A Slugfest of Intuitions: Contextualism and Experimental Design

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> A disagreement as to what we should say is not to be shied off, but to be pounced upon; for the explanation of it can hardly fail to be illuminating.
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> –J.L. Austin, "A Plea for Excuses"

Abstract

Evidence for contextualism primarily consists of intuitions generated in response to a variety of thought experiments. I argue that these intuitions are subject to experimenter bias and bias that results from exclusive reliance on absolute truth-value judgments. Unless these forms of experimental bias are controlled for, both contextualists and their opponents are attempting to give semantic and pragmatic explanations of what turn out to be mere experimental artifacts. I show how features of experimental design affect the intuitions generated by contextualist thought experiments and I improve contextualist methodology by developing modified versions of contextualist thought experiments that control for these forms of bias.

1. Contextualism and Experimental Design: An Overview

"Contextualism" is the name for a family of semantic and pragmatic theories, all of which reject the following minimalist claim about the interaction of context and linguistic meaning:

- Minimalism: The only effect that context has on the content of what is literally said by an utterance is that it determines the content of expressions in the "Basic Set" of obviously context-sensitive expressions (Cappelen and Lepore, 2005).[1]

The phrase "slugfest of intuitions" comes from Berg (2002).

[1] The "Basic Set" includes indexicals like "I", "here", and "today", demonstratives like "you", "she", and "that", and adjectives like "actual" and "present". For the full list of items in the Basic Set, see Cappelen and Lepore (2005, p. 1).

That is, contextualism (in the most inclusive sense) is committed to the existence of unobvious forms of context-sensitivity. This is a descriptive claim—it is neutral between different ways of explaining the context-sensitivity that goes beyond the contribution that context makes to the determination of the content of expressions in the Basic Set.[2]

Contextualists of all stripes share an important methodological assumption with mainstream research in other areas of linguistic theory. The methodological assumption is that the linguistic intuitions of competent speakers (often the intuitions of the theorists themselves) are a source of reliable evidence of linguistic facts.[3] The primary source of evidence for contextualism consists in linguistic intuitions elicited in response to thought experiments. Contextualist thought experiments usually involve pairs of brief vignettes that describe different contexts in which a particular sentence is uttered. Contextualists report that semantically relevant properties of utterances of the relevant sentence (like truth value, or what the uttered sentences say) differ in the two contexts they describe.[4] The fact that semantically relevant properties of the uttered sentence vary in the two contexts

[2] Stern (2009, p. 2) draws the helpful distinction between descriptive and explanatory methods of classifying positions in the contextualist debate. Stern makes a further distinction between "Contextualists" and "Literalists" to register a distinction between different kinds of explanation of context-sensitivity. "Literalists" explain truth-conditional variation "in terms of underlying semantic structure in accordance with the principles of compositional semantics", while "Contextualists" "explain that variation entirely in terms of extra-semantic principles". I want to retain a purely descriptive sense for "contextualism" so that there is terminological continuity between debates about contextualism in neighboring areas of philosophy like epistemology and ethics and the debates that take place in philosophy of language under the heading of "contextualism".

[3] For a representative statement of the role of intuitions (or judgments) of competent speakers as evidence for semantic theory, see Larson and Segal (1995, p. 9). Cappelen and Lepore (2005, p. 87) make the connection with contextualism: "There is a sense . . . in which [contextualism] is an empirical thesis, based as it is on a variety of contingent features about human psychology, in particular, based on the contingent fact that we happen to have certain intuitions".

[4] There are other ways of generating evidence for linguistic theories data besides eliciting intuitions. A simple alternative would be to ask subjects to point at a relevant object or arrange a set of color samples, or some other relevant practical task in response to linguistic prompts (Krifka, forthcoming).

is a piece of data that contextualists claim can't be plausibly explained by non-contextualist semantic theories. A standard way of responding to contextualism involves giving a non-semantic explanation of the intuitions generated by contextualist thought experiments (in terms of Gricean implicature, for example).[5]

In this paper, I develop a novel way of challenging contextualism, by arguing that in certain cases the intuitions generated by contextualist thought experiments are influenced by the *design* of the thought experiments. In other areas of inquiry, it is known that the design of experiments can affect the data the experiments generate, yielding data that are artifacts of the particular ways the experiments are set up, rather than evidence of what the experiments were intended to test for. This kind of interference has received hardly any attention in the literature on contextualism, even though the epistemic credentials of linguistic intuitions in neighboring fields, like syntactic theory, has been a topic of serious debate for decades (Schütze, 1996), and the general reliability of intuitions in philosophy has recently become a topic of intense investigation (DePaul and Ramsey, 1998; Hintikka, 1999; Knobe and Nichols, 2008; Weinberg, 2007; Williamson, 2008).

I argue that intuitions generated by contextualist thought experiments are affected by *experimenter bias* and an *exclusive reliance on absolute truth value judgments.* Experimenter bias is an effect generated when, for example, experimenters disclose (even unconsciously) their own beliefs about the "correct" response to an experiment. Eliminating experimenter bias makes it far less obvious what the "intuitive" responses to the contextualist thought experiments are. Exclusive reliance on absolute truth value judgments may produce experimental artifacts by forcing subjects of experiments to choose less than optimal responses. Opening up the range of possible responses to

[5] Sainsbury (2001) and Rysiew (2002, 2005) offer pragmatic explanations of contextualist data.

certain experiments substantially changes the data that they generate.

After showing how these different kinds of bias affect the intuitions generated by contextualist thought experiments, I revise contextualist thought experiments in order to control for these sources of bias. I argue that contextualists and their opponents have been drawing conclusions from unreliable data, and I conclude that participants in the contextualist debate need to thoroughly reconsider their experimental methodology before the debate can make significant progress.

