

# *Should a conditional marker arise ...*

## The diachronic development of conditional *sollte* in German

Anne Breitbarth  
Department of Linguistics  
Ghent University  
Blandijnberg 2, 9000 Ghent, Belgium  
anne.breitbarth@ugent.be

**Abstract** Like other Germanic languages, German has a modal verb that, when used in the protasis of a conditional, does not have one of the modal meanings it has in other contexts, but only seems to underline the conditional meaning. The current paper looks at the diachronic development of conditional *sollen*, and shows how the past (subjunctive) form *sollte*, particularly in V1-protases, is in the process of developing into a pure conditional marker. Following Breitbarth (2015) and Breitbarth et al. (2016), this development is analysed in a framework combining Roberts & Roussou's (2003) Minimalist approach to grammaticalization with a cartographic analysis of modality and conditionals based on Cinque (1999) and Haegeman (2010b).

**Keywords:** conditional clauses, modal verbs, grammaticalization, upward reanalysis, *sollte*, German

## 1 Introduction

### 1.1 Background

All West Germanic (and some Romance<sup>1</sup>) languages have “conditional” uses of certain modal verbs, in which the modal verb does not express a modal (root or epistemic) meaning, but acts more like a conditionality marker

<sup>1</sup> Cf. French *devoir*, Italian *dovere* ‘must’, e.g. *Je ne pense pas qu'elle sera élue mais si elle devait l'être, on fera la fête* ‘I don't think she will be elected, but should she be elected, we will have a party’ (example from Liliane Haegeman, p.c.).

(Nieuwint 1989; van der Auwera & Plungian 1998; Nuyts et al. 2005; Boogaart 2007; Haegeman 2010b; Van Den Nest 2010). In German, this modal verb is *sollen*, or rather, its past (subjunctive) form *sollte*.

Interestingly, while V1-conditionals cannot be substituted for a *wenn* ‘if’-conditional in all syntactic and semantic contexts, V1-conditionals with *sollte* ‘should’ seem to be much less sensitive to this distinction (e.g. Reis & Wöllstein 2010). They are allowed in contexts where V1-conditionals with other verbs are excluded, such as relevance conditionals like (1) (Reis & Wöllstein 2010: 137), which Reis & Wöllstein attribute to the fact that the idiosyncratic meaning of “conditional” *sollte*, highlighting the hypothetical character of the antecedent proposition (Welke 1965: 99; Glas 1984: 86) and focussing its potential character, serves as overt marking of conditionality, and can therefore override the restrictions of V1-protases.

- (1) a. Wenn Peter anruft — ich bin im Café Einstein.  
if Peter calls I am in.the Café Einstein  
‘If Peter calls, I’m at Café Einstein.’  
b. Sollte Peter anrufen — ich bin im Café Einstein.  
should Peter call I am in.the Café Einstein  
‘Should Peter call, I’m at Café Einstein.’  
c. \*Ruft Peter an — ich bin im Café Einstein.  
calls Peter PRT I am at Café Einstein

*Sollte* is not restricted to V1-protases, but also occurs in combination with *wenn* ‘if’ (or *falls* ‘in case’), with seemingly no or little difference in distribution. Reis & Wöllstein (2010: 137) call German *sollte*-V1-conditionals a *Sonderfall* (‘special case’) and state that

Die Analyse von konditionalem *sollte* muss sicher viel weiter getrieben werden, sowohl was das Verhältnis zum Modalverb *sollen* bzw. dessen epistemischen und futurischen Abarten angeht, als auch die Verbindung des *sollte* zugeschriebenen stärker hypothetischen Charakters mit der ihm gleichfalls zugeschriebenen Fokussierung möglicher Erfüllbarkeit.<sup>2</sup>

They add in a footnote

<sup>2</sup> ‘The analysis of conditional *sollte* certainly needs to be advanced much more, both concerning the relationship with the modal verb *sollen* and its epistemic and futuric variants, and the connection between the stronger hypothetical character attributed to *sollte* and the focussing on potential realisability also attributed to it.’ [AB]

