

MIKKO YRJÖNSUURI

ARISTOTLE'S *TOPICS* AND MEDIEVAL OBLIGATIONAL DISPUTATIONS*

Although early medieval logic was essentially based on Aristotle's works, many branches of the so-called *logica moderna*, which has emerged since the late twelfth century, have quite remote roots in the *Organon*, the collection of Aristotle's logical works. My interest in this paper is primarily directed to the genre of the *logica moderna* called *obligationes*. Treatises of this genre discussed special kinds of disputations based on obligations or duties of a certain kind. This theory developed with the *logica moderna* in the thirteenth and especially in the fourteenth centuries. As it stands, it looks rather peculiar, and accordingly modern scholars have found it difficult to link it with the rest of the *logica moderna* in an organic way. Connections to Aristotle have often been thought to be even more remote, perhaps to be found only on the level of Aristotle's particular phrases.

My purpose in this paper is to show how the theory of obligations can be put into the context of Aristotelian theory of disputation, as it was understood in the Middle Ages. As I see it, what is known as the theory of obligations is a natural and interesting development of some new ideas within the context of Aristotelian theory of dialectical disputations, as presented in the *Topics*. It even seems reasonable to suppose that the theory evolved from medieval interpretations of the *Topics*.

1. ARISTOTLE'S *TOPICS*

At the beginning of the *Topics* Aristotle describes the purpose of the treatise as follows:¹

Our treatise proposes to find a line of inquiry whereby we shall be able to reason from reputable opinions about any subject presented to us, and also shall ourselves, when putting forward an argument, avoid saying anything contrary to it.

The method discussed in the *Topics* is thus concerned with reasoning based on reputable opinions (or '*endoxa*', whatever that is taken to mean). As it becomes clear some lines later, Aristotle means by dialectical reasoning (dialectical syllogism) valid reasoning with reputable

premises. The difference from demonstration lies in the status of the premises, not in the validity of the reasoning. For my purposes here the status of the premises is not, however, particularly interesting. What is interesting – and perhaps less recognized – is the fact that the account of the purpose contains both the active role of reasoning and the passive role of defending an argument in a consistent way. Later in the treatise it becomes clear that dialectical reasoning is discussed as taking place in a disputation with two debaters in different roles.

The disputational context is brought to attention particularly in *Topics* VIII. Modern scholars have noticed that Aristotle's discussions here can be read as formulating rules for a specific dialectical game.² These rules describe quite clearly the practical side of a dialectical disputation; they tell how the arguments are to be put forward and how they are to be evaluated. The process can be modernized into a question-answer game with two players: one asking the questions and the other answering them. In addition to the two players, Aristotle seems to assume that there is a judge, who may be either an authorized person or simply the audience.

Dialectical disputations are treated from three different points of view in *Topics* VIII: Chapters 1–3 discuss the strategies of the questioner, Chapters 4–10 discuss the rules for answering the questions, and Chapters 11–13 pertain to criticism of the discussion as a whole – they represent the viewpoint of the judge. Chapter 14 concludes the book.

When turning to the role of the answerer in Book VIII 4, Aristotle summarizes the purposes of the two players as follows:³

With regard to the giving of answers, we must first define what is the business of a good answerer, as of a good questioner. The business of the questioner is so to develop the argument as to make the answerer utter the most implausible of the necessary consequences of his thesis; while that of the answerer is to make it appear that it is not he who is responsible for the impossibility or paradox, but only his thesis; for one may, no doubt, distinguish between the mistake of taking up a wrong thesis to start with, and that of not maintaining it properly, when once taken up.

This passage describes nicely what is at issue in the dialectical game that emerges from the discussions in Book VIII. There is a thesis attacked by one of the participants – call him the questioner – and defended by the other participant – call him the answerer. The questioner tries to lead the answerer to admit something that is impossible, or specifically to admit the contradiction of his thesis; the answerer

tries to avoid impossibilities, and if he cannot, he should show that the impossibility was already implicitly present in the defended thesis.

As we know from Socrates, discussions of this kind were well known to Aristotle's Greek audience. However, Aristotle claims that he is the first to develop rules for non-competitive dialectical disputations, for the purposes of examination and inquiry.⁴ Regardless of whether Aristotle is right, the remark about the non-competitive character of disputations for philosophical inquiry is interesting. Even if the goals of the questioner and answerer are also partially opposed in the truth-seeking disputation described by Aristotle, they are both working for a joint external goal. One cannot properly distinguish who has won a truth-seeking disputation, since both the questioner and the answerer are working to achieve the most interesting refutation of the thesis discussed. As for the results of the discussion, the interest is mainly in whether and how the thesis has been refuted – not in who has won.⁵

2. EARLY MEDIEVAL THEORY OF DISPUTATION

As my purpose here is not to interpret Aristotle's theory, let me now turn to medieval reception of this theory of dialectical reasoning. Unfortunately, the dialectical game sketched in Book VIII of the *Topics* is not much discussed in medieval works on topics. Boethius's influential late ancient works on topics⁶ concentrate on the places (*topoi, loci*) of arguments discussed in Books II–VII of Aristotle's *Topics*, and later medieval authors seem to follow him. The *topoi* of arguments are much discussed in medieval logic, but usually without treatment of disputational context. It seems that the interpretation of Aristotle's dialectical *topoi* went in a direction different from the interpretation of the dialectical game.⁷

It is well known that disputations formed an integral part of medieval scholastic education. Throughout the Middle Ages disputational practice played a central role both in teaching and as a technique of argumentation. One must bear in mind that, just as with Aristotle, medieval authors' use of the theory of disputation must be looked at as a theory of legitimate debate in medieval academic circles.

According to early medieval accounts, disputation consists of three parts: *positio*, *oppositio*, and *responsio*. *Positio* is the thesis disputed, *oppositio* is an argumentation presented against the *positio*, and *responsio* is the response given to the *oppositio*. The parts of the *oppositio*

are *propositio*, *interrogatio*, and *conclusio*, while the parts of the *responsio* are *concessio*, *contradictio*, and *prohibitio*. This structure of disputation is similar to the Aristotelian structure discussed above. The opponent attacks the thesis (*positio*) through questions (*interrogatio*), and he is allowed to make inferences (*conclusio*) from what the respondent grants (*concessio*). The respondent does not have to grant whatever the opponent wishes: he can deny (*contradictio*) or even suspend the question (*prohibitio*). The two participants of the disputation have thus their specific roles; disputation is not conceived in an informal everyday manner, but as a rule-governed technical activity.⁸

The specific roles of the opponent and the respondent are developed further in Boethius de Dacia's questions, written in Paris between 1270 and 1276, of Aristotle's *Topics*.⁹ Boethius feels compelled to question whether dialectics can be called one science, for it teaches such different things as the roles of the opponent and the respondent. (The answer is naturally affirmative: these two roles belong to the same mode of dialectical argumentation.)¹⁰

