There is an obvious (and only too familiar from discussions of skepti-
cism) response to this argument. To admit that something is logically pos-
sible is not *ipso facto* to grant it any significant credence. It is simpler and
more initially credible to hold that when we have the same cluster of causal
potentialities we have the same property. Shoemaker has a curious reply
to this response (p. 216). He grants that in general we may appeal to theo-
retical simplicity in judging explanatory hypotheses, but argues that *if* we
make the identity of properties logically independent of their causal po-
tentialities, sameness of property is not then an explanation of sameness
of causal potentialities. He himself holds that sameness of property *is* an
explanation of sameness of causal potentialities, but thinks that he is enti-
tled to do so only because of his view that the identity of properties essen-
tially depends on their causal potentialities.

This seems to me to have things exactly the wrong way around. It is
Shoemaker's position that threatens the appealing idea that properties
genuinely explain causal potentialities. For the position treats a property
as one and the same as "its" cluster of causal potentialities, and it is prob-
lematic how a cluster of potentialities genuinely explains one of its
members. That seems too like a dubious variety of self-explanation.

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CHANGE IN VIEW: PRINCIPLES OF REASONING. By GILBERT
  HARMAN. Cambridge, Mass., The MIT Press, 1986. Pp. viii, 147.
  $19.95.

This book is about reasoned change in view. The first seven chapters
are primarily devoted to a discussion of theoretical reasoning, or reasoned
change in belief. The next two chapters are about practical reasoning, or
reasoned change in intention.

Harman's discussion of theoretical reasoning focuses on "principles of
revision." These principles "concern the actual changes to be made" (p. 2)
in belief systems. They are to be distinguished from "maxims of reflec-
tion," for example, "consider all relevant evidence," which dictate what
one ought to do prior to revising one's view.

Harman says that it is "hard to say whether the theory . . . [he wants] . . .
is a *normative* theory or a *descriptive* theory" (p. 7). This is because norma-
tive theories, specifying how people ought to reason, are "intimately re-
lated" to descriptive theories specifying how they do reason. The view that

he ends up with seems primarily normative, but the rules of revision it includes are formulated with human limitations clearly in mind.

Harman makes the following main claims about theoretical reasoning:

(1) "[T]here is no clearly significant way in which *logic* is specially relevant to reasoning" (p. 20). Instead, psychological notions of immediate implication and immediate inconsistency are specially relevant.

(2) Belief, or at least explicit belief, is, for the most part, an all-or-nothing matter. Reasoned revision thus is not modification of one's degrees of belief in accordance with some principle of conditionalization. The problem with such views is that they lead to "combinatorial explosion" (p. 25) since they require prior probability assignments to an enormous set of conjunctions of propositions one might update and possible new evidence propositions. Not all such propositions could be represented in one's head.

(3) A proper theory of theoretical reasoning is a "coherence theory," not a "foundations theory." A foundations theory requires people to keep track of their original justifications for their beliefs and to abandon beliefs for which they lack an adequate justification. However, in general people can't remember justifications and they shouldn't try since it would require cluttering their minds with information they don't need (p. 42). So the foundations theory has the implausible implication that most of our beliefs should be abandoned. The coherence theory implies that one should abandon a belief only when one positively believes that one's reasons for the belief are no good. This allows us rationally to retain many beliefs.

(4) The main principles governing theoretical reasoning are: (i) *Clutter Avoidance*: one should not clutter one's mind with trivialities; (ii) the *Interest Condition*: one should add a new belief only if one is interested in whether it is true; (iii) an *Inconsistency Principle*: people should try to avoid immediately inconsistent beliefs and beliefs one recognizes to be inconsistent; (iv) the *Get Back Principle*: people should not give up a belief that they can immediately rationally reinstate; and, (v) a *Minimal Change Principle*: people should make minimal changes in their belief systems when they are forced by other principles to revise. The magnitude of a change in beliefs is determined by counting explicit new beliefs added and old beliefs dropped.

(5) In reasoning one should attempt to make one's belief system coherent. The degree of overall coherence of a view "consists in connections of intelligibility among the elements of the view" (p. 65). Harman does not explain how one evaluates the overall coherence of a system—is one system more coherent than another if the sheer number of intelligible connections among its elements is greater, or does the ratio of intelligible connections within the system to non-intelligible connections matter? He does discuss at length what an intelligible connection is. His main conten-

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tion here is that beliefs are intelligibly connected when one explains the other.

I will comment briefly on points (1), (3), and (4). While I agree that the connection between formal logic and reasoning can easily be over-empha-sized, I think that Harman's argument that logic has no "special rele-vance" to reasoning is less than fully convincing. Partly this is because it is not entirely clear what counts as "special relevance." He does argue effec-tively against some principles connecting logic to reasoning. For example, he argues against a Logical Closure principle recommending belief in all the logical consequences of one's beliefs and against a Logical Inconsis-tency principle prohibiting belief in inconsistencies. The former conflicts with Clutter Avoidance and the latter is refuted by the fact that sometimes one has neither the time nor the ability to determine the source of an inconsistency and it is better to retain inconsistent beliefs without "ex-ploiting" the inconsistency.