Hierzu gehört auch eine vergleichende Untersuchung mit englischen *should*-Konditionalen (s. hierzu Nieuwint 1989, Dan-cygier 1998: 192 f.), die jedenfalls auf den ersten Blick den deutschen *sollte*-Konditionalen völlig parallel scheinen.<sup>3</sup>

Synchronically, Breitbarth et al. (2016) give such a comparison between the distribution and the different degrees of grammaticalization of English *should* and German *sollte*, together with (Netherlands and Standard) Dutch *mocht* and (Belgian Colloquial) Dutch *moest*, while Breitbarth (2015) proposed a formal account for the diachronic development of conditional *should* in English. The question of how German *sollte*, originally a modal verb expressing obligation, could come to express a potential or conditional meaning, and how *sollte*-conditionals acquired their special distribution, has not yet been discussed in detail in the literature. Building on Breitbarth (2015) and Breitbarth et al. (2016), the current paper therefore sets out to describe the diachronic development of conditional *sollte*, and analyses it in a framework using insights from Roberts & Roussou's (2003) Minimalist approach to grammaticalization in a cartographic analysis of modality and conditionals based on Cinque (1999) and Haegeman (2010a).

## 1.2 Methods

The diachronic case study presented in this paper is based on a Middle High German (MHG; 1050-1350) and a New High German (NHG) corpus. The MHG data come (a) from the Middle High German Conceptual Database (MHDBDB; 185,632 tokens in 595 texts)<sup>4</sup> and (b) from the newly available Referenzkorpus Mittelhochdeutsch (ReM; 2.5 million tokens in 395 texts)<sup>5</sup>, Klein & Dipper (2016). The NHG data are drawn from the written archive

<sup>3</sup> 'To this belongs a comparative investigation of English *should*-conditionals, which, at least at first sight, seem to be entirely parallel to the German *sollte*-conditionals.' [AB]

<sup>4</sup> <http://www.mhdbdb.sbg.ac.at>, queries: (\$ob +) @suln (finding clauses with a form of *suln* 'shall', with or without conditional complementizer *ob* 'if'). Examples from this corpus are cited with the orthography, capitalization, and punctuation as found in the corpus.

<sup>5</sup> <https://www.linguistics.rub.de/annis/annis3/REM/>, queries: (ia) for clauses beginning with *suln* and (ib) for clauses ending with *suln*.

- (i) a. tok\_anno = "." &  
tok\_anno = /sol.\* / &  
#1 . #2
- b. tok\_anno = /sol.\* / &  
punc = "\$E" &  
#1 . #2

of the German Reference Corpus (DeReKo; ca. 7.3 billion words in total)<sup>6</sup>, which contains texts from Germany, Austria and Switzerland, and were subdivided into two periods, (i) historical texts from 1741-1915 (older NHG) and (ii) selected sources from the archive of written language between 1985-2012 (Present-Day German, PDG).

Any conditional clauses with the modal verb *suln/sollen* were extracted, both syndetic and asyndetic, regardless of the modal meaning of the verb. The results of these queries were manually checked, and false hits (i.e. cases that were not conditional clauses with *suln/sollen*) removed. In the end, 428 clauses were obtained for MHG (362 from the MHDBDB and 66 from ReM). From the older NHG and the PDG subcorpora of the DeReKo, a random first selection of 200 clauses each was made, which after deselection of false hits resulted in 186 and 195 clauses, respectively. These were coded for (i) the meaning of the modal verb (e.g. circumstantial, or conditional), (ii) whether or not they are syndetic, (iii) the semantic linkage level (content/event, inferential or illocutionary), (iv) the degree of probability for content-level protases, (v) the tense of the verb (*suln/sollen*) in the protasis<sup>7</sup>, and (vi) the tense of the verb in the apodosis.