Boethius follows Aristotle in discussing, first, the role of the opponent and, then, the role of the respondent. In the first chapter of *Topics* VIII, Aristotle discusses different methods that the opponent can employ to conceal how the conclusion will be achieved. As Aristotle points out, such techniques "serve a contentious purpose; but inasmuch as an undertaking of this sort is always conducted against another person, we are obliged to employ them as well".¹¹ It seems that Aristotle feels forced to admit some competitive elements into his generally co-operative theory of dialectic disputation. The two participants play, after all, opposite roles in the game-like disputation he describes.¹²

L. M. de Rijk has edited an interesting group of medieval treatises, *De modo opponendi et respondendi*, where this advice is understood in a very straightforward way and discussed as methods of winning a disputation by fair means, or foul. It is clear that these treatises do not intend to discuss co-operative disputations; rather, their subject is the sophistical disputation where winning is the main goal.¹³

Boethius de Dacia takes for granted that dialectical disputation only serves the co-operative purposes of exercise and inquiry into truth.¹⁴ If the opponent aims at defeating the respondent, the disputation cannot be called dialectical; it should be called sophistical.¹⁵ From this approach it quite naturally follows that Boethius is led to ask whether the dialectical opponent should really follow Aristotle's advice: Should

the opponent argue against the respondent, develop inductive or deductive arguments so that the respondent does not notice how the conclusion is brought about, provoke the respondent into hatred, use concealing phrases, etc.? Or should he help the respondent in defending the thesis?¹⁶

Boethius answers by pointing out that even if the opponent and the respondent have opposite internal goals in the disputation, they have a joint external goal for the disputation. Each helps the other through the disputation by acting against one another in the disputation. In Boethius's own words:¹⁷

[D]ialectical disputation is a joint activity, and both help each other in this activity, although the opponent does not help the respondent in defending the thesis, since then the joint activity would be corrupted and there would be no mutual help.

But what is this mutual help? Boethius's answer is twofold: if the disputation is undertaken as an inquiry into truth, either a false thesis will be shown to be mistaken or a true thesis is confirmed as reasons against it turn out to be weak. And, if the disputation is undertaken as an exercise, the opponent gets exercise in finding arguments and the respondent in proper defence of a thesis.¹⁸

When considering dialectical disputation in general Boethius does not give any clear explanation of who lays down the thesis. In the *Topics* Aristotle seems to assume that it is mainly the duty of the respondent to choose the thesis: the opponent has the duty of building an argument opposing the thesis. From the co-operative character of the disputation it quite naturally follows that the participants may also choose the thesis jointly and try to find the most interesting refutation for it together. In obligatory theory the opponent is usually assumed to choose the thesis, but the disputation can be undertaken only if the respondent accepts it.

Now we turn to the respondent: What is the proper defence of a thesis?

Boethius de Dacia begins his discussion of this question by considering the character of a good respondent in a general manner. Boethius formulates three interesting requirements:¹⁹

[1] A good respondent ought to be such that he grants to the opponent all that he would grant for himself thinking by himself, and [such that he] denies in the same way.

[2] He ought to be inclined from his inborn nature or from acquired habit to grant truths and to deny falsities and he ought to love truth for its own sake.

[3] Third he ought to be aware that he should not be impudent, that is keep to some thesis for which he has no reasons and from which he cannot be turned away by any reason. Such a person, namely, cannot come to understand the truth.

It is easy to see that no fruitful disputation can be achieved if the respondent violates any of these three requirements. If the respondent does not try to tell the truth, as is implied by [1] and [2], the disputation does not have any connection to truth, and, if no reasons can effect the views of the respondent, the disputation cannot make progress in any interesting way.

[1]–[3] can be seen as basic dialectical duties. Boethius's discussion of the role of the respondent in dialectical disputation focuses on these duties, and – as I try to show in the following – even the whole tradition of obligations can be seen as development of these duties. In order to handle the duties more conveniently in the following, it seems fitting to find their formal analogues.

As a first step toward the formal analogues, let us join [1] and [2]. Their common implication seems to be very near to stating that, if the respondent knows something to be true, he should also grant it to the opponent. This duty can be found explicitly mentioned in some texts of obligational theory,²⁰ and, following these texts, it also seems proper to include also duties pertaining to two other answers: that of denying and that of doubting. The triple duty of following truth can then be given the following formal presentation.²¹

- (T_a) $(p)(K_a > OC_{ab}p)$.
 (T_b) $(p)(K_a \neg p > ON_{ab}p)$.
 (T_c) $(p)(\neg K_a p \ \& \ \neg K_a \neg p > OD_{ab}p)$.

(T_a is read: for any proposition p , which is put forward in a disputation, if a , the respondent, knows that p , it is obligatory that he grants it to his opponent b . N stands for denying and D for expressing doubt.) As we shall soon see, these general duties must be characterized as *prima facie* duties, since they are occasionally overridden by other duties in special contexts.

The idea behind Boethius's requirement [3] seems to be, semi-formally, that if the respondent defends p , accepting q and $\Box(q > \neg p)$ (to be read: q entails $\neg p$) should have an adverse effect on his defence. Accepting reasons for the opposite of the thesis ought to make the respondent abandon the thesis. With obligational theory in mind, it seems appropriate to generalize: the respondent ought to grant what

he knows to be entailed by what he has already granted. One way of formalizing such a duty is the following:

$$(E) \quad (p)(q)(G_{ab}p \ \& \ K_a \Box(p > q) > OC_{ab}q).$$

('G_{ab}' stands for 'a has granted for b'.)

The application of these duties becomes clearer when Boethius discusses Aristotle's distinction between two kinds of respondent's mistakes: that of taking up a wrong thesis, and that of not properly maintaining a thesis, once taken up. Aristotle seems to think that if one tries to defend something implausible, one most probably loses the game even with good defence, while a plausible thesis will be lost only with weak defence. In his commentary Boethius addresses the question which of these two mistakes is worse.

According to Boethius taking up a wrong thesis is a worse mistake, if we correctly understand what a wrong thesis is. According to him, a wrong thesis is one that cannot lead to any useful disputation, like, for example, asking whether the number of stars is even or odd. Taking up an implausible thesis is not a mistake according to Boethius, since such a thesis may be very useful in exercise. When a suitable thesis is taken up, not maintaining it properly is only a minor mistake, because even so the disputation serves as an exercise, though not as well as possible.²²

Boethius's remark that one may accept an implausible thesis in disputation for exercise is quite interesting in respect to the duty of following truth. Boethius very clearly points out that in disputations for exercise the duty to follow truth is not always followed. When the respondent is defending a thesis well known to be false, he will be forced to choose between violating the duty of answering in a consistent way and the duty of following the truth. Boethius's advice is clear: one must remain consistent.

The primary thing exercised in disputations for the purpose of exercise is, according to Boethius, the ability to be consistent; that is, avoid anything incompatible with the accepted thesis or deny anything following from the thesis. The idea of having an exercise is a step away from truth. It seems that Boethius presents the art of obligations (*ars obligatoria*) as a step farther in this direction.

