Katz's book is a welcome addition to the literature, the product of a masterful philosopher of language and linguistics which lives up to expectations. It will be especially welcomed by philosophers interested in how the notion of sense can be interpreted without the unwelcome consequences of Frege's account.

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***Knowledge and Lotteries*, by John Hawthorne.** Oxford: Clarendon Press, 2004, 205 pp., £25.00.

Often in philosophy our investigations are driven by puzzles. If in epistemology Chisholm's problem of the criterion strikes one as the epistemic must-solve puzzle in regard to knowledge, then one might be drawn to externalist theories like reliabilism — a theory much in favour among epistemologists the last decades. If however like John Hawthorne in this monograph, the lottery paradox is what makes your epistemology clock tick, then reliabilism is hardly a theory worth exploring.

The puzzle presented by the lottery paradox is well known. Even though I have good reasons to believe that a lottery ticket of mine will lose, it being very improbable that I have a winning ticket, I do not know it. One the other hand many mundane things we take ourselves to know entail such lottery propositions. I, for example, know where my suitcase is right now; it is upstairs in my hotel room. That, however, entails that I have not won the local Mexico City get-your-suitcase-stolen lottery (see p. 2 and 5 on how ordinary propositions entail lottery propositions and how to make the entailments strict). I do not know that. I know where I will be tomorrow; I will be in Guanajuato teaching. But then I know that I will not win the get-mugged-in-your-taxi lottery on the way out to the bus station. I do not know that. The conclusions forced on me are that I do not know where my suitcase is, I do not know where I will be tomorrow and so on for all non-observational beliefs. But that is not all. The problem generalizes further. By appealing to quantum mechanics Hawthorne argues that not even perceptual beliefs are free of lottery worries.

Perhaps the particles belonging to the surface of the table in front of me behave with stability, while the inside particles of the table behave in bizarre ways so that we would no longer count it as a table. What I am looking at right now could be more like a table façade (p. 4–5).

This shows that no appeal to Descartes' evil demon, some brain in a vat possibility or other fanciful scenarios is needed in order to make the threat of scepticism vivid. All you need to do is to ponder the nature of lotteries and the scope of lottery-like scenarios. While Vogel emphasised the semi-sceptical implication of denying that we know lottery propositions (J. Vogel, 'Are there Counterexamples to the Closure Principle?' In M. Roth and G. Ross, eds., *Doubting: Contemporary Perspectives on Skepticism*. Dorthrecht: Kluwer, 1990, pp. 21–22), this book really shows us how deep the rabbit hole goes and the problems facing philosophers that want to reconcile the intuitions that while we do not know lottery propositions, we know a lot of things.

Hawthorne writes that any solution to the lottery puzzle should try to respect the following *prima facie* attractive principles (pp. 111–112):

(1) *The Moorean Constraint:* Very many ordinary positive knowledge ascriptions are true (p. 111).

(2) *The Assertion Constraint:* Knowledge is the norm of assertion. Unless you know it you should not assert it (p. 111).

(3) *The Practical Reasoning Constraint:* Knowledge is the norm of practical reasoning. Unless you know it you should not use it in practical reasoning (p. 111).

(4) *Single-Premise Closure:* Necessarily, if S knows that $p$, competently deduces $q$, and thereby comes to believe $q$, while retaining knowledge of $p$ throughout, then S knows $q$ (p. 34).

(5) *Multiple-Premise Closure:* Necessarily, if S knows that $p_1,\ldots,p_n$, competently deduces $q$, and thereby comes to believe $q$, while retaining knowledge of $p_1,\ldots,p_n$ throughout, then S knows $q$ (p. 33).

(6) *The Epistemic Possibility Constraint:* It is possible that $p$ for S at $t$ (there is a chance that $p$ for S at $t$) iff $p$ is consistent with what S knows at $t$ (p. 26). If the epistemic probability for S that $p$ is not zero, then S does not know that not-$p$ (p. 111).

