

Alchourrón, Carlos E.; Gärdenfors, Peter; Makinson, David

On the logic of theory change: partial meet contraction and revision functions. (English)

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J. Symb. Log. 50, 510-530 (1985).

This paper extends earlier work by its authors on formal aspects of the processes of contracting a theory to eliminate a proposition and revising a theory to introduce a proposition. In the course of the earlier work, Gärdenfors developed general postulates of a more or less equational nature for such processes, whilst Alchourrón and Makinson studied the particular case of contraction functions that are maximal, in the sense of yielding a maximal subset of the theory (or alternatively, of one of its axiomatic bases), that fails to imply the proposition being eliminated.

In the present paper, the authors study a broader class, including contraction functions that may be less than maximal. Specifically, they investigate "partial meet contraction functions", which are defined to yield the intersection of some nonempty family of maximal subsets of the theory that fail to imply the proposition being eliminated. Basic properties of these functions are established: it is shown in particular that they satisfy the Gärdenfors postulates, and moreover that they are sufficiently general to provide a representation theorem for those postulates. Some special classes of partial meet contraction functions, notably those that are "relational" and "transitively relational", are studied in detail, and their connections with certain "supplementary postulates" of Gärdenfors investigated, with a further representation theorem established.

MSC:

03B99 General logic

03A05 Philosophical and critical aspects of logic and foundations

Cited in **41** Reviews
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References:

- [1] Synthese · Zbl 51.0610.03
- [2] DOI: 10.1080/00048408412341331 · doi:10.1080/00048408412341331
- [3] New studies in deontic logic pp 125– (1982)
- [4] The logic and epistemology of scientific change 30 pp 381– (1978)
- [5] Theoria 48 pp 14– (1982)
- [6] 320311: Philosophical essays dedicated to Lennart Åqvist on his fiftieth birthday pp 88– (1982)

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