Boethius introduces the art of obligations as a special technique, which can be employed within the context of dialectical disputations. The discussion of the art begins as follows:²³

And with this you must know, that in dialectical disputations, which are [undertaken] for inquiry into truth, or for exercise in easy invention of arguments for whichever proposition or in defence of the thesis, the art of obligations is often used.

The two purposes given for employing obligational technique are the purposes Boethius also gives generally for dialectical disputations. Boethius seems to state here that any dialectical disputation may employ this technique. However, his description of the technique shows that it may be applied only in specific disputations. Also, how the technique can serve the purposes of inquiry is left unclear.

3. OBLIGATIONAL DISPUTATIONS

Let us now look at the technique of obligations in general, then at different versions of that technique, and finally the purposes for which that technique is suitable.

The basic idea of the obligational technique is that in a disputation the opponent can give the respondent a specific duty overriding the general *prima facie* duty of following the truth (T_a - T_c). Even though a variety of duties were distinguished as different *speciei* of obligational disputations, the paradigmatic type of specific duty seems to have been that of granting a given contingently false proposition. This kind of obligation was called *positio*, and the given false proposition was called *positum*. In the following I will adopt the term *positum* without translation.

Boethius gives a short account of obligational technique as follows:²⁴

[T]he art of obligations, which is based on this, that the opponent posits every thesis, which he wants to posit, and the respondent must grant them, whether they are probable or improbable, whether necessary or impossible, as far it does not happen that they are impossible – impossibility is namely the only cause why the respondent has to deny the opponent any of those, which he wants to posit – until he [the opponent] says “time is finished”, and all which have been posited before this are understood to be granted by the respondent. Then from these, which are posited, the opponent makes questions to the respondent, and the respondent must grant all consequents of his thesis And the respondent must deny everything which is repugnant to his thesis.

It is interesting to notice that the opponent may give propositions of any status as *positum*, even impossible ones. Boethius emphasizes that the respondent must accept all sentences, so far as they are not impossible. It seems that this term should be translated into modern terminology as *inconsistency*: the respondent must accept all kinds of

propositions, even (natural?) impossibilities, but he must take care that he does not accept inconsistencies.

Boethius says that “all which have been posited before this are understood to be granted by the respondent”. The respondent must take care that all his later answers are consistent with granting all those propositions that are posited. Even though in accepting the *positum* the respondent violates the *prima facie* duties formalized as T_a – T_c above, he must follow E. This idea is elaborated in the last two sentences cited above: the respondent must grant whatever follows from the *positum*, and he must deny whatever is repugnant to the *positum*.

Boethius’s description of the course of an obligational disputation is slightly different from what is assumed in most treatises on obligations. A suitable opposing text is Ockham’s description:²⁵

And this art consists of this that in the beginning some proposition has to be posited, and then propositions have to be proposed as pleases the opponent, and to these the respondent has to answer by granting or denying or doubting or distinguishing. When these answers are given, the opponent, when it pleases him, has to say: “time is finished”. This is, the time of the obligation is finished. And then it is seen whether the respondent has answered well or not.

There are at least two important differences between Boethius’s and Ockham’s descriptions of the art of obligations. First, in both descriptions the disputation begins with *positio*, but Boethius clearly thinks that there are several *posita*, while Ockham uses the singular. Second, the phrase ‘time is finished’ is placed differently. Boethius places it immediately after the *posita* are given, while Ockham assumes that propositions to be evaluated are put forward before this phrase.

These differences are connected. It seems natural that the phrase ‘time is finished’ marks the end of the set of sentences that is at the focus of the discussion in the obligational disputation. According to Boethius, all of these sentences are given as *posita*, and as such they form a fixed set: the point of the obligational disputation is to consider this fixed set. According to Ockham, only one sentence is given as *positum*, and the set of sentences on which the disputation focuses is not fixed. The set grows with the disputation, and – as it turns out when rules are considered more carefully – the order in which the propositions are brought into discussion is very important. One of the main ideas of obligational theories similar to Ockham’s theory is how

the interpretation of sentences is relativized to the order of their presentation.

Modern discussion has delineated three different theories of obligations prevalent during the fourteenth century, while it has been assumed that during the thirteenth century a consensus existed. However, it seems that we must recognize Boethius's theory as different from the standard approach, and consider two different theories of obligations of the thirteenth century. Ignoring the differences in the setting, the feature to best differentiate between all five theories is their rules for evaluating and connecting to the disputation as whole propositions, which neither follow from nor are repugnant to the *positum* or *posita*. Such propositions are usually called irrelevant (*impertinens*).

Three basic rules for evaluating propositions are common to all theories (' P_{ab} ' stands for 'a has admitted as the *positum* from b'):

- (R₁) $(p)(P_{ab}p > OC_{ab}p)$.
 (R₂) $(p)(q)(P_{ab}p \ \& \ K_a \Box(p > q) > OC_{ab}q)$.
 (R₃) $(p)(q)(P_{ab}p \ \& \ K_a \Box(p > \neg q) > ON_{ab}q)$.

R₁ is simply the rule that the *positum* must be granted; R₂ tells that propositions following from the *positum* must be granted; and R₃ tells that repugnant propositions must be denied. Thus R₁ defines the special obligation overriding the prima facie duty of following truth, and R₂ and R₃ are specialized applications of the duty of remaining consistent.

In the following account of the different theories, I will assume these three rules and consider different ways of expanding the set of rules so that a single answer would be determined for any proposition put forward during an obligational disputation.

4. DIFFERENT THEORIES SPECIFICALLY

Boethius adds only one rule to these three: the rule for irrelevant propositions. The rule is very simple: any irrelevant proposition must be granted regardless of its status, even an impossible one.²⁶ Formally (' I_{ab} ' stands for irrelevant in the disputation between a and b'):

- (R_{4B}) $(p)(I_{ab}p > OC_{ab}p)$.

Boethius's source for such a rule is Aristotle, who in *Topics* VIII 6 gives a similar one.²⁷ Aristotle's rationale for this rule seems to be that the respondent acting co-operatively will grant what the opponent

wants, if there are no specific reasons for denying the proposition. Granting an irrelevant proposition cannot do any harm – just because the proposition is irrelevant.

In obligational disputation following Boethius's rules, the situation is similar: the answer to irrelevant propositions is not important, since those propositions are literally irrelevant. Boethius's obligational theory is a technique of discussing the logical character of a fixed set of propositions, and, if a proposition bears no logical relation to that set, it cannot play any role in the discussion.

According to the description given by Boethius, the primary duty of the respondent in an obligational disputation is to detect any hidden inconsistencies in the set of *posita*. It seems that obligational disputation of the Boethian type is primarily a tool for discussing implicitly inconsistent descriptions of situations and paradoxical situations as the liar's paradox.²⁸

When we turn from Boethius's theory to other theories, from Paris to Oxford, the attitude toward irrelevant propositions changes. It even seems that problems with rules for irrelevant propositions became the reason why fourteenth-century obligational treatises were written. In the three fourteenth-century theories, we find different rules for irrelevant propositions, but all authors reveal an interest in these rules.

