problem of self-knowledge is. Despite these reservations, *Speaking My Mind* should be widely read. Bar-On presents a new map of the domain and opens a path deserving further exploration. Her examination of the topic, and her views, are well worth following.

Richard Vallée
Université de Moncton

Philosophical Review, Vol. 117, No. 2, 2008
DOI 10.1215/00318108-2007-040

Jody Azzouni, *Tracking Reason: Proof, Consequence, and Truth*.
New York: Oxford University Press, 2006. vi + 248 pp.

In many ways, *Tracking Reason* resembles Jody Azzouni's previous book, *Deflating Existential Consequence*. The subject matter of each lies at the interface of metaphysics, logic, philosophy of mathematics, and philosophy of language. The style is both entertaining and clear. The positions he argues for are so controversial as to sound almost insane. And yet the arguments he provides are illuminating and manage to make the positions seem almost like common sense. Both books are worth reading both for specialists and those interested in a clarifying (if idiosyncratic) take on these issues.

In the previous book, Azzouni argued for a type of fictionalism about mathematics. But rather than following Hartry Field in denying the indispensability of mathematics, he simply argues that the indispensability of a form of discourse (and even the truth of existentially quantified sentences!) is not a sign of ontological commitment. This position helps motivate some of the positions in the current book, but I think it isn't necessary.

Tracking Reason advances several separate, but related positions in its three parts. However, for some reason, the subtitle has them in the wrong order—part 1 argues for a special deflationary account of truth (and deals at length with the semantics and regimentation of natural language); part 2 argues that the role of mathematical proof is to "indicate" a derivation in some mechanical deduction system; and part 3 argues that these two positions are (despite appearances) compatible with a nonsyntactic view of consequence as a type of truth-preservation. Parts 1 and 2 are relatively independent and I think can profitably be read on their own. Part 3 depends more on both of the others. In particular, I think those working on formal semantics might want to read part 1, even if they have no broader interest in logic and truth,

just to consider some of Azzouni's claims about regimentation, and whether the actual truth conditions of sentences are trivial. And philosophers of mathematics should certainly read part 2, even if they're not specifically interested in proof because of the attention it draws to the stability and uniformity of mathematical practice and the roles that mathematical objects could (or couldn't) play in explaining these facts.

Azzouni starts by distinguishing "biconditional truth deflationism" (BTD) from "metaphysical truth deflationism" (MTD). The former says that the truth-predicate serves its purpose in natural language entirely through the T-biconditionals ("'Snow is white' is true if and only if snow is white," and the like) and says nothing about the metaphysical status of truth. The latter denies that there is a common nature to the truths. As he points out, "BTD is a theory about 'true'; that's why it's compatible with any number of theories about *truths*—only *one* of which is MTD" (31). By drawing this and other distinctions, I think he helps clear the air in some of these debates.

However, though one might expect an endorsement of BTD and a rejection of MTD as a way to split the difference, Azzouni goes the other way. His reason for rejecting BTD is the importance of what he calls "blind truth-endorsements," such as "What Mary said was true," used in a context where I don't know what Mary said, and where I might not even have a way to express it if she used a foreign language, technical terms I am unfamiliar with, or demonstratives to which I have no access. In any of these cases, there is no biconditional available to me to fix the extension of the truth-predicate that will do what I need. In addition, substitutional quantification will be of no help.

Instead, Azzouni introduces a new device to deal with all these truth-endorsements, which he calls "anaphorically unrestricted quantification," to make good on his deflationary aims. In ordinary language, the only devices obviously available for anaphora seem to be pronouns, which must always appear in object positions. Advocates of a "prosentential" theory of truth or of substitutional quantification introduce anaphoric devices that can appear in sentence position. Azzouni instead introduces a formal system that allows a quantifier to bind a single variable that occurs in both sentence and object position. Remarkably enough, in chapter 3, he gives a proof theory and semantics for this formal system, with soundness and completeness theorems! What makes his truth-theory deflationary is the claim that this special sort of quantification can do everything that we need the truth-predicate for in ordinary language, including both blind truth-endorsement and giving truth-conditions (which may strike some as a less deflationary goal).