Harman's objections to other more plausible principles are less con-vincing. For example, he objects to a Modified Closure Principle, ac-cording to which one should believe all the *obvious* logical consequences of one's view. He argues that "any logical implication can eventually be dem-onstrated by a proof consisting entirely of a series of obvious steps. This means that, if beliefs are required to be closed under obvious logical im-plications, they are required to be closed under any logical implication, obvious or not" (p. 14). This argument is unsound. Suppose that it is ob-vious that P logically implies Q, it is obvious that Q logically implies R, it is not obvious that P logically implies R, and that I do believe P. The unre-stricted Closure Principle implies that I should believe R. The modified principle implies that I should believe Q, but it does not imply that I *do* believe Q. If I don't believe Q, then the modified principle does not imply that I should believe R (assuming nothing else I do believe obviously im-plies R). Harman's objection here refutes the principle that I should be-lieve all the obvious implications of what I *should* believe, but it fails to refute the more plausible principle that he formulates. Thus, if the truth of this Modified Closure Principle shows that there is a "special connec-tion" between logic and reasoning, then Harman has failed to show that there is no such connection.

In his discussion of what he calls "foundationalism" and "coherentism" Harman claims that foundationalism requires that one keep track of evi-dence. He can define the term "foundationalism" that way if he likes, but then his classification of theories omits an obvious alternative. The alter-native is the view that one often acquires a new justification for retained beliefs despite losing the original justification. I don't now know my orig-inal justification for my belief that Mario Cuomo is the governor of New York. But I do know that my beliefs about the identity of prominent politi-

cians are generally right, that I have not recently been corrected after making remarks about the identity of the governor, etc. This sort of information can provide a current justification for my belief. More generally, information about the accuracy of my memory on certain topics provides a current justification for many memory beliefs. But we needn't go to the extreme coherentist view Harman advocates and claim that all beliefs are justified unless they are positively undermined by a belief that one's reasons for them are no good. If I believe that it will be sunny next Sunday (when a family picnic is scheduled) and I lack a current meteorological justification for this belief and lack a "meta-justification" of the sort just described, then, I think, my belief is unjustified.

It is difficult to assess Harman's principles of revision listed in (4) above. In part this is because Harman's topic is never identified clearly. There are numerous factors of various kinds that sometimes do, or should, affect the way people change their views. Some of these factors are prudential, as when a politician changes his view to make it match the dominant view in the electorate. If my boss rewards people who have many trivial beliefs and who avoid the larger issues, then perhaps I ought to form many trivial beliefs. It is unclear to me whether these sorts of considerations are relevant to Harman's project. He makes numerous pronouncements about how we ought to reason, but the goal at which these obligations are directed is never made clear.

The final section of Harman's book is about practical reasoning, which Harman takes to be the reasoned revision of intentions. It contains an interesting discussion of what intentions are and how they are related to beliefs and desires. On Harman's view, positive intentions are always self-referential. For example, "Intending to be raising one's arm is intending that this very intention is in the normal direct way leading one to be raising one's arm" (p. 86). Harman goes on to discuss the distinction between intended consequences of an action and merely foreseen consequences. He criticizes a view he calls "holism," which is variously characterized as the view that "when one decides what to do, one must consider all foreseeable effects, consequences, and other apsects of one's decision and must evaluate them as a total package" (p. 98) and as the view that "all foreseen aspects of one's action are intended" (p. 99). I found his criticisms of these views compelling. The first version of holism is especially implausible. Since it is always possible to consider more or different information, to require that all *foreseeable* effects be considered is to require too much. Harman argues for the cost-effectiveness and satisfactoriness of simple decision-making strategies, and this does suggest that it may be acceptable to avoid devoting much time or energy to figuring out numerous consequences of ordinary actions. But this in no way shows that it is permissible to fail to consider the value of the consequences that are, for

whatever reason, foreseen. So this line of thought casts no doubt on a different version of holism, one requiring that the value of all foreseen consequences be considered.

Harman's book is brief, non-technical, provocative, and original. I remain unconvinced by many of the arguments, but agree that he has fulfilled what he describes as his aim in the book: "to show that there is a subject here, change in view, a subject worthy of serious systematic study" (p. 116).

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GENERALIZED PHRASE STRUCTURE GRAMMAR. By GERALD GAZDAR, EWAN KLEIN, GEOFFREY PULLUM, and IVAN SAG. Cambridge, Mass., Harvard University Press, 1985. Pp. xii, 276.

Philosophers interested in linguistics realize that generative grammar is a highly contentious and rapidly changing field. Most, however, probably regard certain fundamentals—such as the distinction between underlying and surface structure, the need for rules relating the two, and the obvious inadequacy of phrase structure descriptions of natural language syntax— as having been firmly established by transformational grammarians. A striking feature of this important book is its revelation of how shaky these "fundamentals" are, and its demonstration of how much of the common lore about generative grammar is false.

The aim of the book is to capture the syntax and semantics of natural language in a highly restricted framework with (roughly) the power of context-free phrase structure grammar (coupled with a Montague-style semantics). Like all contemporary approaches, GPSG forsakes the standard transformational analyses of the 60s and 70s. Unlike other approaches, it also rejects underlying syntactic and semantic representations, and hence has no rules relating different levels of structure. This restriction of grammatical resources makes GPSG one of the most interesting attempts to constrain the class of genuine natural languages and distinguish it from the wider class of arbitrary linguistic systems.

Since Chomsky's influential discussions in the late 50s and early 60s, two main considerations have inhibited the development of context-free

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