The theory found in Walter Burley's treatise on obligations, written in 1302,²⁹ seems to have been the most popular one. As far as modern editions represent the tradition accurately, this theory, which I will in the following call Burley's theory, is basically a systematization of the standard theory of the thirteenth century. Modern scholars of this genre seem to agree that there was a period of dispute during the first half of the fourteenth century about correct rules of obligation, but most of Burley's theory was accepted after the dispute – albeit with important revisions.

Burley's rules differ from Boethius's in two ways. First, while Boethius advises the respondent to grant all irrelevant propositions, according to Burley irrelevant propositions ought to be treated following the general *prima facie* duty of following the truth. Propositions known to be true ought to be granted, those known to be false ought to be denied, and others ought to be doubted.³⁰ Formally, the rules are as follows:

$$(R_{4a}) \quad (p)(I_a b_a \ \& \ K_a p \ > \ O C_a b_p).$$

- (R_{4b}) $(p)(I_{ab}p \ \& \ K_a \neg p > ON_{ab}p)$.
 (R_{4c}) $(p)(I_{ab}p \ \& \ \neg K_a p \ \& \ \neg K_a \neg p > OD_{ab}p)$.

R_{4a}–R_{4c} are analogous to T_a–T_c, except for the condition that p is irrelevant.

The second difference is that previously answered irrelevant propositions must be taken into account when considering the consistency of answers.³¹ This is operationalized through the following additions to rules R₂ and R₃:

- (R_{2'w}) $(p)(q)(r)(P_{ab}p \ \& \ G_{ab}q \ \& \ K_a \square((p \ \& \ q) > r) > OC_{ab}r)$.
 (R_{3'w}) $(p)(q)(r)(P_{ab}p \ \& \ G_{ab}q \ \& \ K_a \square((p \ \& \ q) > \neg r) > ON_{ab}r)$.

According to these rules a sentence put forward should be granted if it follows from the *positum*, together with any of the sentences maintained earlier; it should be denied if it is inconsistent with the *positum*, together with any of the sentences maintained earlier.

Adding these rules to R₂ and R₃ also forces revision of the definition of irrelevancy, since a proposition should also be relevant when it follows from the *positum*, together with some earlier granted proposition. A proposition is thus irrelevant if and only if none of rules R₁, R₂, R_{2'w}, R₃, or R_{3'w} applies to it. This definition of irrelevancy makes it clear that Burley's rules R₁, R₂, R_{2'w}, R₃, R_{3'w}, R_{4a}, R_{4b}, and R_{4c} are exhaustive in the sense that these determine one and only one answer to any proposition put forward in the disputation (assuming that the respondent has sufficient knowledge of entailments).³²

The aim in Burley's rules is to guarantee the consistency of the list of answers. As the *positum* is just one sentence, Boethius's aim of testing the consistency of *posita* is not at issue – even if a special rule requiring non-paradoxicality from the *positum* is often given in thirteenth-century treatises presenting rules similar to Burley's.³³ But just as Boethius stresses that the set of *posita* must be consistent, Burley stresses that the set of answers must be consistent.³⁴ The shift from Boethius to Burley is one from considering a fixed set to discussion of a set of sentences sensitive to the order of presentation.

Like Boethius's viewpoint, Burley's is strictly syntactic. Although the list of answers is consistent, it is not in any clear sense supposed to be a description of any situation. Early treatises on obligations, including Burley's treatise, give a rule according to which “when a false contin-

gent proposition concerning the present has been posited, one must deny that it is the present instant".³⁵ This rule implies that answers in an obligational disputation are based on two instants of time: the relevant sentences must be connected to an imagined future instant, while the irrelevant sentences are answered on the basis of an actual present instant. This makes the set of answers nonsensical as a whole.

An interesting revision to obligational theory is made by John Duns Scotus, who points out that these rules concerning instants are not essential to the art of obligations, and should be left out.³⁶ In the form cited above the rule cannot be found in later treatises. The most important novelty in the Scotist revision is that it opens the way to interpreting the list of answers as description of one possible situation. Answers are no longer connected to two different instants, they are all based on the present instant, and as a set the answers must form a consistent description of how things could be at the present. It is, however, noteworthy that there is no guarantee that the consistent description is even near to truth. Burley gives a rule to the effect that when the respondent has admitted a false *positum*, he may be forced to grant any falsehood compatible with that *positum*. This rule is not changed by the Scotist revision.³⁷

Scotus's remarks on the theory of obligations in the context of an argument about freedom of the will. He argues that even when the will chooses something, it is possible in the very same instant that it does not choose that thing. This argumentation has been understood as concerning a concept of possibility very near our modern concept of logical possibility.³⁸ Burley's obligational theory – with the Scotist revision – seems to suit very well the discussion of logical possibilities. The respondent's answers based on a false *positum* are developed into a consistent set, which seems to describe what can be called a logically possible alternative of the actual present.

When referring to the theory of obligations in his *Sophismata*, written in Oxford between 1321 and 1326,³⁹ Richard Kilvington pursues this line further: he thinks that the list of answers in an obligational disputation should describe the situation as it would be if the *positum* were true.⁴⁰ This interpretation of what is going on in an obligational disputation demands rules different from Boethius's or Burley's rules. The change concerns mainly those propositions that are irrelevant according to the definitions relying on entailment given earlier, but that are

counterfactually dependent on the *positum*. According to Kilvingtonian definition, a proposition is irrelevant if and only if its truth-value would be the same as it is now, if the *positum* were true.

With this new definition of irrelevant propositions Kilvington can adopt Burley's rules R_{4a} – R_{4c} to regulate answers to irrelevant propositions. Rules R_2 and R_3 must be modified by changing the entailment into a counterfactual conditional:

$$(R_{2K}) \quad (p)(q)(P_{ab}p \ \& \ K_a(p \ \square \rightarrow q) > OC_{ab}q).$$

$$(R_{3K}) \quad (p)(q)(P_{ab}p \ \& \ K_a(p \ \square \rightarrow \neg q) > ON_{ab}q).$$

(' $p \ \square \rightarrow q$ ' ought to be read 'if it were the case that p , it would be the case that q '.) According to these rules a sentence put forward should be granted if it is known to be counterfactually implied by the *positum*, and denied if its denial is known to be counterfactually implied by the *positum*.

Kilvington and an anonymous author⁴¹ following his theory also try to elaborate their theoretical idea through accepting R_2 and R_3 as such, but adding the following rules, which are structurally similar to Burley's rules $R_{2'w}$ and $R_{3'w}$:⁴²

$$(R_{2'K}) \quad (p)(q)(r)(P_{ab}p \ \& \ K_aq \ \& \ K_a \square((p \ \& \ q) > r) > OC_{abr}).$$

$$(R_{3'K}) \quad (p)(q)(r)(P_{ab}p \ \& \ K_aq \ \& \ K_a \square((p \ \& \ q) > \neg r) > ON_{abr}).$$

In these rules the counterfactual conditional used in R_{2K} and R_{3K} is avoided. Instead a sentence should be granted if it is known to be entailed by the *positum* together with known truths, and denied if its denial is known to be entailed by the *positum* together with known truths.