### 1.3 Overview

Section 2 presents the results of the diachronic corpus study. Section 2.1 reports on the diachronic changes in the distribution of the modal meanings of *suln/sollen* in conditional protases, 2.2 shows how the semantic integration of *sollte*-conditionals developed over time, 2.3 looks at how *sollte* became increasingly restricted to the past (subjunctive) form, regardless of the degree of probability expressed by the conditional, or the tense of the verb in the apodosis, and 2.4 briefly turns to the competition between *mugen*

---

Examples from this corpus are cited with the orthography, capitalization, and punctuation as found in the corpus.

<sup>6</sup> <http://www.idsmannheim.de/cosmas2/>, queries: (ia) for clauses beginning with a form of *sollen* and (ib) for clauses with conditional complementizer *wenn* and a form of *sollen* within the same sentence.

(i) a. *soll\*:sa*  
b. *wenn + 0s soll\**

<sup>7</sup> The tense distinction in fact correlates with a mood distinction in conditional protases: if the verb is in present tense, it is also indicative. In past tense, both indicative and subjunctive are possible in principle. However, already in MHG, past indicative and past subjunctive forms of *suln/sollte* are syncretic. Therefore, mood was not marked separately.

and *suln* as conditional modals in MLG. Section 3 proposes an analysis of the syntax and semantics of conditional *sollte*. The diachronic development of conditional *sollte* is given a formal account in Section 4, and Section 5 concludes.

## 2 Results of the corpus study

### 2.1 Sollen/suln in conditional protases

As variously observed in the literature (Welke 1965; Glas 1984; Reis & Wöllstein 2010; Breitbarth et al. 2016), *sollte* mostly seems to be an expression of hypotheticality or potentiality in conditional protases. The data in the corpus were coded for two main uses, modal (modifying the lexical verb), and conditional ('in case'). Any use in which a form of *suln/sollen* could be interpreted as e.g. deontic or circumstantial ('X has to / is supposed to / expected to happen, X is necessary/possible') or buletic ('it is/would be preferable for X to / Y wants X to happen') were coded as modal. (2) illustrates this with examples from the three periods.

- (2)
- a. *Middle High German* (*Der Trojanische Krieg*, l.3246 - 3247; 1230-1275)  
in dûhte ein swaere bürde, ob er sîn âne **solte**  
him seemed a heavy burden if he his.GEN without should  
sîn.  
be  
'It seemed a heavy burden to him, if he had to be without him.'
  - b. *Older New High German* (HK3/A83.00003; 1799)  
Wenn mir das Bedeutende Spaß machen **soll**, so kann ich  
if me the important fun make shall so can I  
wohl leiden, daß jemand das Bedeutende ernsthaft aufführt.  
well bear that someone the important seriously performs  
'If the important is supposed to entertain me, I can bear someone performing the important seriously.'
  - c. *Present-Day German* (A97/OKT.28020; 1997)  
Wenn es im Februar blühen **soll**, müssen die Blumenzwiebeln  
wenn it in.the February blossom shall must the flower.bulbs

jetzt in die Erde.  
 now into the ground  
 ‘If it is supposed to blossom in February, the flower bulbs must  
 be planted into the ground now.’

The conditional meaning (roughly, ‘in case’) is illustrated for the three periods in (3).

- (3) a. *Middle High German* (Pfaffe Konrad, *Rolandslied* (P); 1172)  
**folde** ich die wale han . fo ne irchunte ich nie  
 should I the choice have so NEG recognised I never  
 deheinin man  
 no man  
 ‘If I had the choice, I would never recognise any man.’
- b. *Older New High German* (meg/GAJ.00491; 1843)  
**Sollten** Sie mir daher in dieser Angelegenheit Rath und  
 should you me therefore in this affair advice and  
 Aufschlüsse geben wollen, so werde ich sehr dankbar sein.  
 information give want so will I very grateful be  
 ‘Should you want to give me advice and information in this  
 affair, I would be very grateful.’
- c. *Present-Day German* (A10/MAR.01716; 2010)  
**Sollten** wir tausend werden, stellen wir Forderungen.  
 should we thousand become pose we requests  
 ‘If we become a thousand, we will make requests.’

