

ON EXTREMAL AXIOMS

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The aim of this talk is very modest. We recall some proposals by Carnap and Bachmann concerning a very special kind of axioms, the *extremal axioms*, and discuss a possible reconstruction of these proposals in terms of modern (first-order) model theory. Examples of extremal axioms are, among others: Hilbert's *Vollständigkeitsaxiom*, Fraenkel's *Beschränktheitsaxiom*, Gödel's *axiom of constructibility*, Suszko's *axiom of canonicity*. The purpose of such axioms was, intuitively speaking, to characterize models of the underlying theory as uniquely as possible (ideally, in a categorical way). The well known incompleteness results imply that the ideals of completeness and categoricity are in general inaccessible both at the same time. However, Carnap's *Gabelbarkeitssatz* (1928) did not completely come to grief, as some recent results from the theory of second-order definability clearly show.

Minimal axioms in set theory have been rejected and replaced by maximal ones (large cardinals axioms). In modern model theory in turn, research focused on the diversity of non-isomorphic models has gained much attention.

The very idea of extremal axioms may be also related to the notion of an *intended* model of a theory which is of considerable importance in the general methodology of the sciences.

REFERENCES

- [1] R.Carnap, F.Bachmann, *Über Extremalaxiome*, Erkenntnis **6**, 166–188, 1936.
- [2] R.Carnap, F.Bachmann, *On Extremal Axioms*, History and Philosophy of Logic **2**, 67–85, 1981. [Translation of [1], by H.G. Bohnert.]

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