A similar idea of elaborating the content of a counterfactual conditional can also be found in early modern accounts of subjunctive reasoning. Primary problems with this kind of account are in the selection of the additional premises: What kind of background knowledge may be employed? Neither Kilvington nor the mentioned anonymous author discuss this problem, thus we must take their theories as incomplete in this respect.

It may be that the set of rules of obligations employing either R_{2K} and R_{3K} or $R_{2'K}$ and $R_{3'K}$ can be developed into a suitable whole, but, as matter of fact, medieval authors did not generally accept the idea of employing counterfactual reasoning in the rules of obligations. Kilvington's theory was not accepted because logicians felt comfortable with

keeping to logically necessary inferences within obligational disputations.

In his theory of obligational reasoning, Roger Swineshed has a very different approach from Kilvington's.⁴³ Swineshed does not require consistency of the list of answers as a whole. The whole list thus cannot be taken as describing a situation. Swineshed returns in a sense to Boethius's idea that irrelevant propositions are literally irrelevant to the main discussion. A natural way to interpret the list of answers is to classify it in two columns, one for relevant and the other for irrelevant propositions. Both columns are internally consistent, but may naturally be mutually inconsistent, since, if the *positum* is false, answers in the relevant column are mostly false, whereas answers in the irrelevant column are supposed to follow truth.

Swineshed does not present any new basic rules: his theory is sufficiently given by leaving $R_{2,W}$ and $R_{3,W}$ out of Burley's rules. Thus, the set of rules contains R_1 , R_2 , R_3 , R_{4a} , R_{4b} , and R_{4c} .⁴⁴ Answers following rules R_1 – R_3 are to be put in the relevant column, while answers following R_{4a} – R_{4c} belong to the irrelevant column. When the disputation follows Swineshed's rules, the relevant column can amount at most to a partial description of a situation, where the *positum* is true. Since all propositions granted to this column follow logically from the *positum*, no new information of the situation can be found; only implicit information can be made explicit.

Both medieval and modern discussions of Swineshed's theory of obligations have concentrated much on two seemingly odd, specific rules. They are as follows:⁴⁵

A conjunction need not be granted on account of granting parts of the conjunction, and neither on account of granting a disjunction has any part of it to be granted.

These rules have often been interpreted as granting flat contradictions. In a sense, they do allow that. Swineshed himself recognizes that, according to his theory, three or more sentences granted within the same disputation may form an inconsistent set.⁴⁶ However, if relevant and irrelevant sentences are distinguished into different columns, it becomes clear that neither column can include contradictions. The irrelevant column is consistent simply because it is a description of the actual world. The relevant column is consistent because all sentences granted in it follow from the *positum*.

Swineshed's idea of structuring the obligational disputation into two

mutually inconsistent parts is not entirely new. Burley discusses a case where the same opponent gives simultaneously two inconsistent sentences as *posita* to different people. As Burley remarks, in such a situation one may grant without answering poorly the contradiction of the posited sentence – namely, the contradiction of the sentence posited to the other respondent.

The seemingly odd rule for conjunctions and disjunctions also has its predecessors. In the putative Sherwood treatise, it is noted that “it does not follow that, if both parts [of a copulative] should be granted *divisim*, that the copulative itself should be granted”.⁴⁷ This rule is different from Swineshed’s, as it discusses answers to propositions that might be put forward at a certain step in the disputation, while Swineshed’s rule discusses answers to propositions that are actually put forward at different steps in the disputation. As in Swineshed, in the putative Sherwood rule the idea is that the copulative may consist of an irrelevant true proposition and a sequent proposition: in that case the whole copulative is irrelevant and false, and has to be denied, while the parts have to be granted for separate reasons.

Richard of Campsall, in his *Questiones* on the *Prior Analytics*, also discusses a case where the conjunction has to be denied when its parts have to be granted. Campsall says that “this consequentia has to be denied: ‘these parts have to be granted, therefore the copulative has to be granted’”.⁴⁸ Campsall’s idea is that one of the conjuncts may have to be granted in one disputation and the other part in another disputation, while the conjunction may have to be denied in both disputations.

Campsall discusses a situation where two different opponents have given at the same time two contradictory sentences as *posita* for the respondent. Then the respondent would clearly have two disputations, and contradictions between sentences occurring in different obligational disputations are not problematic. Campsall also states that if the respondent can be obliged to such disputations by two opponents, it is also possible that he is obliged to such disputations by one opponent alone.⁴⁹

In sum, Campsall suggests that it is possible to imagine disputations where one and the same opponent gives simultaneously to one and the same respondent two contradictory sentences as distinct *posita*. It is easy to see that the practical realization of such a disputation may easily become quite complicated, but the theoretical possibility is interesting. Obligational disputations following the rules of Swineshed are some-

what simpler: instead of contrasting two opposite assumptions to each other and connecting both to the actual truth, Swineshed simply contrasts one assumption with the actual truth.

Even if Swineshed's rules are from the viewpoint of interpretation quite simple, they were not widely accepted. His theory had the disadvantage of allowing explicit contradictions to be granted – even if connected to different backgrounds. It seems that later authors writing about obligational theory thought that it should be possible to interpret the set of granted sentences as a description of one situation.

5. CONCLUSION

In Aristotelian dialectical disputations the tension is between the discussed thesis and its refutation constructed during the dispute. Even if obligational disputations are placed within the context of Aristotelian dialectics, *positum* has a very different status in obligational disputations than thesis has in Aristotle's dialectical disputations. The purpose of an obligational disputation is not to build a refutation for the *positum*, which is usually well known to be false.

Aristotle discusses the possibility of undertaking a disputation on a highly improbable thesis, but even in this case the point of the disputation is to find an interesting refutation for the thesis – not so much in order to show that the thesis is false as for the sake of logical interest in the refutation itself. As we saw above it is clear in Boethius's discussion of obligations that the *positum* is not questioned in any way. Rather, the case is that while in Aristotle the dialectical disputation takes as its starting point reputable opinions (*endoxa*), the obligational disputation is grounded on the *positum* or *posita*. It is also noteworthy that the uncertainty connected with Aristotle's dialectics, in contrast to the necessity of demonstration, is not to be found in obligational theory. In obligational disputation sentences are granted or denied without hesitation, and there is no discussion of different degrees of probability. As I see it, this is because in early treatments of obligations discussion is syntactic. Sentences put forward and answered in obligational disputation did not carry any connection to beliefs.

According to the account given by Boethius an obligational disputation is based on the *posita* so exclusively that an irrelevant sentence is left out the discussion: it may be granted regardless of its alethic or epistemic status, because the answer makes no difference to the dis-

cussion. The discussion concentrates on the internal logical structure of the set of the *posita*. The set is given as a fixed set in the beginning of the disputation, and the propositions put forward afterward are of secondary importance.