2. Milk and Banks: Contextualist Intuitions

Contextualist thought experiments typically have the following form: they describe two different contexts C1 and C2 in which one is meant to evaluate the truth of a given target sentence TS. In each of the two contexts, there is a state of affairs SoA that remains fixed. SoA is intuitively what the sentence TS is about. The two contexts differ only in certain background conditions. The person imagining the two contexts is supposed to feel an intuitive change in the truth value (or some other semantically relevant property) of TS when it is evaluated in the two contexts. For example, consider the following contextualist thought experiment involving a refrigerator that is devoid of milk except for a puddle at the bottom of it, a context (C1) in which someone wants milk for his coffee, a second context (C2) in which someone is responsible for cleaning out the refrigerator, and two utterances of the sentence "There's milk in the refrigerator", one in each context:

Milk

C1 Hugo is seated at the breakfast table, reading the paper. And from time to time looking dejectedly (but meaningfully) at his cup of black coffee, which he is idly stirring with a spoon.

C2 Hugo has been given the task of cleaning the refrigerator. He has just changed out

of his house-cleaning garb, and is settling with satisfaction into his armchair, book and beverage in hand.

SoA The refrigerator is devoid of milk except for a puddle of milk at the bottom of it.

TS Odile says to Hugo: "There's milk in the refrigerator" (Travis, 1989, pp. 18-19).

It will be useful to contrast the *milk* thought experiment with a different contextualist example. What follows is a second example of a well-known contextualist thought experiment with a slightly different set up (DeRose's (1992; 2009) bank case), rendered in a schematic format:

Bank

C1 It's not very important that DeRose and his wife deposit their paychecks before Monday morning.

C2 It's very important that DeRose and his wife deposit their paychecks before Monday morning. If they don't, their mortgage check will bounce, and they'll lose their house.

SoA DeRose and his wife are driving past the bank on a Friday afternoon. They notice that the lines inside are very long. DeRose's wife says "Maybe the bank won't be open tomorrow. Lots of banks are closed on Saturdays", and reminds him that the bank is not open on Sunday. She then says, "Do you know the bank will be open tomorrow?" DeRose was at the bank two weekends ago and checked their hours. And the bank is open on Saturday.

TS1 DeRose says "I know the bank will be open" in C1.

TS2 DeRose says "I don't know the bank will be open" in C2.[6]

[6] This is a modification of DeRose's original description of the thought experiment, incorporating changes suggested in Leite (2005, p. 102) and Schaffer (2006). DeRose offers reasons (based on the existence of what he calls a "truth-falsity asymmetry" in DeRose (2005)) in favor of asking for intuitions in response to TS in C1 and the contradictory of TS in C2. DeRose argues that it is less likely that one will mistake a false but appropriate utterance for a true utterance than that one will mistake a true but inappropriate utterance for a false utterance. He concludes that the contextualist should set up her thought experiments in such a way that subjects are being asked to judge utterances to be true in both contexts, rather than asking them to judge utterances that turn out to be true in one context and false in another to minimize the chance of mistaking appropriateness for truth value. I think there are two good reasons not to adopt DeRose's approach: He underestimates the likelihood of saying something that is both false and conversationally appropriate, and

Milk and *bank* are thought experiments: One is asked to imagine a situation and record one's intuitions about whether what an uttered sentence says truly describes the situation in two different contexts. The elicited intuitions are the data that contextualist and non-contextualist theories aim to explain.

Contextualists' own intuitions about these examples are presented as clear and definitive. For example, consider Travis's response to the *milk* case. He says:

> Odile's words in the first case said what was false, while in the second case they said what was true. Both spoke of the same state of the world, or the same refrigerator in the same condition. So, in the first case, the words said what is false of a refrigerator with but a milk puddle; in the second case they said what is true of such a refrigerator. Optionally we may also say that what was said in the words in the first case differs from what was said in those words in the second (Travis, 1989, pp. 18-19).

And DeRose's response to his version of the *bank* case goes as follows:

> It seems to me that (1) when I claim to know that the bank will be open on Saturday in [C1], I am saying something true. But it also seems that (2) I am saying something true in [C2] when I concede that I don't know that the bank will be open on Saturday (DeRose, 1992, p. 914).

Contextualists like Travis and DeRose present their intuitions about the context-shifting experiments without considering the plausibility of other possible intuitions, and without making sure that their own intuitions aren't influenced by a variety of different sources of bias or idiosyncratic features of the way the thought experiments are constructed.[7]

Though there is massive disagreement about how best to *explain* the intuitions elicited by the contextualist thought experiments, there is widespread agreement in the

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there is empirical evidence that subjects are more prone to make mistakes when verifying true negative statements (like the contradictory of TS) than when verifying false affirmative statements (Wason, 1961).

[7] Szabó (2006, p. 37) suspects that intuitions generated by one of the contextualist thought experiments in Cappelen and Lepore (2005) is unreliable "because it starts with dogmatic claims that distort the readers subsequent intuitions".

literature about the intuitions themselves. Those intuitions are the empirical foundation of the sprawling contextualist debate. The eliciting of intuitions in response to contextualist thought experiments is an example of what Wittgenstein (1958, §308) calls "the decisive move in the conjuring trick"—the essential, but unquestioned, first step in an argument that has increasingly complex conclusions and counter-arguments. It is worth paying close attention to that decisive move. In the following sections, I will raise specific worries about the way intuitions are wrung from the contextualist thought experiments, and make positive proposals for how to address those worries.

