

# Logical Relations between Necessity and Possibility: Evidence from Old and Middle English<sup>1</sup>

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## Abstract

The definition and classification of modality has been paid much attention in the literature (Lyons 1977, Palmer 1986, Coates 1983, Sweetser 1990, Bybee *et al.* 1994, etc.) and, although scholars do not agree as for a single classification, they do coincide in the recognition of necessity and possibility as the two basic modal meanings. It is the relation between these meanings that constitutes the main concern in this study. From Lyons (1977) onwards, the logical relations between necessity and possibility have been taken for granted: ‘if X is not possible, not-X is necessary, and if X is not necessary, not-X is possible’. These relations establish that one of the meanings may develop from the other. While Van der Auwera and Plungian (1998) claim that such a development may be bidirectional, i.e. necessity may stem from possibility and possibility may stem from necessity, Traugott and Dasher (2002) claim that only necessity can stem from possibility. In this scenario, this paper aims at 1) finding empirical evidence for the logical relations between necessity and possibility, and 2) confirming whether the development of these meanings is bidirectional or not. The empirical support consists of the analysis of German modal verb *dürfen* (as found in Van der Auwera and Plungian, 1998) and English *tharf* (<OE *þurfan*) and *need*, as found in a 2.4 million-word corpus, comprising the *Helsinki Corpus*, the *Dictionary of Old English Corpus* and the *Corpus of Middle English Prose and Verse* (from the *Middle English Compendium*).

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## 1. Introduction: Modality and its types

Modality is a semantic category that refers to the speaker's judgement of their proposition, according to its truth or falsehood, its probability, etc. In Halliday's (1970: 335) words: "a form of participation by the speaker in the speech event. Through modality, the speaker associates with the thesis an indication of its status and validity in his own judgement; he intrudes and takes up a position".

Different types of modality have been identified by different scholars, their number varying from two, i.e. root and epistemic (e.g. Coates, 1983; Sweetser, 1990; Talmy, 2000), to three, i.e. deontic, dynamic, epistemic (e.g. Lyons, 1977; Palmer, 1979; 1986; 2003) or even four (cf. Bybee *et al.*, 1994). Therefore, there is a lot of indecision and disagreement as for the types of modality that can be identified cross-linguistically. However, irrespectively of the classification adopted, what seems to be constant in all approaches is the division of modal meanings as related to necessity and possibility.

It is precisely the relationship between necessity and possibility that constitute the core of this study. Therefore, section 2 describes the interrelation between the two basic modal meanings from a theoretical, logical point of view, following Palmer (1979, 1986, 2003). In sections 3 and 4 I provide empirical evidence for this relationship, based on evidence from Van der Auwera and Plungian (1998) and the findings in a 2.4 million-word corpus comprising the *Helsinki Corpus* (compiled by Rissanen *et al.*, 1991), the *Dictionary of Old English Corpus* (compiled by diPaolo *et al.*, 2000) and the *Corpus of Middle English Prose and Verse* (as found in the *Middle English Compendium*). Thus, on the one hand, I relate the evolution of German modal *dürfen* to that of English pre-modal *tharf* (< Old English, OE, *þurfan*), and, on the other hand, I compare the development of English *tharf* to that of English *need*, which is claimed to be its semantic-syntactic substitute. Finally, section 5 summarizes the main conclusions.

## 2. Necessity and possibility as basic modal meanings

Palmer (1979, 1986, 2003), as mentioned, recognizes three types of modality: epistemic, deontic and dynamic. Epistemic modality is “solely concerned with the speaker’s attitude to the status of the proposition,” and the other two are related “directly to the potentiality of the event signalled by the proposition” (Palmer, 2003: 7). More specifically, deontic modality is concerned with external circumstances and dynamic modality with internal ones. He obtains this classification stemming from the basic meanings of possibility and necessity, as seen in Table 1:

Table 1. Types of modality and modal meanings stemming from the basic notions of necessity and possibility.