When we turn from Boethius to Burley, the point of the obligational disputation changes. *Positum* still has the status of providing the ground for the disputation, but, in Burley's theory, the point of the disputation is to compare the *positum* with other sentences: to those following from it, to those repugnant to it, and to the so-called irrelevant sentences. The point of the disputation is, on the one hand, in the evaluation of the logical relation of new sentences to the earlier granted sentences, and, on the other, in building a consistent set combining the *positum* with some irrelevant truths.

As we saw above, the Scotist rules, which later became the standard rules, allow the *positum* to be expanded into a description of any possible situation where the *positum* is true. Scotus's revision allows the possibility of sensible interpretation. It seems that the main strand of obligational thinkers believed that an obligational disputation may concentrate on any expansion of the *positum*. Swinshed and the so-called *nova responsio* had the viewpoint that the assumption given in the *positum* may not be expanded by propositions put forward afterward: the disputation must keep to what is given in the *positum*. Advance in describing the situation is possible only through making explicit what is implicit in the *positum*.

At the first sight it may seem that Kilvington's theory would be the most useful. Kilvington assumes that the *positum* should be seen as representing only one situation, and the disputation should concern this situation. What is even more interesting, Kilvington explicitly connects obligational technique with the so-called *sophismata* and the method of laying down a *casus* as the basis of discussion.

This method was a widespread technique in thirteenth- and especially fourteenth-century philosophy. Thought-experiments have always been an important working method of philosophy; in the Middle Ages this method often had the technical form of positing a *casus* and discussing sentences whose truth-value is problematic in that *casus*. The method was used in all sciences, from theology to jurisprudence. Particularly interesting applications of the technique can be found in fourteenth-century English natural philosophy. Also, specific disputations on so-

phisms employing the *casus* technique were common in fourteenth-century universities.

According to Kilvington's remarks on obligations it seems that he looks at the *sophismata* disputation employing a *casus* somewhat like this: the opponent chooses a situation, and lays down a description of it as the *casus*. Then he asks questions about the situation, in order to acquire both a proof and a disproof for some complex sentence, whose interpretation is usually quite problematic. The respondent should grant in his answers what is true and deny what is false in the situation given with the *casus*. Naturally, he must either grant or deny the problematic sentence itself: it cannot have both truth-values. The point of obligational rules is to help the respondent in deciding whether a sentence is true or false in the imagined situation given with the *casus*.

Given this kind of understanding of the point of obligational rules, and the subjunctive mood of reasoning Kilvington employs, it is clear that he must try to spell out the content of counterfactual conditionals in the form of exact obligational rules. This is the idea of rules R_{2K} and R_{3K} discussed above.

It is interesting to notice that Kilvington's theory was not rejected because his treatment of counterfactual conditionals was insufficient, but because counterfactual reasoning was not thought to fit into the context of obligational reasoning. William Heytesbury criticizes Kilvington's theory of obligation by emphasizing that all irrelevant sentences must be evaluated according to their actual truth-value. Heytesbury's examples show clearly that he had in mind those sentences that follow counterfactually from the *positum*, but that lack logically necessary connection. Such sentences are relevant according to Kilvington, but irrelevant according to Burley and to Scotus.⁵⁰

Heytesbury re-emphasizes, in the context of *sophismata*, Burley's much discussed rule, according to which order of presentation may make a difference to what should be granted. Heytesbury seems to accept Kilvington's idea that *casus* of *sophismata* must be treated as an obligational *positum*, but revised Kilvington's conception of how the sentences should be interpreted. Heytesbury does not take the *positum* as determining one situation as the background of the disputation: according to Heytesbury the *positum* should be taken as a proposition, and the disputation is about logical relationships between propositions rather than about truth-values in an imagined situation.⁵¹ Thus the

point of obligational rules must be formulated in the following way, based on literal reading of the rules: the rules should tell the respondent what must be granted and what must be denied in a disputation based on what follows from the given *positum*.

NOTES

* In writing this paper I have gained much from discussions with Simo Knuuttila and Calvin Normore.

¹ The translation is from Aristotle (1984, p. 167).

² For modern discussion of the dialectical method presented in the *Topics*, see, e.g., Moraux (1968), Brunschwig (1985, pp. 31–40), and Kakkuri-Knuuttila (1990).

³ Aristotle (1984, p. 268).

⁴ “In an assembly of disputants discussing in the spirit not of a competition but of an examination and inquiry, there are as yet no articulate rules about what the answerer should aim at, and what kind of things he should and should not grant for the correct and incorrect defence of his position” (*Topics VIII*, 5: Aristotle, 1984, p. 268).

⁵ Cf. Brunschwig (1985, pp. 39–40).

⁶ Boethius discusses Aristotelian theory of topics in *De topicis differentiis* (1891); the translation is in Stump (1978). Also Boethius’s commentary on Cicero’s *Topics* was important in the Middle Ages. See Boethius (1833); the translation is in Stump (1988).

⁷ Medieval theories of topics are discussed in Green-Pedersen (1984).

⁸ Cf. de Rijk (1980, pp. 72–75). See also texts edited in de Rijk (1967, e.g., pp. 122–27, 148).

⁹ For dating of this work see the introduction in Boethius (1976).

¹⁰ “Licet dialectica doceat multa, illa tamen multa attribuuntur alicui uni, quod principaliter docet, scilicet modum arguendi dialectice” (Boethius, 1976, p. 16).

¹¹ Aristotle (1984, p. 262).

¹² Cf. Brunschwig (1985, pp. 37–38).

¹³ De Rijk (1980).

¹⁴ “Opponens autem in dialectica et respondens propter duas disputant causas, quarum una est, ut sint exercitati in disputatione dialectica in sustinendo positionem et in opponendo ad eam; secunda causa est ipsa cognitio veritatis” (Boethius, 1976, p. 309).

¹⁵ Boethius (1976, p. 311).

¹⁶ Questions 2–4 are the following: “Utrum opponens debeat conari contra respondentem in disputatione dialectica?”; “Utrum opponens debeat redarguere respondentem?”; “Utrum opponens debeat iuvare respondentem ad suam positionem sustinendum?” (Boethius, 1976, pp. 310–14).

¹⁷ “Disputatio dialectica commune opus est, et uterque alterum iuvat in illo opere, tamen non iuvat opponens respondentem ad sustinendum positionem, quia tunc corrumpetur commune opus nec esset iuvamentum commune” (Boethius, 1976, p. 314).

¹⁸ Boethius (1976, pp. 312–13).

¹⁹ “[1] Bene respondens debet esse talis, quod concedat opponenti omnia, quae concederet sibi ipsi secum cogitanti, et eodem modo negare. [2] Debet ex naturali suo ingenio vel ex habitu acquisito esse aptus ad concedendum verum et negandum falsum et debet

diligere propter se verum. [3] Debet tertio cavere ne sit protervus, id est velle aliquam positionem, pro qua non habet rationem et a qua per nullam rationem potest removeri. Talis enim ad cognitionem veritatem non potest pervenire” (Boethius, 1976, p. 321).