3. Experimenter Bias

The most obviously troubling aspect of the contextualist thought experiments is that they are always immediately followed by statements of what the "intuitive" way to respond to them is. After setting up the examples, the standard contextualist move is to immediately assert that there *is* intuitive variation in truth value or what is said by utterances of target sentence TS.[8]

What is troubling about these claims accompanying the contextualist thought experiments is that they violate a basic condition of the collection of reliable evidence—that the experimenter does not significantly bias the evidence she generates. Experimenters in the physical and behavioral sciences go to great lengths to identify and eliminate sources of experimenter bias. One famous example of how experimental results can be undermined when it is discovered that the experimenter is influencing his

[8] This is not a problem unique to contextualism. In a defense of contextualism, Schaffer (2006, p. 88) points out that advocates of subject-sensitive invariantism (such as Stanley (2005)) present the thought experiments that generate the intuitions their theories are meant to explain in "a biasing manner" because they "explicitly include the SSI-ers preferred verdicts".

subjects is the case of "Clever Hans" (Pfungst, 1911).[9]

Clever Hans was a horse who seemed capable of solving basic arithmetical problems, indicating the correct answer by tapping his hoof an appropriate number of times. Initial investigation confirmed Hans's surprising ability; people other than Hans's trainer could ask Hans arithmetical questions and reliably get correct answers (Boakes, 1984, p. 78). But through systematic observation and experiment, the psychologist Pfungst was able to determine that Hans reliably produced correct answers only when he could see his questioner. Then Pfungst showed that he could start Hans tapping simply by inclining his head forward slightly, without asking a question, and that he could get him to stop with a "slight upward jerk of the head" (Pfungst, 1911, p. 47). It was these unconscious movements of the experimenter that had been cueing Hans all along. The case of Clever Hans is a vivid illustration of how experimenters can believe that they are uncovering evidence of one phenomenon, like Hans's apparent knowledge of arithmetic, when in fact they are discovering only the effects of their own behavior and attitudes.

There is evidence that an experimenter's expectations, even when not made explicit, can influence the performance of human subjects (Rosenthal, 1976, Ch. 8). And when, as there is in the contextualist thought experiments, there is "a significant relationship between the experimenter's own performance of the particular task he requires of his subjects and the performance he obtains from his subjects, we may speak of an experimenter's 'modeling' effect" (Rosenthal, 1976, p. 112), which involves experimental subjects modifying their performance in response to the performance of the experimenter. Looking back at the contextualist thought experiments with those kinds of experimenter effects in view, it is remarkable that the expectations and biases

[9] Krifka (forthcoming) remarks on the importance of controlling for experimenter effects in semantic theory and the relevance of the case of Clever Hans.

of the experimenters are explicitly stated before readers have a chance to mull over the thought experiments on their own. It is therefore a reasonable worry that the appearance of agreement in intuitions about the contextualist thought experiments is the result of experimenter bias.[10]

For an example of a contrasting, more powerful methodology, consider J.L. Austin's famous way of distinguishing the subtly distinct meanings of "mistake" and "accident". He describes two different situations about which the reader is asked to judge whether "by mistake" or "by accident" is the appropriate description:

> You have a donkey, so have I, and they graze in the same field. The day comes when I conceive a dislike for mine. I go to shoot it, draw a bead on it, fire: the brute falls in its tracks. I inspect the victim, and find to my horror that it is *your* donkey. I appear on your doorstep with the remains and say—what? 'I say, old sport, I'm awfully sorry, &c., I've shot your donkey *by accident*'? Or '*by mistake*'? Then again, I go to shoot my donkey as before, draw a bead on it, fire—but as I do so, the beasts move, and to my horror, yours falls. Again the scene on the doorstep—what do I say? 'By mistake'? Or 'by accident'? (Austin, 1979, p. 185 n. 1)

The power of Austin's thought experiment derives, in part, from the fact that he doesn't assert what he thinks the "intuitive" response is. The (more or less) spontaneous convergence of opinion among those who read the example without any coercion by the author is better evidence of genuine agreement in intuitions.[11]

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[10]Sorenson (1992, p. 82) observes that "the causal presentation of thought experiments also gives wider play to interviewer bias; the questioner is apt to ask the question in a way that gives some answers and illicit boost".

[11] There may be subtle order of presentation bias built into Austin's donkey example as well: Austin switches the order in which the options are presented so that the preferred response is given second in each case. Here is a modified version of Austin's example that switches the order of presentation:

> You have a donkey, so have I, and they graze in the same field. The day comes when I conceive a dislike for mine. I go to shoot it, draw a bead on it, fire—but as I do so, the beasts move, and to my horror, *yours* falls. I appear on your doorstep with the remains and say—what? 'I say, old sport, I'm awfully sorry, &c., I've shot your donkey '*by accident*'? Or '*by mistake*'? Then again, I go to shoot my donkey as before, draw a bead on it, fire: the brute falls in its tracks. I inspect the victim, and find to my horror that it is your donkey. Again the scene on the doorstep—what do I say? 'By mistake'? Or 'by accident'?

My intuitions about how to characterize each situation are scrambled by the rearrangement.

