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Uckelman, Sara L. (D-HDBG-CLS)
Reasoning about obligations in *Obligationes*: a formal approach. (English summary)
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Medieval 'obligational' disputations are stylised dialogues between an Opponent who posits a proposition and the Respondent who admits the proposition and thereby starts the disputation. The Opponent then presents further propositions to the Respondent, who must concede, deny or doubt them. A Respondent who answers correctly, that is, in conformity with logic, should never have to concede a contradiction. As Uckelman reports it, these disputations often have generic content (such as whether Plato is black or Socrates is white), which suggests that their authors were more interested in the general logical principles at work than in the content of the arguments.

This paper concerns only the cases where the propositions advanced by the Opponent include statements about how the Respondent ought to reply. Since the content in such cases includes ought-statements, these cases are open to analysis using deontic logic. In the example the author offers, the posit is 'You are in Rome or that you are in Rome must be granted' (the disputants are not in Rome). The rules of disputation do not oblige the Respondent to grant that he is in Rome, so the second disjunct is false and the Respondent must deny it. Having allowed the Opponent to posit the original disjunction, and denied one disjunct, the Respondent must concede the other disjunct ('You are in Rome'). But now, 'you are in Rome' has followed from the posit by rigorous argument and must therefore be granted. So the Respondent has both confirmed and denied that 'that you are in Rome must be granted' and is caught in a contradiction in spite of having followed the rules.

In this example, three features combine to produce a contradiction out of a disjunction of falsehoods: one of the disjuncts is part of the other; one of them includes an ought-statement; and the rules do not allow the Respondent to change evaluations as the argument proceeds. Uckelman's analysis focuses on the first two and neglects the third, for reasons that she discusses when she compares her approach with that of Pacuit, Parikh and Cogan.

In the core of the paper, she develops an abstract model for *obligationes* based on her own earlier work, using epistemic Kripke models to interpret the formulas. Using this machinery, she argues that the problem with the case in hand lies with the disputation-rule for relevance. This argument is plausible—she may well have identified a problem with the medieval rules at that point. However, her analysis uses the fact that the disputants are not in Rome, when it is not obvious that this is required. At the outset of the disputation, with nothing established beyond the original disjunctive posit, it is false that 'that you are in Rome must be granted' simply because at that point the Opponent has not produced any argument to impose such an obligation on the Respondent, regardless of where they are. This soon changes as the argument develops.

Nevertheless, considering the temporal dimension does not solve the paradox, rather it just turns an outright contradiction into a vicious circle. For her part, Uckelman points out (p. 565) that it is a rule of medieval *obligationes* disputes that relevance is judged with respect to the initial moment of positing (so that the Respondent cannot be wrong-footed by changes that take place during the argument, such as having to concede that someone is sitting, who then stands up). Since Uckelman's model captures

this feature, it is in this respect at least a precise formalisation of the medieval practice. She makes a similar claim with respect to another approach to deontic logic, 'stit' (see to it that) theory. Her point here is that stit theory focuses on outcomes. The agent is obliged to 'see to it that' some proposition P comes to be true, but has no obligations about how to achieve this. Her theory focuses on actions that are obligatory regardless of their consequences.

{For the collection containing this paper see MR3309081}

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