²⁰ Green (1963, pp. 2, 53, 81); de Rijk (1974, p. 103; 1975, p. 27).

²¹ The system of formalizing disputational duties I am here employing was first developed in Knuutila and Yrjönsuuri (1988).

²² Boethius (1976, pp. 321–23).

²³ ‘Et cum hoc debes scire, quod in disputatione dialectica, quae est ad inquisitionem veritatis vel ad exercitium in argumentis ad quodlibet propositum de facilli inveniendis sive ad sustinendum positionem, saepe attenditur ars obligatoria. . .’ (Boethius, 1976, p. 329).

²⁴ “[A]rs obligatoria, quae super hoc fundatur, quod opponens ponat omnes positiones, quas vult ponere, et respondens debet eas concedere, sive sint probabiles sive improbabiles, sive necessariae sive impossibiles, dummodo non inveniatur, quod sint impossibiles – sola enim est impossibilitas causa, quare respondens debeat negare opponenti aliquid eorum, quae vult ponere – usque quo dixerit: “cedat tempus”, et omnia quae ante sunt posita intelligantur a respondente concessa. Tunc ex his, quae posita sunt, interrogat opponens respondentem, et debet respondens concedere omnia consequentia ad suam positionem . . . Et debet negare omnia repugnantia suae positioni. . .” (Boethius, 1976, p. 329–30).

²⁵ “Et consistit ars ista in hoc quod in principio debet aliqua propositio poni, deinde debent propositiones proponi secundum quod placet opponenti, ad quas debet respondens respondere concedendo vel negando vel dubitando vel distinguendo. Quibus responsionibus datis debet opponens, quando sibi placet, dicere: cedat tempus. Hoc est, cesset tempus obligationis. Et tunc videndum est an respondens bene responderit vel non” (Ockham, 1974, p. 736).

²⁶ Boethius (1976, p. 330).

²⁷ “[I]f then it seems to be true and is irrelevant, the answerer should grant it. . .; if it does not seem to be true and is irrelevant, he should grant it. . .” (Aristotle, 1984, p. 269).

²⁸ An anonymous treatise *De petitionibus contrariorum* (de Rijk, 1976) gives interesting examples of obligational disputations following rules at least similar to, if not the same as, those given by Boethius. The structure of the sophisms in this collection is the following: a set of sentences is first given, and after them one sentence is put forward, but it cannot be granted nor denied, because it both follows from and is inconsistent with the set given in the beginning. The solution of the sophism consists in showing how the original set of sentences is inconsistent and cannot be accepted. Some of the examples are paradoxical rather than implicitly inconsistent.

²⁹ For dating this treatise, see Spade and Stump (1983).

³⁰ “Si sit impertinens, respondendum est secundum sui qualitatem, et hoc, secundum qualitatem quam habet ad nos. Ut, si sit verum, scitum esse verum, debet concedi. Si sit falsum, scitum esse falsum, debet negari. Si sit dubium, respondendum est dubie” (Green, 1963, p. 48).

³¹ “Omne sequens ex posito cum concesso vel cum concessis, vel cum opposito bene negati vel oppositis bene negatorum, scitum esse tale, est concedendum. . . . Omne repugnans posito cum concesso vel concessis, vel opposito bene negati vel oppositis bene negatorum, scitum esse tale, est negandum” (Green, 1963, p. 48).

³² For the sake of brevity I omit discussion of the epistemic conditions in the rules.

³³ See, e.g., de Rijk (1974, pp. 104–06; 1975, p. 28).

³⁴ “Respondendum est ad omnia proposita ac si essent proposita in eodem instanti, sic quod, durante tempore obligationis, non debent aliqua concedi nisi quae possunt sustineri pro eodem instanti. Et quia repugnantia non possunt pro eodem instanti sustineri, ideo, durante tempore obligationis, non debent repugnantia concedi” (Green, 1963, p. 62).

³⁵ “Posito falso contingenti de praesenti instanti, negandum est praesens instans esse” (Green, 1963, p. 59). See also other formulations of the rule in de Rijk (1974, p. 112; 1975, p. 32) and Green (1963, p. 8).

³⁶ “Illa regula falsa est et probatio non valet, quia licet positum debeat sustineri sicut verum, potest tamen sustineri pro illo instanti non negando illud instans esse pro quo est falsum” (Scotus, 1960, p. 423).

³⁷ Cf. Knuuttila and Yrjönsuuri (1988, pp. 199–201) and Knuuttila (1989, pp. 86–87).

³⁸ For modern discussion of Scotus’s remarks, see, e.g., Knuuttila (1981, pp. 229–30), Spade and Stump (1983, pp. 20–24), and Normore (1985, pp. 3–22).

³⁹ Kretzmann and Kretzmann (1990, pp. xxvi–xxvii).

⁴⁰ See Kretzmann and Kretzmann (1990, pp. 121–33). For discussion of Kilvington’s theory see Spade (1982, pp. 19–28) and Stump (1981, pp. 143–53). Kilvington does not give as explicit rules as the authors above discussed, but it seems possible to construct such rules on the basis of his discussion.

⁴¹ Edited and translated in Kretzmann and Stump (1985).

⁴² “Omnis propositio quae [sequitur] ex posito et aliquo impertinenti vel veris est concedenda” (Kretzmann and Stump, 1985, p. 215).

⁴³ Swineshed’s treatise was written probably between 1330–35. See Spade (1977, p. 246). It is edited in Spade (1977).

⁴⁴ Swineshed gives his rules as follows: “Omne positum sine obligatione ad hoc pertinente non repugnans positioni in tempore positionis est concedendum”; “Omne sequens ex posito sine obligatione ad hoc pertinente non repugnans positioni in tempore obligationis est concedendum”; “Omne repugnans posito sine obligatione ad hoc pertinente non repugnans positioni in tempore positionis est negandum”; “Ad impertinens sine obligatione ad hoc pertinente velut per illud quod principaliter concipitur respondendum est” (Spade, 1977, pp. 265–66).

⁴⁵ “Propter concessionem partium copulativae non est copulativa concedenda nec propter concessionem disjunctivae est aliqua pars ejus concedenda” (Spade, 1977, p. 257).

⁴⁶ “Concedenda est conclusio quod tria repugnantia sunt concedenda et quattuor et sic deinceps” (Spade, 1977, p. 274).

⁴⁷ “[D]icendum quod non sequitur quod, si utraque pars est concedenda divisim, quod ipsa copulativa sit concedenda” (Green, 1963, p. 7).

⁴⁸ “Neganda est ista consequentia: ‘iste partes sunt concedenda, igitur copulativa est concedenda’” (Campsall, 1968, p. 237).

⁴⁹ “Possibile est quod unus homo ponat tibi unum oppositorum ad sustinendum, et quod alius ponat suum oppositum ad dubitandum; sicut, igitur possibile est concedere unum contradictorum in una disputatione, et dubitare suum oppositum pro eodem tempore in alia disputatione, ita unum oppositorum post sustineri in comparacione ad unum, et suum oppositum in comparacione ad alium; nunc arguo: ad quodcunque sustinendum potest aliquis obligari a multis, ad illud sustinendum potest obligari ab uno . . .” (Campsall, 1968, p. 227).