	DEONTIC	EPISTEMIC	DYNAMIC
NECESSITY	Obligation-exemption	Deduction (inferred certainty, logical necessity)	Desire, volition, necessity
POSSIBILITY	Permission-prohibition	Possibility, probability	Ability

This table clarifies Palmer’s classification of modality. Stemming from the basic meanings of necessity and possibility, and *filtering* them through modality, we obtain a variety of meanings ranging from obligation to ability.

Following the tradition of modal logic presented by von Wright (1951) and Lyons (1977), Palmer describes the logical relation between possibility and necessity, which implies that

if X is not possible, then not-X is necessary and, consequently

if X is not necessary, then not-X is possible.

In other words, if raining is not possible, not raining is necessary. Following the logical relations established between possibility and necessity, we can formulate what is implied in the following figure:

Figure 1. Logical relations between necessity and possibility.

'not possible'	→	'necessary not'
'not necessary'	→	'possible not'

According to Palmer, this formula explains the relation between the two kinds of meanings conveyed by each type of modality, obligation and permission (deontic modality), deduction and probability (epistemic modality), and desire and ability (dynamic modality), as seen in Table 1 above.

Since the logical relations between necessity and possibility do not presuppose any directionality, Van der Auwera and Plungian (1998) consider that the relation is bidirectional. Traugott and Dasher (2002: 120-121), on the contrary, claim that verbs conveying possibility may end up expressing necessity, but never the other way round. With the aim of testing these two positions, in the following empirical sections I study the development of German *dürfen* and English *tharf* (< OE *þurfan*) and *need*.

### 3. English *tharf* and German *dürfen*

OE *þurfan* (and Middle English, ME, *thurven*, for that matter) is a preterite-present verb meaning 'need,' and, paradoxically, it is a cognate to the Present-Day German verb *dürfen* meaning 'be allowed,' (as in *Darf ich die Tür aufmachen?*, 'Can I open the door?'). That is, the English verb expresses necessity and the German cognate expresses possibility. We may wonder what the original Germanic meaning was, and, according to Traugott and Dasher's claim, we are likely to think that the expression of possibility preceded the expression of necessity. However, as seen in the following paragraphs, this is not so.

The evolution of German *dürfen* has been accounted for by Van der Auwera and Plungian (1998). It originated as a polarized necessity modal conveying negative necessity (namely 'need not'). Later it acquired a negative possibility meaning (namely 'cannot,' from an original necessity not to, i.e. 'must not'), and finally it developed the current positive possibility meaning 'may, to be allowed' (cf. Van der

Auwers and Plungian, 1998: 99). Therefore, the evolution of *dürfen* may be sketched as in figure 2:

Figure 2. Semantic evolution of German *dürfen*.

‘need’ > ‘need not’ / ‘must not’ > ‘may not’ > ‘may’
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According to this line of development, the meaning of possibility would stem from necessity, contravening Traugott and Dasher’s (2002) claim. This could be considered a single exception to the rule they formulate, but the truth is that within the history of English we find similar semantic developments.

In fact, English *tharf* (<OE *þarf* / ME *thurven*) is primarily a necessity verb, meaning ‘need’ and, most frequently ‘need not’, since it used to be constrained to non-affirmative contexts in the same way as PDE modal *need*. I have studied a 2.4 million word corpus comprising Old and Middle English and found that *tharf*, indeed, expresses necessity meanings in 209 out of the 214 occasions in which it is recorded, as seen in Table 2:

Table 2. Possibility and necessity meanings found with OE *þarf* and ME *thurven*.

	OE (-1150)	M1 (1150- 1250)	M2 (1250- 1350)	M3 (1350- 1420)	M4 <sup>2</sup> (1420- 1500)	TOTAL
POSSIBILITY	1	3	1			5
NECESSITY	158	28	6	7	10	209
TOTAL	159	31	7	7	10	214

In the remaining 5 instances, its meaning is one of possibility, or rather impossibility, since they occur in non-affirmative contexts. In (late) Old English, I only find one example, which is (1):

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<sup>2</sup> The periodization followed is that proposed in the *Helsinki Corpus*. No division has been made as for Old English, because no significant differences have been observed in the different subperiods.