(7) *The Objective Chance Principle:* If at $t$, S knows that there is a nonzero objective chance that $p$ at $t$ (where $p$ supervenes on the intrinsic facts about the future relative to $t$), then, at $t$, there is nonzero epistemic probability for S that $p$ (p. 92).

(8) *The Disquotational Schema for 'Knows':* If an English speaker E sincerely utters a sentence $s$ of the form 'A knows that $p$,' and the sentence in the that-clause means that $p$ and 'A' is a name or indexical that refers to $a$, then E believes of $a$ that $a$ knows that $p$, and expresses that belief by $s$ (p. 101).

None of the theories Hawthorne considers manage to get a perfect scorecard in regard to these principles, but at least, as Hawthorne notes, the Single-Premise Closure seems nonnegotiable.

I am not convinced by Hawthorne's arguments for the constraints (2) and (3) (pp. 21–31). Whatever are the canonical principles that guide assertion and practical reasoning, I am quite sure they are more rough and ready principles than that of having knowledge as the norm. The arguments for both are simple. Why can I not flat-out assert that my lottery ticket will lose, when I have good reasons to believe that it will? Because I do not know it, so knowledge is the norm of assertion. Furthermore, if there is a chance that not-$p$, we are willing to assert that we do not know $p$. Why can I not use the premise that I will lose the lottery to sell my ticket for one cent and get something instead of nothing, when I have good reasons to believe that it will? Because I do not know it, so knowledge is the norm of practical reasoning. These are the intuitive data points for both constraints.

Still, even after you have convinced me that I do not know where my suitcase is due to lottery worries, I will still use that premise in my practical reasoning about how to get a clean shirt, if I spill coffee on the one I am wearing now. I will in the same breath as having admitted to you that I do not know where my suitcase is, flat-out assert to the bellboy that it is in my hotel room, if he asks me where he can fetch it. What else from my perspective is the reasonable way to go about it? Sometimes laudable practical reasoning leads to false results, because, as it might be, we do not know one of the premises. In regard to assertions, Hawthorne writes that if he is not convinced that you know where your car is, given that you cannot see it but Hawthorne can, and that is his standard of knowledge in this case, then 'I will recon you a little out of line to flat-out assert that it is

outside when asked' (p. 91). I do not share this intuition. I would recon you as erring on the side of pedantic, if you did not flat-out assert it, given that you remembered where you parked it and thus have good reasons for believing it is outside.

Curiously enough, Hawthorne early in the book admits that ordinary people will often ignore lottery possibilities.

> Try raising the possibility of lottery success to people who are planning out their lives. Very often, they will respond with 'You know that's not going to happen' or 'I know full well I'm not going to get that lucky' (p. 18).

Hawthorne's diagnosis of this seems to be that sometimes 'people *are* happy to self-ascribe knowledge of lottery failure, they are correspondingly willing to assert '*That's* not going to happen' when the possibility of lottery success is raised' (p. 22). I find this diagnosis misguided. You do not believe the lottery is rigged, you have a ticket, the possibility of lottery success has been brought to your attention and still you self-ascribe knowledge that your ticket will lose? People are smarter than that.

A more plausible diagnosis could be extracted from Grice's 'Logic and Conversation' (in his *Studies in the Way of Words*. Cambridge, Mass.: Harvard University Press, 1989); a paper cited with approval several times in this book. Grice's Cooperative Maxim tells you to make your conversational contribution as required for the purpose or general direction of the conversation you are engaged in (Grice, p. 26). Perhaps what people do when asserting '*That's* not going to happen' is making a comment on it being inappropriate or off mark to bring up lottery propositions when debating mundane things as where their suitcase is, where they will be tomorrow, etc. It fails to adhere to the general direction or purpose of the conversation. Often the demand of knowledge as the norm of assertion is not required for the purpose or general direction of conversations and thus to bring it up is inappropriate, since it is likely to sidetrack a conversation. Granted; sometimes knowledge is required for a conversational contribution, likewise with practical reasoning and that needs an explanation. But sometimes does not make for always. This is of some importance; these constraints do a lot of work in the evaluation of the suggested solutions to the puzzle.