Giving this formal account of the theory is certainly an interesting achievement, but I wonder what it really shows. It seems to me that someone

interested in substitutional quantification or objectual quantification over propositions (rather than sentences) might use exactly the same formal system, with a slightly different interpretation.

Chapters 4 and 5, giving Azzouni's account of regimentation and paradox, strike me as the most controversial part of this book.

> Some philosophers of language attempt to explain away certain linguistic intuitions—describing them, for example, as "performance errors" or "pragmatics" and not "semantics". This *may* be appropriate if one really is designing a theory about the idioms of natural languages (which—given the formal tools nearly all philosophers of language automatically help themselves to—*can't be* how to construe what they're up to); but the regimenter's aims are different: The regimenter recognizes that natural-language idioms can involve all sorts of linguistic practices that give rise to intuitions that are, strictly speaking, irrelevant to the functions that the idioms in question have been discovered to have. (76)

He allows that a regimentation of the language might end up giving no interpretation to certain perfectly grammatical ordinary sentences and might also add meanings that can't be expressed in the nonregimented language. Therefore, he suggests that a theory of truth can blithely leave out "ungrounded" sentences because the theory is just a regimentation.

In addition, the fact that he sees the theory of truth as a regimentation, and not an empirical account of the actual semantics of natural language, leaves him untroubled by his empirical claim that *every* sentence of natural language is *both* true and false (101–2). The regimented theory is the one that he says gives the more useful truth-conditions, and it doesn't tell us anything much about paradoxes. The logic of implication for natural languages is trivial, but he says that a regimentation of natural language can have a logic of implication that gives us something very much like the logic of *inference* for natural language.

Fortunately, I think one could accept Azzouni's claims about deflationism and anaphorically unrestricted quantifiers without following him on regimentation, paradox, and the inference/implication distinction.

Part 2 isn't nearly so radical. He phrases it as a discussion of what mathematical epistemology must be like in order to be so stable and cohesive across time and space and still be compatible with his strange fictionalist thesis. However, these considerations should also apply equally well to other fictionalists, as well as realists who are concerned about Benacerraf-style arguments about the empirical inaccessibility of mathematical objects.

His claim is that the practice of mathematical proof manages to create this uniformity by "indicating" (and not simply abbreviating) a formal derivation of a theorem. There is no specific formal system in which the

derivation must take place (this is mainly to allow for nonclassical logics and diagrammatic reasoning—he has arguments against the use of real second-order systems). Overall, this paints a very appealing picture of mathematical practice—the mathematician constantly comes up with new systems in order to include new terminology and definitions and to add extra axioms characterizing previous mathematical systems where premises had gone missing in old proofs.

I think there are still worries about where mathematical interest comes from if there are no mathematical objects. He brings this out in a very nice thought experiment (140), considering two accounts of what would have happened if mathematical objects had all ceased to exist in 1968. But his solution seems not to distinguish the way mathematicians imagine mathematical objects and the way novelists imagine their fictional characters.

Part 3 returns to the themes of part 1 but focuses now on how strongly a theory of consequence must lean toward syntax or semantics in light of his deflationist account of truth and derivation-based account of proof. I'd like to focus on just one point from this chapter though, where he addresses the importance of Tarski's model-theoretic account of consequence. He suggests that this account is in fact an advance because it gives us a range of mathematical tools to investigate the notion of consequence. But this is still compatible with Etchemendy's and Field's worries about Tarskian models because these models don't really represent anything themselves—they're just technical tools. An example that could clarify this point more than his discussion is the existence of two distinct types of semantics (topological and Kripke) that are sound and complete for S4 modal logic. The fact that we only know of one semantics for propositional logic has misled us into thinking that its models are more significant than they really are.

As I mentioned earlier, this book is modular enough that it may be worth reading parts of this book independently of the whole thing. Although Azzouni says that much of the material of the nine chapters of this book derives from ten papers (cited in the introduction to each of the three parts), they seem to have been edited and unified enough that a reader interested in just one topic may prefer to read the relevant part (1 or 2) of this book rather than the separate papers that it is based on. But for anyone interested in the relationships between truth, proof, and consequence, I recommend reading the entire thing.

Kenny Easwaran
University of California, Berkeley

Philosophical Review, Vol. 117, No. 2, 2008
DOI 10.1215/00318108-2007-041