The contextualist thought experiments would become more credible sources of evidence if they were not always closely conjoined with forceful assertions of the contextualists' own intuitions about what to say in response to them. If the thought experiments reliably generate contextualist intuitions, why not let them speak for themselves? In §2 above, in my presentation of the contextualist *milk* and *bank* thought experiments, I have separated the contextualists' intuitions from the experimental set up, to allow the examples some breathing room. I think (and readers of this paper should confirm for themselves) that doing so makes it less obvious what the "intuitive" response to the cases really is than when the cases are immediately followed by an assertion of the contextualist's own intuitions about each case (as they are in the texts from which the thought experiments are drawn).[12]

A different approach to controlling for experimenter bias involves *counterbalancing* opposed biases (this approach is suggested in Rosenthal (1976, pp. 335-337)). So, for example, instead of trying to expunge bias from the presentation of the contextualist thought experiments, one might instead present sets of examples that agree on the facts but which are accompanied by opposed statements of how to respond to the described situation. The experimenter could then present the contextualist thought experiment, followed by the set of different possible evaluations of the truth value of what is said by utterances of the target sentence TS, and ask the subject to judge which evaluation she finds most intuitive. DeRose's *bank* case could be easily modified to control for experimenter bias by supplying a set of opposed evaluations:

[12] Schaffer (2006) modifies the thought experiments in Stanley (2005) to try to eliminate the presence of experimenter bias in this way.

Table 1: Counterbalancing Experimenter Bias in the *Bank* Case

Evaluation *T/T*	Evaluation *F/F*
What DeRose says in C1 is true and what he says in C2 is also true.	What DeRose says in C1 is false and what he says in C2 is also false.
Evaluation *T/F*	**Evaluation *F/T***
What DeRose says in C1 is true, and what he says in C2 is false.	What DeRose says in C1 is false, and what he says in C2 is true.

I would hypothesize that, even though this modification of the set-up of the thought experiment might not change the mind of anyone whose opinions about this debate are already hardened, if responses to the contextualist thought experiments were presented as they are in Table 1, there would be a noticeably greater variation in reported intuitive responses to the contextualist thought experiments in subjects with virgin intuitions.

Controlling for experimenter bias, both as it affects subjects without antecedent commitments to positions in the contextualist debate, and as it affects theorists themselves, is a small first step towards making the data generated by contextualist thought experiments more reliable evidence of semantic and pragmatic facts. In the next section, I consider another problematic aspect of contextualist methodology.

4. Exclusive Reliance on Absolute Truth-Value Judgments

I am unaware of any contextualist who considers what sometimes strikes me as the most plausible response to their thought experiments: a shrug of the shoulders. Consider DeRose's *bank* case. When DeRose's character in the story says "I know the bank is open" in C1, does he say something true? I'm not all that sure about what to say in that case, or what to say in case C2. That's partly to do with the fact that I'm not sure what,

exactly, it takes to *know* something. (I assume I'm not alone.) The contextualist should be interested in the variety of different responses that her experiments provoke, including the experimental subject's unwillingness to judge that a sentence is true or false in a given context (which might be taken as evidence of presupposition failure, for example).[13]

Though the range of possible intuitions about what is said in contextualist thought experiments is not explicitly limited to intuitions about truth and falsity, contextualists implicitly limit the possible range of response to those two options by not making the possibility of different kinds of responses salient. One way of opening up the space of possible responses to the contextualist thought experiments (besides acknowledging the possibility of a "don't know" response, or saying that the question of truth and falsity doesn't arise) would be to allow for the possibility of what Unger (1982, pp. 118-119) has called *dominant* and *dominated* responses to thought experiments. A dominant response is felt more strongly than a dominated response, but both responses are felt to be plausible to some degree.

Unger considers Putnam's robot cat thought experiment, which asks us to imagine a world in which "there never have been any cats", and in which everything we have thought to be a cat is in fact an artifact,

> Every movement [of which], every twitch of a muscle, every meow, every flicker of an eyelid is thought out by a man in a control center on Mars and is then executed by the cat's body as the result of signals that emanate not from the cat's 'brain' but from a highly miniaturized radio receiver located, let us say, in the cat's pineal gland (Putnam, 1979, pp. 238-239).

[13] The response offered by Strawson (1950, p. 330) to someone asserting "The king of France is wise" is sometimes taken to be evidence of presupposition failure:

> Now suppose someone were in fact to say to you with a perfectly serious air: "The king of France is wise". Would you say, "That's untrue?" I think it's quite certain that you wouldn't. But suppose he went on to ask you whether you thought that what he had just said was true, or was false; whether you agreed or disagreed with what he had just said. I think you would be inclined, with some hesitation, to say that you didn't do either; that the question of whether his statement was true or false simply didn't arise, because there was no such person as the king of France.

In the scenario Putnam imagines, the following three individually plausible claims cannot all be true:

1. There are cats.
2. Cats are animals.
3. No animals are robots.

Putnam considers the different possible reactions that one might have to the thought experiment, each of which involves giving up one of the three claims:

> My own feeling is that to say that cats turned out not to be animals is to keep the meaning of both words unchanged. Someone else may feel that the correct thing is to say is [sic], "It's turned out that there aren't and never were any cats". Someone else may feel that the correct thing to say is, "It's turned out that some animals are robots" (Putnam, 1979, p. 239).

Unger agrees with Putnam that his "dominant" response to the thought experiment is to reject the claim that cats are animals, but he notes a "dominated" response that aligns with Katz's intuition (cited in Putnam (1975, p. 243-244)) that in the scenario Putnam imagines, the correct thing to say is that "it's turned out that there aren't and never were any cats". Unger feels the pull of both the dominant and the dominated responses at the same time. That more complex intuition can be represented by a ranking of the possible responses to the robot cat thought experiment considered by Putnam, rather than an all-or-nothing choice for one response. The same "quest for the elusive correct intuition" that Unger resists in the case of Putnam's thought experiment can be resisted in the contextualist thought experiments as well, by acknowledging the possibility of dominant and dominated responses.

