Richard L. Epstein (with the assistance and collaboration of Walter A. Carnielli, Itala M. L. D'Ottaviano, Stanisław Krajewski, and Roger D. Maddux), *The Semantic Foundations of Logic, Vol. 1: Propositional Logics*, 2nd ed., New York, Oxford University Press, 1995. xxvi + 480 pp.

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Joseph Rosenstein opened the preface of his book *Linear Orderings* with the questions: "A book about linear orderings? You mean total orderings? What can you possibly say about them? After all, besides the natural numbers, the integers, the rationals, and the reals, what linear orderings are there?" One might have a similar initial reaction to Richard Epstein's nearly 500 pages on propositional logic. Sure, we need Boolean connectives, but how much can be said about them? If we want logic to sink our teeth into, we look to quantifiers, don't we? But just as *Linear Orderings* showed just how rich its subject actually is, so does *Propositional Logics* portray both the breadth and depths to be found in this aspect of logic, too easily taken for granted. Certainly the propositional calculi of classical, modal, intuitionistic, and many-valued æ not to mention paraconsistent æ logics bear their own individual traits. Epstein not only discusses these and several other logics, he also develops.

Here's a one-paragraph sketch of the template: A mapping assigns a set to every proposition. The truth value of a compound proposition depends solely on the truth values of its components *and* on whether or not certain relations hold among the sets assigned to the components. The underlying idea is that the set assigned to a proposition represents its "contents", those aspects of the proposition (beyond truth-value) that the logic purports to deal with.

For example, classical propositional logic deems "*A* implies *B*" true, even when *A* and *B* have no bearing on each other at all, as long as they possess the right truth-values. But by taking contents into account, one can impose the additional requirement that *A* and *B* be appropriately connected. One can, say, call "*A* implies *B*" false whenever the respective content sets assigned to *A* and *B* are disjoint, or maybe even whenever *B*'s set contains an element not already in *A*'s. About 20 years ago, Epstein formulated his relatedness and dependence logics on the basis of such considerations. Those logics suggested the general framework developed in *Propositional Logics* and form some of its most natural applications. However, the book also