A major problem that has been thought to stand in the way of an adequate account of hypothesis appraisal may be termed the *alternative hypothesis objection*: that whatever rule is specified for positively appraising H, there will always be rival hypotheses that satisfy the rule equally well. Evidence in accordance with hypothesis H cannot really count in favor of H, it is objected, if it counts equally well for some (perhaps infinitely many) other hypotheses that would also accord with H.

This problem is a version of the general problem of underdetermination of hypotheses by data: if data cannot univocally pick out hypothesis H over alternatives, then the hypothesis is underdetermined by the data. Some have considered this problem so intractable as to render any attempt to erect a methodology of hypothesis appraisal impossible. No such conclusion is warranted, however. There is no general argument showing that all rules of appraisal are subject to this objection. At most the argument has been sustained against certain specific rules (e.g., the straight rule, simple hypothetico-deductivism, falsificationist accounts). A more adequate account of hypothesis testing, I will argue, gets around the underdetermination challenge. In this account, evidence is to be taken as a good test of (or good grounds for) a hypothesis only to the extent that it can be seen as the result of passing a *severe test* of that hypothesis. My task in this paper is first to sketch an account of severe tests, and second, to show how it answers the alternative hypothesis objection. To anticipate two of my main theses, I shall be arguing:

(1) The existence of hypotheses alternative to H that accord with evidence e as well as H does, does not prevent H from passing a severe test with e.

(2) Even if there are alternative hypotheses that entail or fit evidence $e$ as well as $H$ does, there are not always alternatives equally severely tested by $e$.

I

The “alternative hypothesis objection” that concerns me needs to be distinguished from some of the more radical variants of underdetermination. Some of these more radical variants are the focus of a paper by Larry Laudan (1990), “Demystifying Underdetermination”. (See also Laudan, 1995.)

“. . .[O]n the strength of one or another variant of the thesis of underdetermination,” Laudan remarks, “a motley coalition of philosophers and sociologists has drawn some dire morals for the epistemological enterprise. . . .” Several examples follow:

. . . Quine has claimed that theories are so radically underdetermined by the data that a scientist can, if he wishes, hold on to any theory he likes, ‘come what may.’ Lakatos and Feyerabend have taken the underdetermination of theories to justify the claim that the only difference between the empirically successful and empirically unsuccessful theories lay in the talents and resources of their respective advocates. . . . Hesse and Bloor have claimed that underdetermination shows the necessity for bringing noncognitive, social factors into play in explaining the theory choices of scientists.” (Laudan 1990, p. 268)

Laudan distinguishes two varieties of underdetermination. The first, Laudan calls the nonuniqueness thesis: “It holds that: for any hypothesis $H$ and any given body of evidence supporting $H$, there is at least one rival (i.e., contrary) to $H$ that is as well supported as $H$” (p. 271). A far more extreme position he calls the egalitarian thesis: “It insists that: every hypothesis is as well supported by the evidence as any of its rivals” (p. 271).

Laudan argues that the Quinean thesis that “any hypothesis can rationally be held come what may” as well as other strong relativist positions are committed to the egalitarian thesis, and that a close look at underdetermination arguments shows that they at most sustain variants of the nonuniqueness thesis: that there are always one or more alternatives to $H$ that are as well supported on the evidence as is $H$. Laudan denies that the nonuniqueness thesis has particularly dire consequences for methodology; his concern is only with the extreme