Even without adding the possibility of responding to the contextualist examples with a shrug of the shoulders, there are four different combinations of truth-value judgments that a subject could make in response to a given contextualist thought

experiment. For example, in the milk case, one's judgments about the truth value of the target sentence "There's milk in the refrigerator" in C1 and C2 might align themselves in any of the four following ways:

Table 2: Intuitions about What is Said by Utterances of "There is milk in the fridge" in the *Milk* Case

C1: Coffee Context	C2: Cleaning Context	
True	True	
True	False	
False	True	(Contextualist Intuition)
False	False	

I feel the pull of the contextualist intuition (F/T) about the *milk* case, but I feel it less strongly than I do the intuition that what is said by utterances of "There is milk in the fridge" is *true* in both C1 and C2 (T/T). After all, there *is* milk in the fridge in both contexts (namely, a puddle of milk). In Unger's terminology, the T/T intuition is *dominant* and the F/T intuition is *dominated*.

One interesting consequence of keeping all of the different possible combinations of truth-value judgments in view at once is that two possibilities seem far less plausible than either the contextualist intuition (F/T) or the invariantist intuition (T/T), namely (T/F) and (F/F). Whether one finds the contextualist intuition (F/T) or the intuition (T/T) about the *milk* case more plausible, it seems hard to deny that both of those two options are much more plausible than either (T/F) or (F/F). That might cut through an apparent disagreement to reveal a widespread agreement in intuition, though the agreement is not agreement that there is a single, correct response to the *milk* case.[14]

[14] Labov (1975, p. 104) recommends this approach: "There is no reason to confine the notion of a 'clear case' to categorical judgments. We can equally well find a consistent gradient, where speakers are uncertain or intermediate in their responses in a consistent way…". Weinberg (2007, p. 335) observes that "gradation [in intuitions] is largely unexplored—and unexploited—by current philosophical practice". But, as pointed out in Schütze (1996, p. 62), linguists have acknowledged that judgments of linguistic

Once room is made for judgments that are more nuanced than simple all-or-nothing decisions in favor of one intuitive response to a thought experiment, there are different, more or less fine-grained options for how to structure the scale on which possible responses are ordered. The simplest approach to ranking responses is to order them on an ordinal scale, where no difference in order of magnitude between responses is recorded. So, for example, an ordinal ranking of responses to the milk case might simply rank (T/T), the most plausible response as #1, (F/T) as #2, and (F/F) and (T/F) as equally implausible at #3 on the scale. But the ordinal ranking of responses to the *milk* case doesn't represent the substantial difference in plausibility between #2 and #3. To register that difference, one might employ an interval scale (such as a Likert Scale[15]), or what has been called *magnitude estimation*, which relies on a ratio scale. Magnitude estimation was originally developed as a method enabling subjects to measure differences in the brightness and loudness of stimuli:

> Once the initial stimulus, or modulus, is presented and a number associated with it by experimenter or subject, the subject assigns to each successive stimulus a number reflecting the relationship between that stimulus and the modulus. Subjects are explicitly instructed to reflect perceived ratios in their judgments: a stimulus that appears to be 10 times as bright as the first is to be given a number 10 times the original number; one that seems one-third as bright is given a number one third the size. However bizarre they may find the task at first, normal adults can reliably perform it for a large number of physical continua (Bard et al., 1996, p. 40).

The same procedure can be applied to subjects' responses to linguistic phenomena (Bard et al., 1996; Myers, 2009). The modulus in the *milk* case would be one of the four possible pairs of responses given above. Once the modulus is assigned an arbitrary numerical value, the other possible responses can then be assessed in terms of their

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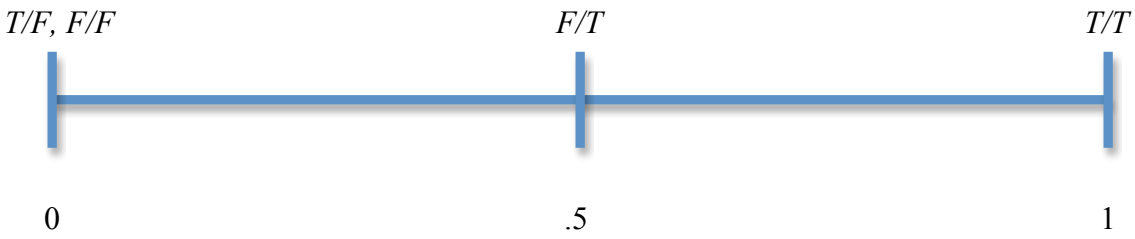
acceptability come in various degrees of strength at least since Chomsky (1985) (Chomsky's thesis from 1955/56). Chomsky says that "there is little doubt that speakers can fairly consistently order new utterances, never previously heard, with respect to their degree of 'belongingness' to the language" (p. 132). See Schütze (1996, pp. 62-81) for discussion of gradability of intuitions in linguistics.

[15] A Likert Scale allows subjects to rank their attitude towards a claim, usually on a five-point scale from 1 (strongly disagree) to 5 (strongly agree).

relative plausibility relative to the modulus. That kind of ranking would be able to indicate the fact that (F/T) and (T/T) are both plausible, though (T/T) is the most plausible of the two responses, and indicate that (F/F) and (T/F) are equally implausible—both are *not at all plausible* (which the ratio scale is able to represent because it employs a value of absolute zero (Stevens, 1946, p. 679)):

Figure 1: Magnitude Estimation for the *Milk* Case



(The details of other subjects' responses to the milk case would likely differ in detail from my response represented in Figure 1.)