The main dividing line between the theories considered is between the theory in which it is argued that the meaning of 'know' and its extension vary with context (i.e. contextualism) and the invariantist theories that deny this. According to the contextualist we know many things, so the Moorean constraint is respected. In most contexts the standards of knowledge are fairly low, so I get to know where my suitcase is, etc. In these contexts due to Single-Premise Closure, I also know lottery propositions. However if lottery propositions become salient to me, I focus my attention on them, I lose knowledge of them and the propositions that entail them, like where my suitcase is, since in these contexts the standards of knowledge rise. The position has its attractions. One can acknowledge the allure of sceptical arguments, while remaining a Moorean about knowledge. But there are downsides. In our ordinary talk we seem to act as if the verb 'know' is invariant and thus, if the contextualist is right, we are blind to the workings of our own language (S. Schiffer, 'Contextualist Solutions to Skepticism.' *Proceedings of the Aristotelian Society,* 96, 1996, pp. 317–33). Hawthorne argues persuasively, which from the perspective of this book is a huge cost, that neither the Assertion nor the Practical Reasoning Constraint can be accommodated (pp. 85–91). A further worry is the question about whose context, the one ascribing knowledge or the one who has the purported knowledge, gets to count as fixing the standards of knowledge. If the standards of knowledge really were shifty, then one might suspect that sometimes the subject's standard gets to count, other times the ascriber's. Not so in the common contextualist picture; here the standards that make-or-break knowledge are always those of the ascriber. If John has high standards for knowledge, while Paul has low standards for knowledge, then both the sentence 'Ringo does not know that *p*' in John's mouth and the sentence 'Ringo knows that *p*' in Paul's are true simultaneously, but intuitively we would believe that the question of whether Ringo knows that *p* should depend on Ringo's own epistemic situation with regard to *p* (pp. 85–90). This, of course, also makes propositional attitude reporting problematic. Hawthorne shows quite convincingly that the contextualist is forced to give up at least one of several intuitively correct principles in regard to belief ascription among them the Disquotational Schema for 'Knows.' The discussion here adds weight to the intuition that the verb 'knows' is invariant (pp. 98–111). Hawthorne also shows that the contexualist must chose

between the Objective Chance Principle and the Epistemic Possibility Constraint, while Multiple-Premise Closure remains problematic.

Of the invariantist solutions to the puzzle, Hawthorne's favoured sensitive moderate invariantism is of most interest. Though sceptical invariantism does quite well on Hawthorne's scorecard, it gives up the idea that we know a lot of things. In moderate invariantism the Moorean Constraint is respected, but due to Single-Premise Closure, knowledge of lottery propositions is easy to come by. Most of the time we know lottery propositions, even when we think we do not. There is a sense in which both positions deny that there is a puzzle to solve. These remarks, of course, do not do justice to Hawthorne's detailed and interesting debate of the two positions. The sensitive moderate invariantist argues that the verb 'know' is invariant, making the Assertion and Practical Reasoning Constraints easy to accommodate, we know a lot of things, thus respecting the Moorean Constraint, while admitting that in some contexts knowledge of lottery propositions is destroyed. The truth of knowledge ascription is sensitive, not to conversational contexts, but to the details of the situation of the knower. Two such factors take centre stage: salience and practical environment. If you think that $p$, but some counterpossibility is salient to you, then you do not know that $p$. Due to Single-Premise Closure you sometimes know that your lottery ticket will lose, but if the counterpossibility of winning becomes salient to you, then that knowledge gets destroyed. Knowledge comes and goes fairly easily. David Lewis told us that a counterpossibility was salient by being merely brought to our attention ('Elusive Knowledge,' *Australasian Journal of Philosophy*, 74, 1996, p. 559); Hawthorne's view is that a counterpossibility is not salient unless it is taken (somewhat) seriously (p. 161). Accordingly; the more dogmatic or dull you are, the more inept you are at making counterpossibilities vivid, etc., the more you get to know. Hawthorne's discussion of this sort of objection is whether this is unfair to thinking people that are more attuned to how things might go wrong with regard to knowledge and thus get to know less than the dullard (pp. 167–168). Another worry though is whether this is not just plainly wrong about the dullard, if it is wrong about the dogmatic.