The conditional meaning is already prominently present in MHG, as Table 1 shows. In PDG, it is the dominant meaning. Throughout all three stages, the conditional meaning is c. 20% more frequently attested in asyndetic protases than in syndetic ones.

Also the tense and mood of *suln/sollen* interact differently with the conditional meaning in conditional protases: present indicative becomes increasingly restricted to the modal meaning(s), while past (subjunctive) becomes more tightly associated with the conditional meaning. In MHG, and very marginally still in older NHG, the conditional meaning could also be expressed by *suln/sollen* in the present indicative, (4).<sup>8</sup> In PDG, while the conditional meaning can only be expressed using the past (subjunctive) form

<sup>8</sup> (4b) may potentially also be construed as evidential, that is, ‘If someone says that / if it turns out that one witness is not enough ...’.

**Table 1:** Modal meaning of *suln/sollte* in syndetic and asyndetic protases.

	syndetic		total
	modal	conditional	
MHG	21 (45.7%)	25 (54.3%)	46
older NHG	54 (56.7%)	35 (39.3%)	89
PDG	28 (29.2%)	68 (70.8%)	96

  

	asyndetic		total
	modal	conditional	
MHG	96 (25.1%)	286 (74.9%)	382
older NHG	45 (46.4%)	52 (53.6%)	97
PDG	6 (6.1%)	93 (93.9%)	99

*sollte(n)*, the modal meaning is still expressed by the past (subjunctive) in about a quarter of all cases, illustrated by (5).

- (4) a. *Middle High German* (Pfaffe Konrad, *Rolandslied* (P); 1172)  
**fo**l er da werden erflagen . er sturbe doch da haime  
 shall he there be slain he die.SBJV yet there home  
 ‘(Even) if he is slain there, he shall still be buried at home.’
- b. *Older New High German* (meg/GAJ.00491; 1843)  
**Soll** an diesen Zeugen nicht genug sein, so weiss ich nicht,  
 shall with this witness NEG enough be so know I NEG  
 wenn überhaupt deren genug sein werden  
 when at.all them.GEN enough be will.be  
 ‘In case this witness is not enough, I don’t know when there will ever be enough of them.’
- (5) a. *Middle High German* (Kaiserchronik A (V) 12; c. 1140-50)  
**Solten** wir fine wönder elliv fagen . fo muß = fen wir di wile  
 should we his miracles all say so must we the time  
 haben  
 have  
 ‘If we **had to** enumerate all his miracles, we would need a lot of time.’
- b. *Older New High German* (mew/WAD.03185; 1848)  
 Nach dem Provinzialgesetz wäre allerdings notwendig,  
 according.to the provincial.law were however necessary  
 daß die Majorität 2/3 sein müßte, wenn sie beschlußfähig  
 that the majority 2.3 be must if it quorate

sein **sollte**.

be should

‘According to the provincial law, it would however be necessary that there was a 2/3 majority, if it was **intended/supposed** to constitute a quorum.’

- c. *Present-Day German* (A10/MAR.01716; 2010)

**Sollten** die Blumen jedoch an junge Hühner verfüttert

should the flowers however to young chickens fed

werden, so durften sie auf keinen Fall abgebrochen

be so must they under no circumstance broken

worden sein.

been be

‘If the flowers were **intended/supposed** to be fed to young chickens, under no circumstances could they have been broken off.’

**Table 2:** Interaction between tense and mood, and meaning of *suln/sollen* in conditional protases.

	modal		
	pres. ind.	past subjn.	total
MHG	34 (36.2%)	61 (63.8%)	95
older NHG	91 (91.9%)	8 (8.1%)	99
PDG	26 (74.3%)	9 (25.7%)	35
	conditional		
	pres. ind.	past subjn.	total
MHG	89 (30.3%)	200 (69.7%)	289
older NHG	3 (3.4%)	84 (96.6%)	87
PDG	0	159 (100%)	159

In the following subsections, we restrict the discussion to *suln/sollen* in the conditional meaning. We return to the analysis of the conditional meaning of *sollte* and its diachronic development from modal to conditional in Sections 3 and 4.

