, summarize the situation by saying that "Ann and Eve both know that Claire always steals the diamonds." This might be taken as an indication that the sentence "Claire always steals the diamonds" is ambiguous.
I'd like to use this opportunity to thank both anonymous referees for their helpful comments.

[9] Schaffer and Szabó also consider a sentence "Claire only stole the diamonds in Paris" (2014, p. 525). In Forbes's *Modern Logic*, the sentence "Only private universities are expensive" is given as an example of an ambiguous sentence (Forbes 1994, p. 249).

I know that it is diamonds that Claire stole.
(I know that Claire stole something *x* and that *x* are diamonds).

If this is correct then one may argue that "I know that Claire stole the diamonds" is ambiguous (or *pre-semantically* context-sensitive (see fn. 7)).

## 2. The Experiment

Schaffer and Szabó's main argument for comparativism is question-sensitivity displayed allegedly by both A-quantifiers and "know." They claim that the question-sensitivity of "know" has been empirically confirmed (2014, p. 495). In their paper they describe an experiment designed by Schaffer, which looks as follows.

> Schaffer presented one hundred participants with a vignette that started with:
>
> (*New*) Peter has just smashed the jewelry store window, grabbed the rubies in the display case, and fled the scene. Mary the police detective is now on patrol. By chance, she walks past the jewelry store. She sees the broken glass and can tell that a theft must have just taken place, but she has not yet determined who stole what. So she begins her investigation. She first finds and identifies Peter's fingerprints on the display case, and then she locates the security camera and recognizes Peter filmed in the act of smashing the window. So she says (quite loudly) to herself: "I have no idea what was stolen, but it was clearly Peter who did the stealing." Mary then leaves the scene to file a report.
>
> Fifty of the hundred participants then saw the following continuation:
>
> (*NewWho*) David, who lives just across from the jewelry store, has seen everything from his kitchen window. He has witnessed the theft, watched Mary's investigation, and overheard her concluding words. David is wondering who stole the rubies, and says to himself: "Mary knows that Peter stole the rubies."
>
> The other fifty participants saw the following continuation, differing only in the question David is wondering about in the final sentence:
>
> (*NewWhat*) David, who lives just across from the jewelry store, has seen everything from his kitchen window. He has witnessed the theft, watched Mary's investigation, and overheard her concluding words. David is wondering what Peter stole, and says to himself: "Mary knows that Peter stole the rubies." (Schaffer & Szabó 2014, p. 495).

The result is this:

> Participants—regardless of which continuation they received—were then asked the extent to which they agreed with what David says. The mean agreement rates on a Likert scale from 1 to 7 (with 7 being "completely agree,"4 being "neutral," and 1 being "completely disagree") were 5.05 for *NewWho* and 2.13 for *NewWhat*. (Schaffer & Szabó 2014, pp. 495–496)

They conclude:

> The difference is statistically significant, and the agreement rates straddle the midline, crossing from the "agree" to "disagree" side. Thus it seems as if changing the question under discussion can flip people from agreement to disagreement with a knowledge ascription. (Schaffer & Szabó 2014, p. 496)

My main complaint regarding this set-up is that the experiment is not properly constructed, since the two situations *NewWho* and *NewWhat* differ not only over the question under discussion. In the first situation David, who says to himself "Mary knows that Peter stole the rubies" is either guessing that it is rubies that were stolen or he must have noticed that the thief stole the rubies. Unfortunately we are not told explicitly which is the case. We are told that David has seen everything, has witnessed the theft and is wondering who stole the rubies. Thus the natural presumption is that his seeing everything amounts to seeing the thief stealing the rubies. Presumably he noticed that it is the rubies that were taken but did not recognize the thief. So far so good, but when we move to the second scenario it becomes clear that "seeing everything" does not amount to the same thing there. For in this case David also "has seen everything form his kitchen window." Nevertheless he's wondering what Peter stole. And even if we assume that—as in the previous case—he did not recognize the thief and learned his identity from Mary's concluding words, this time we have to suppose that his seeing everything didn't include noticing that it is rubies that were stolen. Thus, for the *NewWhat* scenario to make sense we have to assume that David didn't notice what was stolen, whereas for the *NewWho* scenario to make sense we have to assume that he did notice that rubies were stolen. (If he didn't, then his claim "Mary knows that Peter stole the rubies" is completely out of the blue.) Since it is clear that Mary doesn't know what was stolen, someone who thinks that David also doesn't know[10] what was stolen *should not* judge his utterance "Mary knows that Peter stole the rubies" as true.[11]