⁵⁰ Heytesbury comments on obligational theory in chapter "De scire et dubitare" in his *Regulae solvendi sophismata*, and at the end of his *De sensu composito et diviso*. Both are printed in Heytesbury (1494).

⁵¹ The metalinguistic character of Heytesbury's way of discussing sophisms has been discussed by Murdoch (see, e.g., 1979).

REFERENCES

- Aristotle: 1984, *The Complete Works of Aristotle*, Bollingen series, Vol. 71(2), Princeton University Press, Princeton.
- Boethius, Anicius Manlius Severinus: 1833, *Commentarii in Ciceronis Topica*, in *Ciceronis Opera*, Vol. V(1), ed. J. C. Orelli and G. Baiterus, Fuesslini, Zürich.
- Boethius, Anicius Manlius Severinus: 1891, *De topicis differentiis*, in *Patrologia Latina*, Vol. LXIV, ed. J.-P. Migne, Paris.
- Boethius de Dacia: 1976, *Quaestiones super librum Topicorum*, Corpus Philosophorum Danicorum Medii Aevi, Vol. 6, ed. N. J. Green-Pedersen and J. Pinborg, Gad, Copenhagen.
- Brunschwig, J.: 1985, 'Aristotle on Arguments without Winners or Losers', *Wissenschaftskolleg, Jahrbuch 1984/85*, 31–40.
- Campsall, Richard of: 1968, *Questiones super librum Priorum Analyticorum*, in *The Works of Richard of Campsall*, Vol. I, ed. E. A. Synan, Pontifical Institute of Medieval Studies, Toronto.
- De Rijk, L. M.: 1967, *Logica modernorum: A Contribution to the History of Early Terminist Logic*, Vol. II(2), Van Gorcum, Assen.
- De Rijk, L. M.: 1974, 'Some Thirteenth Century Tracts of the Game of Obligation I', *Vivarium* 12, 94–123.
- De Rijk, L. M.: 1975, 'Some Thirteenth Century Tracts of the Game of Obligation II', *Vivarium* 13, 22–54.
- De Rijk, L. M.: 1976, 'Some Thirteenth Century Tracts of the Game of Obligation III', *Vivarium* 14, 26–49.
- De Rijk, L. M.: 1980, *Die mittelalterlichen Tractate De modo opponendi et respondendi*, Beiträge zur Geschichte der Philosophie und Theologie des Mittelalters, Neue Folge, Band 17, Aschendorff, Münster.
- Green, R.: 1963, *The Logical Treatise 'De obligationibus': An Introduction with Critical Texts of William of Sherwood(?) and Walter Burley*, Vol. II, Ph.D. Dissertation, Louvain.
- Green-Pedersen, N. J.: 1984, *The Tradition of Topics in the Middle Ages*, Philosophia Verlag, München.
- Heytesbury, William: 1494, *Tractatus Guilielmi Hentisberi de sensu composito et diviso, Regulae eiusdem cum sophismatibus . . .*, Bonetus Locatellus, Venice.
- Kakkuri-Knuutila, M.-L.: 1990, 'Dialogue Games in Aristotle', in M. Kusch and H. Schröder (eds.), *Text-Interpretation-Argumentation*, Buske, Hamburg, pp. 221–72.
- Knuutila, S.: 1982, 'Time and Modality in Scholasticism', in S. Knuutila (ed.), *Reforging the Great Chain of Being: Studies in the History of Modal Theories*, Synthese Historical Library, Vol. 20, D. Reidel, Dordrecht, pp. 187–98.
- Knuutila, S.: 1989, 'Modalities in Obligational Disputations', in *Atti del Convegno*

- Internationale di Storia della Logica, Le Teorie delle Modalità*, Clueb, Bologna, pp. 79–92.
- Knuutila, S. and M. Yrjönsuuri: 1988, 'Norms and Action in Obligational Disputations', in O. Pluta (ed.), *Die Philosophie im 14. und 15. Jahrhundert. In Memoriam Konstanty Michalski (1879–1947)*, Bochumer Studien zur Philosophie, Band 10, B. R. Grüner, Amsterdam, pp. 191–202.
- Kretzmann, N. and B. E. Kretzmann: 1990. *The Sophismata of Richard Kilvington. Introduction, Translation and Commentary*, Cambridge University Press, Cambridge.
- Kretzmann, N. and E. Stump: 1985, 'The anonymous De arte obligatoria in Merton College MS 306', in E. P. Bos (ed.), *Mediaeval Semantics and Metaphysics, Studies Dedicated to L. M. de Rijk, Ph.D. on the Occasion of his 60th Birthday*, Ingenium, Nijmegen, pp. 239–80.
- Moraux, P.: 1968, 'La joute dialectique d'après le huitième livre des Topiques', in G. E. L. Owen (ed.), *Aristotle on Dialectic, Proceedings of the Third Symposium Aristotelicum*, Clarendon Press, Oxford, pp. 277–311.
- Murdoch, J.: 1979, 'Propositional Analysis in the Fourteenth-Century Natural Philosophy', *Synthese* 40, 117–46.
- Normore, C.: 1985, 'Divine Omniscience, Omnipotence and Future Contingents: An Overview', in T. Rudavsky (ed.), *Divine Omniscience and Omnipotence in Medieval Philosophy*, D. Reidel, Dordrecht, pp. 3–22.
- Ockham, William: 1974, *Summa Logicae*, in *Opera Philosophica I*, ed. P. Boehner, G. Gál, and S. Brown, The Franciscan Institute, St. Bonaventure.
- Scotus, John Duns: 1960, *Lectura in librum primum Sententiarum*, in *Opera Omnia*, Vol. 17, ed. C. Balic et al, Vatican Scotistic Commission, Vatican.
- Spade, P.: 1977, 'Roger Swyneshed's Obligationes: Edition and Comments', *Archives d'histoire doctrinale et littéraire du moyen âge* 44, 243–85.
- Spade, P.: 1982, 'Three Theories of Obligationes: Burley, Kilvington and Swyneshed on Counterfactual Reasoning', *History and Philosophy of Logic* 3, 1–32.
- Spade, P. and E. Stump: 1983, 'Walter Burley and the Obligationes Attributed to William of Sherwood', *History and Philosophy of Logic* 4, 9–26.
- Stump, E.: 1978, *Boethius's De topicis differentiis*, translated, with notes and essays on the text, Cornell University Press, Ithaca.
- Stump, E.: 1981, 'Roger Swyneshed's Theory of Obligations', *Medioevo* 7, 135–74.
- Stump, E.: 1988, *Boethius's In Ciceronis Topica*, translated, with notes and introduction, Cornell University Press, Ithaca.

Department of Philosophy
 University of Joensuu
 PoB 111
 SF-80101 Joensuu
 Finland