## 2.2 Linkage levels

The semantic relationship between the protasis and the apodosis in a conditional may be situated on (i) the content (or predictive) level, (ii) the epistemic (or inferential) level, or (iii) the speech-act (or illocutionary) level



(Sweetser 1990; Dancygier & Sweetser 2005). In a predictive conditional, the content of the proposition in the protasis forms the prerequisite for the truth of the apodosis proposition in the real world, (6). In an epistemic conditional, the protasis forms the epistemic basis for an inference as to the truth of the apodosis proposition, (7). In a speech-act (or relevance) conditional, the protasis expresses a circumstance under which the apodosis provides relevant information, (8).

- (6)
  - a. *Middle High German* (*Buch der Könige* (D1); 1274/75–1282)  
 sold ich die in minem alter brechen so solt mich got  
 should I this in my age break so should me God  
 verdāmen  
 damn  
 ‘If I should break it in my (old) age, God should damn me.’
  - b. *Present-Day German* (HMP12/MAI.02111; 2012)  
 Wenn das gelingen sollte, werden wir viel Spaß haben.  
 if that succeed should, will we much fun have  
 ‘If that should succeed, we will have a lot of fun.’
- (7)
  - a. *Middle High German* (*Barlaam und Josaphat*, l.11021–11022; 1200–1250)  
 sold = er bî den dînen wesen, sô waere er leides ungenesen.  
 shoud = he with the your be so were he suffering unsaved  
 ‘Should be be with your [group], he would not be saved of suffering.’
  - b. *Present-Day German* (K97/OKT.76696; 1997)  
 Sollte es Raub gewesen sein, dürfte die Beute gering  
 should it robbery been be would the loot marginal  
 ausgefallen sein, sagen die Ermittler.  
 turn.out be say the investigators  
 ‘In case it was robbery, the loot would have been marginal, according to the investigators.’
- (8)
  - a. *Middle High German* (Burkart von Hohenfels, *song* 6, stanza 4, l.9–11; 1200–1250)  
 solt si liebe gen dir lêren: tuo’r niht wê, si ist  
 should she love against you teach do = her NEG pain she is  
 doch quot.  
 yet good  
 ‘Should she teach love against you, don’t hurt her, she is still good.’

- b. *Present-Day German* (M06/FEB.13877; 2006)  
 Sollte die Vogelseuche noch andernorts ausbrechen, wären  
 should the avian.flu yet other.places break.out would  
 die meisten Kreise und Kommunen dennoch gut vorbereitet.  
 the most districts and communities still well prepared  
 ‘Should avian flu break out in other places as well, most districts and communities would still be well prepared.’

**Table 3:** Linkage levels in *suln/sollen*-conditionals.

	content	epistemic	illocutionary	total
MHG	187 (64.5%)	70 (24.1%)	33 (11.4%)	289
older NHG	55 (63.2%)	12 (13.8%)	20 (23%)	87
PDG	142 (88.8%)	16 (10%)	2 (1.2%)	160

Content-level linkage is the most frequent type in all three subcorpora, but there are clear differences between them. In MHG, nearly a quarter of all conditionals with conditional *suln* are epistemically linked, while in older NHG, the share of conditionals linked at the speech-act level is much larger with 23%. PDG has the highest share of predictive conditionals, ca. 25% more than in MHG and older NHG.