Thus, it seems to me that the experiment has been badly designed and cannot be used to demonstrate question-sensitivity of knowledge ascriptions. Moreover, this experiment seems to strengthen my earlier argument that "Mary knows that Peter stole the rubies" is structurally ambiguous and has different logical forms in different contexts. For while in the (*NewWho*) scenario David could consistently continue "Mary knows that Peter stole the rubies, but she doesn't yet know that it is rubies that were stolen"(esp. if focus is on "Peter"), in the (*NewWhat*) scenario it would be unacceptable. It seems that the ascription "Mary knows that Peter stole the rubies" might be acceptable in three cases: i) independently of context when Mary knows that Peter stole the rubies, and depending on a particular context: ii) when Mary knows that Peter stole something and the ascriptor knows that rubies were stolen, and iii) when Mary knows that rubies were stolen and the ascriptor knows that Peter stole them. If this is correct then the experiment cannot support any view concerning knowledge ascriptions because it is not clear whether participants judge the correctness of the ascription based on what Mary knows or based on what Mary-cum-David know together. It is obvious that Mary has to know something but maybe she does not have to know everything in order for the

[10] Or at least presuppose, believe, suspect etc. Schaffer and Szabó write that "[t]he *New* vignette is designed to address [the concern people might have that in *Who* and *What* scenarios Ann and Ben have different background evidence] by explicitly clarifying exactly what evidence Mary has" (2014, p. 497). It is indeed clear what evidence Mary has, but it is now not clear what evidence David has.

[11] Similarly, Gerken (forthcoming) argues that "Mary knows that Peter stole the rubies" is false, since Mary knows that Peter stole the rubies only if Mary is in a position to know that the rubies were stolen.

participants to judge the ascription as true. This may tell us something about folk epistemology (see Gerken & Beebe, forthcoming, p. 27), but it does not tell us anything about the truth-value of the relevant knowledge ascription in the given contexts.

As I have mentioned above someone who thinks that neither David nor Mary knows what was stolen *should not* judge David's utterance "Mary knows that Peter stole the rubies" as true. If he does, it must be due to inadequate processing of some kind. Schaffer and Knobe mention the phenomenon of shallow processing, which consists in the fact that sometimes people process only partially those parts of the utterance which are not in focus. They allude to the experiment by Erickson and Mattson, who asked people "How many animals of each type did Moses put on the ark?" The majority answered "two" and very few people noticed that the question was about Moses not Noah (Schaffer & Knobe 2012, p. 700). Although Schaffer and Knobe acknowledge that shallow processing may be the reason why people concentrate on "Peter" and pay no attention to "rubies," they go on to argue that there are both a shallow processing and contrasts effect, and in some cases (such as their version of bank-case) shallow processing cannot be appealed to, because in those cases there is no shift in focus and yet in different situations people ascribe different truth-values to utterances "*s* knows that *p*" (see 2012, p. 700). However, here in the *NewWho* scenario, it is very likely that people concentrate on the who-part and process the sentence like "Mary knows that Peter blah blahblah." A similar conclusion is reached by Gerken and Beebe in their recent paper *Knowledge in and out of Contrast* (Gerken & Beebe, forthcoming). In this paper they argue that experimental data is better explained by an invariantist view which postulates some kind of systematic bias (e.g. inadequate processing) than by contrastivism. In particular, they conducted experiments in which the vignettes were similar to our (*Who*) and (*What*) vignettes but the knowledge ascriptions were about sapphires and the 4.76 carat diamond set on an amethyst encrusted platinum necklace from the 17th century and not about rubies (i.e. the vignette started with "Peter stole the rubies" and ended with "Mary knows that Peter stole the sapphires" or "Mary knows that Peter stole the 4.76 carat diamond set on an amethyst encrusted platinum necklace from the 17th century"). They report that:

> the present data set is that the inclination to agree with the knowledge ascription decreases when the jewelry in the complement clause is not the object of theft described in the vignette. Moreover, the data set suggests that agreement with the knowledge ascription decreases *more* in the diamond case in which the substitution is easier to detect. (Gerken & Beebe, forthcoming, p. 21)

This result is very hard to explain in the framework of contrastivism, because contrastivism assumes factivity of knowledge and therefore it is forced to acknowledge that both these ascriptions are false. At the same time it assumes that people's judgements concerning the truth-value of knowledge ascriptions reflect their semantic competence with the word "know" (see Gerken & Beebe, forthcoming, p. 21). It is by no means obvious how to make these two claims compatible. The result is much more easily explained within a view—such as the psychological bias views—which admits that the relevant ascriptions are false and are mistakenly evaluated as true. Gerken and Beebe go on to claim that not only do contrast effects not reflect semantic competence but "they can make participants agree with knowledge ascriptions that are false" (forthcoming, p. 21).[12] They focus on contrastivism and

[12] Gerken and Beebe argue for the focal bias account, which is different from shallow processing in that the latter is a kind of performance error whereas the former is a systematic bias account. "According to the focal bias account, the epistemically relevant 'rubies' component is not adequately processed unless it is in focus" (Gerken & Beebe, forthcoming, p. 11).

not on comparativism, but the difference between these two views is not important in this context. Comparativism also assumes the factivity of knowledge and presupposes that speakers' judgements concerning the truth-value of knowledge ascriptions reflect their semantic competence. If the experimental data are to be believed then it appears that a significant number of people are inclined to treat clearly false knowledge ascriptions as true. The explanation consistent with the data might be that they do not notice that the relevant ascription is false and this explanation gains support in the fact that the more perspicuous the substitution which makes the ascription false the smaller the number of people who regard it as true. Such an explanation is available neither to contrastivists nor to comparativists.