The theory that best explains consistent groupings and the relative plausibility of intuitions would then have an explanatory advantage over its rivals. For example, the classical explanation for the plausibility of both the T/T intuition and the contextualists' F/T intuition would appeal to the invariant truth condition of "There is milk in the fridge" to explain the T/T intuition and invoke the Gricean theory of conversation to account for the contextualist intuition (F/T): In C1, the speaker generates a false implicature (to the effect that there is milk in the refrigerator in a way relevant to the addressee) by violating the maxim of relevance.[16]

In addition to shifting from absolute truth-value judgments to preferential ranking of truth-value judgments, there is another way of generating interesting data

[16] A standard Gricean explanation of the more nuanced intuitions generated by the modified *milk* case would have to be supplemented to explain why the T/T intuition is dominant, and the intuition F/T is dominated. And the Gricean account does not offer a prima facie plausible explanation of the intuitions generated by the modified *bank* case, discussed below.

out of the contextualist experiments. J.L. Austin suggests how this might be done. Considering the question whether "France is hexagonal" is true or false, Austin responds as follows:

> Suppose that we confront 'France is hexagonal' with the facts, in this case, I suppose, with France, is it true or false? Well, if you like, up to a point; of course I can see what you mean by saying that it is true for certain intents and purposes. It is good enough for a top-ranking general, perhaps, but not for a geographer. 'Naturally it is pretty rough', we should say, 'and pretty good as a pretty rough statement'. But then someone says: 'But is it true or is it false? I don't mind whether it is rough or not; of course it's rough, but it has to be true or false—it's a statement, isn't it?' How can one answer this question, whether it is true or false that France is hexagonal? It is just rough, and that is the right and final answer to the question of the relation of 'France is hexagonal' to France. It is a rough description; it is not a true or false one (Austin, 1975, p. 143).

Austin's reply suggests that there should be another option, besides *true*, *false*, and *don't know* available to the experimental subject: One should feel free to give description of the contextualist cases, unconstrained by a limited set of options.[17] For example, my unconstrained responses to the contextualist examples introduced above go as follows:

> *It's misleading to say 'there's milk in the refrigerator' in C1 of the* milk *case, but strictly speaking it's an accurate thing to say. After all, there is milk in the refrigerator— namely, a puddle of milk.*
>
> *Sometimes I'm inclined to say that DeRose's character knows that the bank is open in C1 and that he doesn't know in C2, but other times I think that he doesn't know in C2, and if he doesn't know in C2, then he doesn't know in C1; and still other times I think that he knows in C1, and if he knows in C1, then he knows in C2. So you could say I don't know what to think about the* bank *case, or that I do, but that what I think is very unstable.*

I expect that other subjects' responses to these cases would both align and differ with my descriptions in interesting ways.[18] Furthermore, it would be worth considering whether

[17] This data-gathering strategy is called 'elicited production' in language acquisition research (Krifka, 2009).

[18] Consider Fodor's unconstrained response to Travis's (2000) example concerning whether the sentence "The ink is blue", said of ink that looks blue in the bottle but writes black, changes its truth

the kinds of unconstrained responses that subjects give to the contextualist experiments differ substantially from the responses the same subjects give when offered only the choice between saying that the target sentences are true or false. It would be interesting, for example, if subjects who initially shared contextualist intuitions about the target sentences in the thought experiments when the only possible responses were *true* and *false* had substantially different intuitions when allowed to give an unconstrained response. If it turned out that there was a significant difference, that would indicate that the limited range of choices (*true* or *false*) made salient in the usual way of framing the contextualist thought experiments was itself partly responsible for generating the intuitions that are usually taken as evidence in favor of contextualism.

The point of considering dominated as well as dominant responses, allowing subjects to rank different responses in order of plausibility, and allowing unconstrained responses to the contextualist thought experiments is to both enrich the data available for linguistic theories to explain and to control for different kinds of experimental bias. Once options are expanded beyond the stark choice between *true* and *false*, it is far from obvious that intuitions line up in the neat way that contextualists claim.[19]

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value in different contexts—Fodor says, "blue ink is unequivocally ink that's blue in the bottle, not ink that writes blue" (Fodor, 2003, p. 104 n. 25).

[19] Rather than try to explain the existence of divergent intuitions, some contextualists have opted to attack the legitimacy of competing (non-contextualist) intuitions, as in Crary (2007, p. 76). Defending contextualism, Crary describes a standard contextualist case in which intuitions about the truth value of what is said by utterances of a sentence change in different contexts. She then considers "a critic" who might disagree with these intuitions:

> Admittedly, a critic might want to reject the idea that the example illustrates [a change in truth value in the two contexts] and to argue instead that the sentence as uttered in both scenarios has the same truth value. But it is not clear what could underwrite this person's argument, justifying her in drawing either the conclusion that what A says in both cases is true or the conclusion that what she says in both cases is false (Crary, 2007, p. 76).

The problem with this kind of response is that there is no *argument* on offer yet, just the reporting of

5. Methodological Recommendations and a Conclusion

The contextualist debate revolves around intense discussion of how best to explain the intuitions generated by contextualist thought experiments. Participants in the debate seem to share a sense that intuitions about contextualist cases are clear-cut and widely shared. I think that contextualists seriously misjudge the clarity of the intuitions their cases generate, and that the way that they have gone about eliciting intuitions has produced a false sense of uniformity in intuitions, so that we really have little (if any) reliable evidence of what the underlying linguistic facts are. But the proper response to these worries is not despair; I have made modest recommendations for how to modify the contextualist thought experiments in order to control for different sources of bias. In this final section of the paper, I will show how the contextualist thought experiments look once these modifications are made.

*Bank**

Consider DeRose's *bank* case again, the basic features of which I described above in §2, but modified to avoid the kind of unreliability introduced by DeRose's practice of eliciting intuitions about what is said by utterances of a target sentence and the contradictory of the target sentence (see footnote 6), in the following way:

C1 It's not very important that DeRose and his wife deposit their paychecks before Monday morning.