### 2.3 Tense-mood patterns

Predictive conditionals can express three degrees of probability: realis, potentialis, and irrealis/counterfactual (Quirk et al. 1985; Leech 2004). The distinction is normally marked by specific tense/mood patterns (*consecutio temporum*/ sequence of tenses), illustrated for *suln/sollen*-conditionals with examples from the corpus in (9a)–(9c). As variously noted in the literature on German and English (Welke 1965; Van Den Nest 2010: 117–118, 123; Breitbarth 2015), protases with conditional *sollte* and *should* often diverge from these patterns, leading to a tense mismatch between protasis and apodosis. (9d) is a realis conditional, but the tense of *sollen* is formally past (subjunctive).

- (9) a. Pattern A (realis)  
*Middle High German* (Weltchronik, l.25085–25086; 13<sup>th</sup> c.)  
 süllen diu lant niht mit frid wesen, sô lâz ich nieman  
 shall the(se) lands NEG with peace be so let I no.one

- niht genesen.  
not be.saved  
'Should (lit. shall) those lands not receive peace, I will not allow anyone to be saved.'
- b. Pattern B (hypothetical)  
*Present-Day German* (BRZ06/MAI.09095; 2006)  
Sollte der VfL den 35-Jährigen nicht mehr haben wollen,  
should the VfL the 35-year.old NEG anymore have want  
müsste er ihn abfinden.  
should it him indemnify  
'Should the VfL no longer want the 35-year-old, it would have to indemnify him.'
- c. Pattern C (counterfactual)  
*Middle High German (Prosa-Lancelot* (part 1), p.63, l.14–15; 13<sup>th</sup> c.)  
Soltestu han gelebet all din rechten leptag, du hettest  
should=you have lived all your rightful life you had  
der burden so vil off yn geworffen das er darunder  
the.GEN burden so many on him thrown that he thereunder  
must sin gevallen, er wolt oder en = wolt.  
must be fallen he wanted or NEG = wanted  
'Should you have lived all your rightful life, you would have thrown too many of your burdens on him that he must have had fallen underneath, whether he wanted or not.'
- d. Mixed / tense mismatch  
*Present-Day German* (HMP12/MAI.02111; 2012)  
Wenn das gelingen sollte, werden wir viel Spaß haben.  
if that succeed should, will we much fun have  
'If that should succeed, we will have a lot of fun.'

**Table 4:** Tense/mood patterns in content-level *suln/sollte*-conditionals.

	A	B	C	mixed	total
MHG	55 (29.4%)	98 (52.4%)	9 (4.8%)	25 (13.4%)	187
older NHG	3 (5.5%)	18 (32.7%)	0	34 (61.8%)	55
PDG	0	41 (30.6%)	0	93 (69.4%)	134

Table 4 shows that MHG still adhered to the classical *consecutio temporum*. In NHG, counterfactual conditionals are no longer possible with conditional *sollen*, which is probably due to its meaning, which Reis & Wöllstein (2010:

137) circumscribe as hypothetical, but focussing the potential realisation of the event, hence excluding counterfactual construal. While older NHG still has a small share of conditional *sollen* in present tense, (10), leading to pattern A (10) (see also Section 2.1), the only possibilities in PDG are pattern B (9b), or the mixed pattern (9d).

- (10) *Older New High German* (HK3/C74.00001; 1803-1805)  
 Soll sich der Staatsmann [...] seiner erinnern, so muß ihn  
 shall REFL the statesman him.GEN remember so must him  
 die Ungnade des Fürsten während der Arbeit überfallen.  
 the disfavour the.GEN prince during the work over.come  
 ‘Should the statesman remember him, the disfavour of the prince  
 will certainly come over him during his work.’

The share of tense mismatches has increased from c. 13% in MHG to nearly 62% in older NHG, and to nearly 70% in PDG, making it the neutral pattern in the language today.

## 2.4 Competition between *suln* and *mugen* in MHG

As observed by Van Den Nest (2010) and Breitbarth et al. (2016: 302), *suln* is not the only modal verb able to express a conditional meaning in MHG, *mugen* ‘may’ is attested with this meaning as well<sup>9</sup>, besides a number of modal meanings, (11), which show a certain correlation with the position of the finite verb in the protasis, but are altogether more frequent than the conditional meaning, as Table 5 shows.