## 3. Presupposition-Sensitivity and Epistemic Contextualism

In order to ask the question,

Who stole the rubies?

one must at least assume that the rubies were stolen, while someone who (seriously) asks,

What did Peter steal ?

clearly does not assume that Peter stole the rubies. The two situations described differ with respect to knowledge/presuppositions/beliefs of the participants. Schaffer and Szabó notice that the restriction on the domain of situations relevant to the truth-evaluation of "Claire always steals the diamonds" is not the question under discussion itself, but rather its presupposition (2014, p. 523). Thus, if the question under discussion is the question of who stole the rubies, the presupposition of this question is that someone stole the rubies; and it is this proposition that will restrict the domain of situations that need to be taken into account. On the other hand, if the question under discussion is the question of what Claire stole then the presupposition is that Claire stole something, so the relevant domain will comprise only such situations in which Claire steals something. However, it seems that this explanation doesn't square with the supposed question-sensitivity of such statements and moreover it is hard to see how it could be used to motivate epistemic contextualism. Take (*What*) and (*Who*) again. First, if it is the presupposition that does the restricting, then claims "I know that Claire stole the diamonds" are question-sensitive only in a derivative sense. They are sensitive to presuppositions, not to questions as such. It will be evident if we consider a scenario in which Claire has stolen the diamonds, Ann and Ben are investigating the theft, but do not know yet who stole what. Ann finds Claire's fingerprints all over the safe. She has to report her findings to Mary who upon seeing her asks: Do you know who stole the diamonds? Claire would not respond with

I know that Claire stole the diamonds,

unless she had reasons to believe that Mary gained knowledge that it is diamonds that have been stolen from some independent source. If she is cautious and has no such reasons she should not answer in this way. Thus, although the presupposition in question has in this case been introduced to the discourse by Mary's question, the truth of "I know that …" is not question-sensitive but presupposition sensitive. Moreover, those presuppositions do not have to be introduced into the context by questions.

What is more important, admitting that it is presuppositions of the questions that knowledge ascriptions depend upon, seems to give the game away. As far as I understand it the main contextualist claim is that the truth-value of knowledge ascriptions such as "*S* knows that *p*" may be different in different contexts in which the evidence that *S* possesses is held constant. Any reasonable view concerning knowledge ascriptions will have it that as the evidence *S* has for *p* changes, the truth-value of "*S* knows that *p*" may also change. You don't have to be contextualist to believe that if I know that Claire stole something but don't know what, my claim "I know that Claire stole the rubies" is false and if I know that Claire stole the rubies then my utterance "I know that Claire stole the rubies" is true. So it is not clear how the claim that knowledge ascriptions are presupposition-dependent can be used to motivate a contextualist view.

In (*What*) scenario Ann's claim:

I know that Claire stole the diamonds.

is simply unjustified. From the justification point of view it is no better than:

I know that Claire stole the rubies.

The only difference is that the former is true, while the latter is not, but Ann has no means of knowing that.

Moreover, sensitivity to presuppositions persists even if the question under consideration is the same. Consider the following scenarios:

(*WhoWhat*) Claire has stolen the diamonds. Ann and Ben are investigating the theft. They wonder who stole what. They notice that diamonds are missing and Ann finds Claire's fingerprints all over the safe. So Ann says to Ben:

1. I know that Claire stole the diamonds.

(*WhoWhat*) Claire has stolen the diamonds. Ann and Ben are investigating the theft. They wonder who stole what. Ann finds Claire's fingerprints all over the safe. So Ann says to Ben:

1. I know that Claire stole the diamonds.

We might agree that in the former case 1 is true, while in the latter it is false. The question under discussion is the same in both cases (who stole what), but the presuppositions Ann and Ben make are different. This is enough to influence the truth-value of the relevant knowledge ascription.

Therefore it seems that all the above scenarios demonstrate a fairly uncontroversial claim that knowledge ascriptions are presupposition-dependent. Admittedly knowledge ascriptions are question-sensitive in a sense that different questions serve to highlight different parts of those ascriptions (who-questions will put the focus on the agent and what-questions on the object) and hence may influence people's readiness to accept a given ascription, but the truth-value of such ascriptions depends on the presuppositions rather than questions themselves. Asking a question is just one way of introducing a presupposition into the discourse.

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