C2 It's very important that DeRose and his wife deposit their paychecks before Monday morning. If they don't, their mortgage check will bounce, and they'll lose their house.

---

intuitions. And there is usually no need to offer reasons that *underwrite* one's intuitions; one simply has them. Crary's response doesn't treat divergent intuitions as interesting data, but as simply incorrect. But that fails to appreciate that intuitions are an important source of evidence we have that contextualism is true (or false).

SoA DeRose and his wife are driving past the bank on a Friday afternoon. They notice that the lines inside are very long. DeRose's wife says "Maybe the bank won't be open tomorrow. Lots of banks are closed on Saturdays", and reminds him that the bank is not open on Sunday. She then says, "Do you know the bank will be open tomorrow?" DeRose was at the bank two weekends ago and checked their hours. And the bank is open on Saturday.

TS DeRose says "I know the bank will be open" (in both C1 and C2).

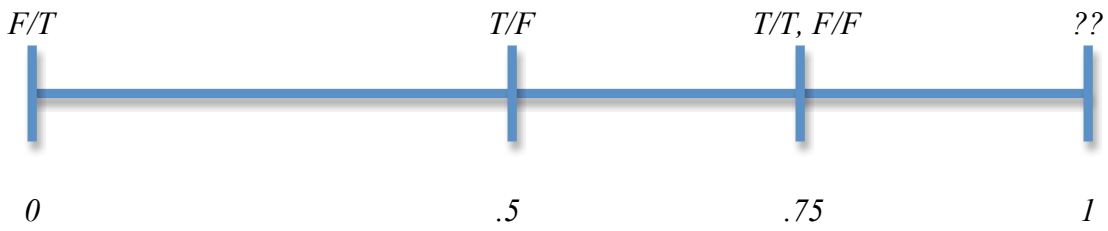
While considering what is said by TS in C1 and C2, assign an arbitrary numeric value to one of the evaluations on Table 3, and then judge the relative plausibility of the other evaluations in comparison to it.

Table 3: Evaluations of the *Bank** Case

Evaluation *T/T*	Evaluation *F/F*
What DeRose says in C1 is true and what he says in C2 is also true.	What DeRose says in C1 is false and what he says in C2 is also false.
Evaluation *T/F*	Evaluation *F/T*
What DeRose says in C1 is true and what he says in C2 is false.	What DeRose says in C1 is false and what he says in C2 is true.
Evaluation *??*	
I'm not sure what to say about this case.	[If none of these options is a good description of the case, explain why.]

Taking evaluation *??* as the modulus, my responses to the *bank** case can be arranged on a scale measuring their relative plausibility. My intuitions abut the *bank** case, represented in Figure 2, do not obviously support any existing contextualist or non-contextualist theories:

Figure 2: Magnitude Estimation for the *Bank** Case



Compare that way of handling responses to the *bank** thought experiment, designed to control for a variety of different kinds of bias, with DeRose's original:

> It seems to me that (1) when I claim to know that the bank will be open on Saturday in [C1], I am saying something true. But it also seems that (2) I am saying something true in [C2] when I concede that I don't know that the bank will be open on Saturday (DeRose, 1992, p. 914).

DeRose's description of his intuitions about the *bank* case present only a fraction of the total intuitive data the thought experiment generates, and the data he offers is shaped by the extremely limited kind of response (an absolute truth-value judgment) he allows himself. The approach I recommend not only controls for different kinds of bias, it reveals the existence of preferences for and against clusters of responses to the thought experiment, rather than an all-or-nothing judgment in favor of one response. And it allows for respondents to both register their inclination to resist making a truth-value judgment, and to explain why they prefer such a response.

Once room is made for a greater range of responses to the contextualist thought experiments, the explanatory task might shift from explaining why the intuitions of competent speakers change in the contexts described in the thought experiments to why competent speakers find a particular cluster of responses much more plausible than a cluster of other responses (or, more generally, why respondents rank responses as they do). Applying this change in methodology to the variety of other contextualist thought experiments will reveal how much the design of the contextualist thought experiments effects the intuitions they generate, by keeping the facts and the contexts under consideration exactly the same and varying the experimental set up.

The methodological revisions I have proposed in this paper are not inherently anti-contextualist. I believe that it is possible that once a variety of different biases are controlled for, there will be significant inter-subjective agreement about intuitions that lend support to contextualist theories. (Even poorly constructed experiments can produce data that turn out to be confirmed by much more reliable experimental procedures.) If that's the case, then the effect of the revisions to experimental design I advocate here will be to produce much more robust evidence in favor of contextualism. But I suspect that once the various sources of bias discussed above are controlled for, intuitions will not line up neatly in favor of contextualism. The explanatory task will then have to shift from offering theories that accommodate apparently uniform contextualist intuitions to developing an account of the variations in intuitions generated by different kinds of examples.

The wide-ranging debates over the problems and prospects of contextualist and invariantist theories take as their explanatory datum a set of biased intuitions. Advancing the debate requires a reevaluation of how intuitions are generated by contextualist thought experiments. This paper takes the first step towards such a reevaluation of the foundation of the contextualist debate.

References

Austin, J.L. (1975). *How to Do Things With Words*. Oxford: Oxford University Press, 2nd Ed.

———. (1979). *Philosophical Papers*. Oxford: Clarendon Press, 3rd Ed.

Bard, Ellen Gurman, Robertson, Dan, and Sorace, Antonella. (1996). "Magnitude Estimation of Linguistic Acceptability." *Language,* 72(1), 32–68.