- (11) a. Ability  
 (Kaiserchronik A ms. V; ca. 1140/50)  
**maht** = er iz gefügen . er wolte unfer fröde gerne getröben  
 may = he it realise he would our joy gladly diminish  
 ‘If he were able to make it happen, he would gladly diminish  
 our joy.’  
 b. Possibility/permission  
 (*Der Schwanritter*, 1.951; 1230-1275)

<sup>9</sup> As discussed in more detail in Breitbarth (2015), this is another parallel with the development of conditional *should* in English, which in Middle English also competed with *mouen* ‘may’. This is interesting from a comparative perspective, as the ‘may’-modal is the conditional modal in (Netherlands and Standard) Dutch (Breitbarth et al. 2016). See also Section 4.1 below.

- daz wil ich rechen ob ich **mac**  
 that will I    avenger if I    may  
 ‘If I can/may, I will avenge it.’
- c. Volition  
 (*Kaiserchronik*, l.2640–2641; 12<sup>th</sup> c.)  
**mehtes** dû arbaiten, verlêh dir got ganze hende  
 might you work    granted you God whole hands  
 ‘If you wanted to work, God would grant you whole hands.’
- d. Conditional  
 (*Rennewart*, l.25758–25759; 1245)  
**moehnte** ich von leide    han erkorn | den tot, ich waer  
 might I    of suffering have chosen the death I was  
 lange tot.  
 long dead  
 ‘If I had chosen death as my way of suffering, I would long be dead.’

**Table 5:** Modal meaning of *mugen* in syndetic and asyndetic protases in MHG.

	modal	conditional	total
syndetic	142 (87.7%)	20 (12.3%)	162
asyndetic	242 (55.5%)	194 (44.5%)	436

Like conditional *suln* in MHG, conditional *mugen* still seems to obey the rules of the *consecutio temporum*, (12). Tense mismatches between protasis and apodosis are not attested in the corpora used.

- (12) a. Pattern A (realis)  
 (*Liet von Troye*, l.7875–7876; 1190-1200)  
**Mac** ez geschehen also | So sin wirs alle vil fro  
 may it happen thus so are we=it all much happy  
 ‘Should it happen this way, we are all very happy.’
- b. Pattern B (hypothetical)  
 (*Frau Ava, Leben Jesu*; before 1127)  
**Mohte** er iemer frum wefn . so wær er fælbe genefen  
 might he ever.more pious be so were he self saved  
 ‘Should he be pious from now on, he would be saved himself.’
- c. Pattern C (counterfactual)  
 (*Steirische Reimchronik*, l.7336–7338; 1301-1319)

daz hieten etliche getân | **möhten** si vernomen hân | die  
 that had several done might they heard have the  
 Valbischen sprâch.  
 Valbisch language  
 ‘Several (people) would have done that, if they had heard the  
 Valbisch language’

In older NHG and PDG, conditional uses of *mögen* ‘may’ are no longer attested.

## 2.5 Summary

The diachronic corpus study has shown that conditional protases with *suln/sollen* increasingly occur in predictive conditionals, and increasingly with (formally) past (subjunctive) of the modal (*sollte*), regardless of the degree of probability expressed. The initial competition for the conditional meaning between MHG *suln* and another modal verb, *mugen* ‘may’, was early on overcome, and is no longer attested in the older NHG and PDG corpora. It can be concluded that from MHG to PDG, *suln* > *sollte* becomes increasingly restricted in its paradigmatic and syntagmatic variability, which following e.g. Lehmann’s (1995) parameters points to a higher degree of grammaticalization. In what follows, we first look at the syntax and semantics of conditional *sollte* from a synchronic point of view before proposing an account for its grammaticalization that led to the current state of affairs.