## PROCEEDINGS 31<sup>ST</sup> AEDEAN CONFERENCE

- (1) *Durb soþe bireousunge þeo soule reste onsof. Ac ne þearf ic nefre resten*  
THROUGH TRUE MERCY THE SOUL REST BEGINS BUT NOT  
NEED I NEVER REST  
*þurb þine bireousunge, ac altogædere ic am forloren þurb þine lufere*  
THROUGH YOUR MERCY BUT ALTOGETHER I AM DESTROYED  
THROUGH YOUR WICKED  
*deden.*

DEEDS

*Through true mercy the rest of the soul begins. But I cannot ever rest through your mercy, but altogether I am destroyed by your wicked deeds.* (HomU 5.6 (Buch F) 13)

In M1 (1150-1250), I find three examples, and in M2 (1250-1350) I find only one. This higher ratio of examples of *þarf* conveying possibility (or, rather, impossibility) in Middle English was somewhat expected, because the *MED* (s.v. *thurven* v. 7a) already records it. At this point, a word is in order as for *thurven*. In Middle English, this verb is often confused with *durren* (> PDE *dare*), which is a modal of possibility. Therefore, it might seem that the instances of *thurven* expressing possibility could be interpreted as a result of the coalescence of these two verbs. This could indeed be the case in one of the ME examples in my corpus. Consider (2):

- (2) *he wax so mylde and so meke,*  
HE WAS SO MILD AND SO MEEK  
*A mylder man þurt no man seke.*  
A MILDER MAN COULD NO MAN SEEK  
*he grew so mild and so gentle, no one could seek a milder man.* (6,024  
helsinki\cmhansyn)

In this instance, the morphology exhibited by *thurven* seems to be influenced by that of *durren*, and the meaning of the whole sentence could be “he grew so mild and so gentle, no one dared seek a milder man.” However, in the remaining examples of ME *thurven* expressing possibility, its morphology is not affected by that of *durren* at all, as in (3), for instance:

- (3) 4172 *Nu is Iulius awei ifloen; (...)*

NOW IS JULIUS AWAY FLED

4174 *ne þurfe we nu nauer-mare; iseon hine cumen here.*

NOT CAN WE NOW NEVER-MORE SEE HIM COME HERE

*Now Julius has fled (...) we cannot (will not have the occasion to) see him come here any more.* (1205 Layamon's *Brut*, lines 4172-4174)

These three examples show that English *tharf* could indeed express impossibility, rather than necessity both in Old and Middle English. Although the expression of possibility may seem somewhat marginal in *tharf*, we must not disregard these data. Quite on the contrary, we can place them in a figure similar to that accounting for the evolution of German *dürfen*, because English *tharf* may also have developed the possibility meaning through the expression of prohibition, a meaning found from Old English, as in (4):

- (4) *Ne þearf nan man þæs wanan, þæt hyne anig man*  
 NO NEED (3 SG.) NO MAN (NOM.) THAT BELIEVE THAT HIM (ACC.)  
 ANY MAN (NOM.)  
*mæge aþysan fram helle wite.*  
 MAY FREE FROM HELL (GEN.) TORTURE (ACC.)  
*no man must think that he may free himself from the torture of hell.* (588  
 helsinki\coepihom)

Therefore, the evolution of *tharf* may be represented as in Figure 3:

Figure 3: Semantic evolution of English *tharf*.

‘need’ > ‘need not’ > ‘must not’ > ‘cannot’
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The parallel developments of German *dürfen* and English *tharf* constitute a double piece of evidence against Traugott and Dasher's (2000: 120-121) claim that in the relationships between necessity and possibility, the former derives from the latter, and never the other way round. Quite on the contrary, the relationships between the modal notions of necessity and possibility seem to be bi-directional as formulated by Van der Auwera and Plungian (1998).