Since lottery propositions are usually not salient to us, we know a lot of things. But when they are, knowledge of ordinary propositions entailing such lottery propositions gets destroyed — Hawthorne here discusses three ways to understand how salience destroys knowledge.

But if the dogmatic person knows resiliently that his lottery ticket will lose, can he not then use this knowledge to argue that he should sell it for a cent? This is blocked by appeal to what Hawthorne calls 'practical environment.'

> Insofar as it is unacceptable ... to use a belief that *p* as a premise in practical reasoning on a certain occasion, the belief is not a piece of knowledge at that time (p. 176).

The practical environment influences what we know. The dogmatic, one might think, knows many lottery propositions, but only insofar as he does not employ them in practical reasoning. Hawthorne's picture, however, is a more externalist normative picture. Sometimes the practical environment is hostile to knowledge because it (the practical environment) raises counterpossibilities that cannot be properly ignored and then it does not matter whether the dogmatic actually uses the lottery proposition in practical reasoning or not. In such circumstances, the dogmatic does not know the lottery proposition. This though leaves one with a lot of questions. What guides acceptability of usage of a premise in the practical environment? What is the scope of the practical environment? How does it connect with assertibility conditions? Can Hawthorne draw a principled line between the cases where people are allowed to self-ascribe knowledge even when a counterpossibility has been brought to their attention and the cases where they are not? How to have a principled distinction between a dullard and a dogmatic? Etc.

The stakes are high for Hawthorne, because without the practical environment his view on salience is obviously false and without that little is left of his sensitive moderate invariantism. I am far from sure that the idea of the practical environment will hold up under critical scrutiny and any reader of the book should pay careful attention to it. One possibility to consider is whether Hawthorne's debate of the practical environment perhaps tells us more about assertibility conditions, and when we can use premises in practical reasoning, and less about knowledge. The view can respect the Epistemic Possibility Constraint, but only at the expense of the Objective Chance Principle, and there is a fairly ingenious argument for how to accommodate Multiple-Premise Closure (pp. 181–185). Overall, the view fares well enough to be an interesting and worthwhile contender to contextualism.

Having launched some critical remarks, let me in ending add that this is a wonderfully clear and well-argued book with a refreshing non-dogmatic air to it, that I am sure will function as a central reference point for these debates in the time to come. (Thanks to Adam Sennet for helpful comments and suggestions.)

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***Reference Without Referents*, by R. M. Sainsbury.** Oxford: Oxford University Press, 2005, 280 pp., £30.

The problem of empty names continues to be a large thorn in the side of the Millian theory of reference. If the meaning of a name is exhausted by its referent then empty names are meaningless, and so, presumably, are the sentences in which they occur. But many sentences with empty names appear to be meaningful and even true, e.g. 'Vulcan does not exist,' or perhaps 'Sherlock Holmes is a detective.' The Frege-Russell description theory of names avoids these problems by holding that names are synonymous with descriptions, for example, 'Vulcan' is synonymous with the description 'the planet postulated by Le Verrier to explain the perturbations in the perihelion of Mercury.' But of course, as Kripke showed us, names are not synonymous with descriptions.

In *Reference Without Referents* Sainsbury makes an admirable attempt to steer a middle course between Millianism and descriptivism. His main idea is that by adjusting the logic and reference axioms for a homophonic truth-theoretical semantics we can achieve a uniform and ontologically conservative account of both empty and non-empty names. According to Sainsbury, the correct logic for semantics is a variety of free logic called Negative Free Logic (NFL). As in any free logic, the quantifier rules are restricted in the following ways:

> *Universal Instantiation:* From $\forall x \mathrm{A}x$ and $\exists x\ x = t$ infer $\mathrm{A}(t/x)$ (where '$\mathrm{A}(t/x)$' is the formula which results from '$\mathrm{A}x$' by replacing every occurrence of '$x$' by '$t$').