Boakes, Robert A. (1984). *From Darwin to Behaviorism*. Cambridge: Cambridge University Press, illustrated Ed.

Berg, Jonathan. (2002). "Is Semantics Still Possible?" *Journal of Pragmatics*, 34, 349–359.

Cappelen, Herman and Lepore, Ernie. (2005). *Insensitive Semantics: A Defense of Semantic Minimalism and Speech Act Pluralism*. Oxford: Blackwell.

Chomsky, Noam. (1985). *The Logical Structure of Linguistic Theory*. Chicago: University of Chicago Press.

Crary, Alice. (2007). *Beyond Moral Judgment*. Cambridge, Massachusetts: Harvard University Press.

DePaul, Michael R. and Ramsey, William, Eds. (1998). *Rethinking Intuition: The Psychology of Intuition and Its Role in Philosophical Inquiry*. Oxford: Rowman and Littlefield.

DeRose, Keith. (1992). "Contextualism and Knowledge Attributions." *Philosophy and Phenomenological Research*. LII.4: 913–929.

———. (2005). "The Ordinary Language Basis for Contextualism, and the New Invariantism." The Philosophical Quarterly 55.219: 172–198.

Fodor, Jerry A. (2003). Hume Variations. Oxford: Clarendon Press.

Hintikka, Jaakko. (1999). "The Emperor's New Intuitions." *The Journal of Philosophy,* 96(3), 127–147.

Knobe, Joshua and Nichols, Shaun, Eds. (2008). Experimental Philosophy. Oxford: Oxford University Press.

Krifka, Manfred. (Forthcoming). "Varieties of Semantic Evidence". In Claudia Maienborn, Paul Portner & Klaus von Heusinger (eds.), *Handbook of Semantics,* Berlin: Mouton de Gruyter.

Labov, William. (1975). "Empirical Foundations of Linguistic Theory." In R.

Austerlitz, Ed. *The Scope of American Linguistics: Papers of the First Golden Anniversary Symposium of the Linguistic Society of America* (pp. 77–133). Lisse: The Peter de Ridder Press.

Larson, Richard and Segal, Gabriel. (1995). *Knowledge of Meaning: An Introduction to Semantic Theory.* Cambridge, Massachusetts: MIT Press.

Leite, Adam. (2005). "Some Worries for Would-Be WAMmers." *Grazer Philosophische Studien* 69: 101–125.

Mates, Benson. (1964). "On the Verification of Statements about Ordinary Language." In V.C. Chappell, ed. *Ordinary Language* (pp. 64–74). Englewood Cliffs, New Jersey: Prentice-Hall.

Myers, James. (2009). "Syntactic Judgment Experiments." *Language and Linguistics Compass,* 3(1), 406–423.

Pfungst, Oskar. (1911). *Clever Hans.* New York: Holt, Reinhart and Winston.

Putnam, Hilary. (1975). "The Meaning of 'Meaning'." In *Mind, Language and Reality* (pp. 215–271). Cambridge: Cambridge University Press.

———. (1979). "It Ain't Necessarily So." In *Mathematics, Matter and Method: Philosophical Papers, Volume 1* (pp. 237–249). Cambridge: Cambridge University Press.

Rosenthal, Robert. (1976). *Experimenter Effects in Behavioral Research.* New York: Irvington Publishers, Inc., enlarged Ed.

Rysiew, Patrick. (2002). "The Context-Sensitivity of Knowledge Attributions." *Noûs* 35 .4:477–514.

———. (2005). "Contesting Contextualism." *Grazer Philosophische Studien,* 69, 51–70.

Sainsbury, R.M. (2001). "Two Ways to Smoke a Cigarette." *Ratio,* 14(4), 386–406.

Schaffer, Jonathan. (2006). "The Irrelevance of the Subject: Against Subject-Sensitive Invariantism." *Philosophical Studies,* 127(1), 87–107.

Schütze, Carson T. (1996). *The Empirical Base of Linguistics*. Chicago: The University of Chicago Press.

Sorenson, Roy. (1992). *Thought Experiments.* Oxford: Oxford University Press.

Stanley, Jason. (2005). *Knowledge and Practical Interests.* Oxford: Oxford University Press.

Stern, Josef. (2009). "Metaphor and Minimalism." *Philosophical Studies,* Online First.

Stevens, S.S. (1946). "On the Theory of Scales of Measurement." *Science,* 103(2684), 677–680.

Strawson, P.F. (1950). "On Referring." *Mind*, 59(235), 320–344.

Szabó, Zoltan Gendler. (2006). "Sensitivity Training." *Mind and Language* 21 .1: 31–38.

Travis, Charles. (1989). *The Uses of Sense: Wittgenstein's Philosophy of Language.* Oxford: Oxford University Press.

———. (1997). "Pragmatics." In Bob Hale and Crispin Wright (Eds.), *A Companion to the Philosophy of Language* (pp. 87–107). Oxford: Blackwell.

———. (2000). *Unshadowed Thought: Representation in Thought and Language.* Cambridge, Massachusetts: Harvard University Press.

Unger, Peter. (1982). Toward a Psychology of Common Sense. *American Philosophical Quarterly,* 19(2), 117–129.

Wason, P.C. (1961). Response to Affirmative and Negative Binary Statements. *British Journal of Psychology*, 52(2), 133–142.

Weinberg, Jonathan M. (2007). How to Challenge Intuitions Empirically Without Risking Skepticism. *Midwest Studies in Philosophy,* 31(1), 318–343.

Williamson, Timothy. (2008). *The Philosophy of Philosophy.* Oxford: Blackwell.

Wittgenstein, Ludwig. (1958). *Philosophical Investigations.* Oxford: Blackwell, 2nd Ed.