4. The case of *tharf* contrasted to *need*: parallel semantic development

The similar development of English *tharf* and German *dürfen* would be nothing but anecdotal or restricted to this Germanic preterite-present verb, were it not for the fact that in ME *neden* (which gave way to PDE *need*) I observe a parallel phenomenon. This is highly interesting because this development is observed in no other necessity verb in the history of English (cf. Loureiro-Porto, 2005). Consider Table 3:

Table 3: Possibility and necessity meanings found with OE *neodian* and ME *neden*.<sup>3</sup>

	OE (-1150)	M1 (1150- 1250)	M2 (1250- 1350)	M3 (1350- 1420)	M4 (1420- 1500)	TOTAL
POSSIBILITY					3	3
NECESSITY	1	2	0	72	69	144
TOTAL	1	2	0	72	72	147

Table 3 shows that this weak verb, which was marginal in Old English, gains an increase in frequency that leads it to its PDE status in late Middle English (from 1350 onwards). In fact, most of the 147 examples of this verb in my corpus occur after 1350. Although the *MED* (*s.v. nedden* v.2) only account for necessity nuances, in subperiod M4 (1420-1500) I find three sentences in which the meaning of *need* cannot be deciphered without resorting to the notion of possibility. One of them is (5):

- (5) *These dide merveulously wele, and so dide Sir Ewein, that a better knyght*  
 THESE DID MARVELLOUSLY WELL AND SO DID SIR EWEIN THAT  
 A BETTER KNIGHT

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<sup>3</sup> These results account only for *need* v.2 (cf. *OED s.v. need* v.2), whose primary meaning is ‘be necessary, need,’ and, therefore, they exclude *need* v.1 ‘force, compel.’ Although the relationship between these two verbs has proved them inseparable when other aspects are taken into account (cf. Loureiro-Porto, forthcoming), for the purposes of this paper, I will keep them apart.

*than he **neded** no man to be-holde.*

THAN HE NEEDED NO MAN TO BEHOLD

*These did marvellously well, and so did Sir Ewein, that no man could behold a better knight than him. (1450-1460 Merlin)*

This is one of the three examples in which *neden* v.2 expresses the existence of a barrier. The context is similar to those of ME *thurven*, mentioned above, and illustrated with sentence (2), because in both cases the verb follows a comparative adjective in order to imply that there cannot be anything better than what is being described. All three examples in my corpus belong to the text *Merlin* and, therefore they may be considered to be influenced by factors such as the idiolect or the dialect of the author. Be it as it may, the fact that *need* may convey (im)possibility is the third piece of evidence which corroborates that possibility can develop out of necessity, as claimed by Van der Auwera and Plungian (1998: 97 ff.), and contrary to Traugott and Dasher's (2002: 120-121) assertion that only necessity develops from possibility and not vice versa. Thus, we have seen that not only the preterite-presents *dürfen* (in German) and *tharf* (in English) develop possibility meanings from necessity, but also *need* does, which goes back to a lexical weak OE verb.

It is interesting to note that *tharf* and *need* share not only the unexpected ability to express possibility, but they are also the only verbs meaning 'need' in the history of English that reach a somewhat auxiliary status through a process of grammaticalization (in Old and early Modern English respectively; cf. Warner, 1993 and Barber, 1997 [1976], for instance). In fact, *need* is often considered to be the PDE equivalent to OE *þurfan* (cf., for instance, Denison, 1993: 295). As shown in Loureiro-Porto (2005), no other verb meaning 'need' develops possibility nuances or undergoes grammaticalization. Therefore, we can conclude that the capacity to oscillate between the notions of necessity and possibility appears to be a feature of auxiliaries, something which is also corroborated by the above-mentioned example of German *dürfen*, the cognate of *tharf*.

## 5. Conclusions

The description of the logical relations between necessity and possibility, together with the empirical analysis of German *dürfen* and English *tharf* and *need* allow us to formulate some interesting conclusions:

- a. The notions of necessity and possibility are more tightly related than it might seem at first sight, since, on the one hand, they are intimately linked in the world of logic, and, on the other hand, they are found to coexist in the history of modal verbs in both German and English.
- b. Contravening Traugott and Dasher's (2002: 120-121) claim that only necessity can stem from possibility, and confirming Van der Auwera and Plungian's (1998) statement, I have proved that possibility can indeed stem from necessity, as seen in the evolution of German *dürfen* and English *tharf* and *need*.
- c. The ability to transfer from necessity to possibility seems to be restricted to verbs that are bound to undergo grammaticalization, since this development is only observed in verbs that reach a somewhat auxiliary status in different periods of the language.

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