

The power of inference: Abelard's reflection on the nature of entailment

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Questioning the notion of *consequence*, and trying to capture our intuitions of what it means for a sentence *to follow from* other sentences, has been the core of philosophy of logic since the birth of the discipline. A famous attempt to provide an answer to this problem was made by Tarski in 1936. In his article “On the concept of logical consequence”, he proposes two conditions a consequence has to satisfy in order to be considered logically valid: *necessary truth preservation* and *truth preservation under substitution* of the non-logical terms in the consequence (see [4], section 2.3). But these two criteria are to be found in the history of logic much earlier than 1936 (see [1] on this), and in particular they are explicitly mentioned in Abelard's theory of inferences.

A long part of Abelard's major logical treatise, the *Dialectica*, is devoted to the investigation of what the author calls the *vis inferentiae*, i.e. the *force* of an inference, or the “power” in virtue of which an entailment holds (see [3], II.2). Here, Abelard considers the conditions an inference needs to respect in order to be a legitimate inference, and says that a true entailment is one in which it is impossible for the antecedent to be true without the consequent being also true. Moreover, Abelard distinguishes perfect from imperfect entailments, saying that perfect entailments are the ones that are true *solely in virtue of themselves*, i.e. of their structure, and not in virtue of the natures of their terms. An entailment is perfect, he continues, if it remains true whatever the terms are that we substitute to the ones present in the sentences. It is evident then that perfect entailments in Abelard's view should respect both *necessary truth preservation* and *truth preservation under substitution*.

These two conditions, though, are not enough for Abelard to distinguish legitimate entailments from illegitimate ones: he adds a further condition, which requires the sense of the consequent to be somehow *contained* in the sense of the antecedent (see on this both [2] and [3]). In other words, a

connection of *relevance* is to be guaranteed between the antecedent and the consequent of a valid inference. It is far from clear, though, what does this *containment* consists in, and which kind of relevance-connection between antecedent and consequent is required in order to have a legitimate inference. The aim of my presentation is to investigate the meaning of this notion, so that we could have a deeper understanding of one of the most sophisticated theories of entailment of Middle Ages' logic. In particular, I want to show how Abelard's *containment condition* is strictly linked to his theory of modality.

References

- [1] Dutilh Novaes, C., 2012, "Medieval Theories of Consequence", *The Stanford Encyclopedia of Philosophy* (Summer2012Edition), Edward N. Zalta (ed.).
- [2] Martin C., 1999, *Theories of inference and entailment in the Middle Ages*. PhD. diss., Princeton University, Princeton.
- [3] Martin C., 2004, "Logic", in J. Brower and K. Gilfoy (eds.), *The Cambridge Companion to Abelard*, Cambridge: Cambridge University Press, pp. 158-199.
- [4] Tarski A., 2002, "On the Concept of Following Logically", *History and Philosophy of Logic*, 23, pp.155-196.