## 3 Semantics and syntax of conditional *sollte*

Before the empirical observations discussed in Section 2 can be analysed syntactically, the nature of the conditional meaning of *sollte* must be clarified. Reis & Wöllstein (2010: 137) allude to this meaning as hypothetical, but focussing the potential realisation of the event, excluding counterfactual construal.<sup>10</sup> More explicitly, Nishiwaki (2013: 232) identifies the meaning of conditional *sollte* as irrealis mood. In conditional protases, *sollte* expresses this meaning whether or not a conditional complementizer *wenn* is present, (13).

<sup>10</sup> Cf. already Welke (1965: 99).

- (13) a. (<http://www.dw.de/dw/article/0,,15985179,00.html>; 31/05/2012)  
**Sollte** Griechenland den Euro verlassen, könnte dies zu einem  
 should Greece the Euro leave could this to a  
 Zusammenbruch der Währungsgemeinschaft führen.  
 break-up of.the monetary.union lead  
 ‘Should Greece leave the Euro, this could lead to a break-up of  
 the monetary union.’
- b. Wenn Griechenland den Euro verlassen sollte, könnte dies zu  
 if Greece the Euro leave should could this to  
 einem Zusammenbruch der Währungsgemeinschaft führen.  
 a break-up of.the monetary.union lead  
 ‘If Greece should leave the Euro, this could lead to a break-up  
 of the monetary union.’

*Sollen*, etymologically deriving from the preterite present *sculan* ‘to owe’, expresses deontic necessity, with the speaker or a third party expressing a requirement (Diewald 1999), or a bouletic ordering source, as it expresses an evaluation of the proposition it modifies in view of what is desired or desirable (by the speaker or an external entity) (Glas 1984; Kratzer 1991; Ehrlich 2001). Besides, *sollen* is known to have a higher modal meaning, which is often called epistemic, in the literature, but is more specifically evidential, as the source of information is a third party (Kratzer 1991; Diewald 1999). In these uses, *sollen* usually appears in the (present) indicative, (14a). Only past subjunctive (‘Konjunktiv II’ in German) *sollte* can (rarely) have a purely epistemic reading, exemplified in (14b), with the speaker being the source of information/evaluating the proposition, not a third party, as under the evidential reading (Glas 1984; Fritz 1997b; Nishiwaki 2013). This meaning is related to the dubitative interpretation (14c), equally in the past subjunctive. A further use of past subjunctive *sollte* is “future in the past”, or “epic reference”, (14d).

- (14) a. Nishiwaki (2013: 225)  
 Er soll die Klausur bestanden haben.  
 he shall the written.exam passed have  
 ‘He is reported to have passed the written exam’
- b. Nishiwaki (2013: 235)  
 Als bekennender Kommunist [sic] sollte Ihnen doch eine  
 as avowed communist should you.DAT MP a

gewisse Form von Etatismus sympathisch sein.  
 certain form of etatism likeable be  
 ‘As an avowed communist, you should take to a certain form of etatism.’

- c. [Diewald \(1999: 202, note 32\)](#)  
 Sollte sie wirklich krank sein?  
 should she really ill be  
 ‘Could she really be ill?’
- d. [Nishiwaki \(2013: 232\)](#)  
 Es enthält bereits Ansätze jenes Sounds und jener  
 it contains already beginnings that.GEN sounds and those.GEN  
 Motive, für die Keruac später mit *On The Road* berühmt  
 motives for which Keruac later with On The Road famous  
 werden sollte.  
 become should  
 ‘It already contains beginnings of those sounds and those motives for which Keruac would later become famous with *On The Road*.’

As variously noted in the literature, the exact interpretation of *sollen* very much depends on the context – (in)definiteness of the subject (definite subjects invite an epistemic/evidential interpretation), Aktionsart of the main verb (telic verbs invite a deontic reading), and, not least, the mood of the modal (indicative vs. subjunctive) ([Abraham 1989](#); [Heine 1995](#); [Diewald 1999](#); [Mortelmans 2003](#); [Leiss 2008](#); [Nishiwaki 2013](#)). It is therefore not so clear at first sight whether the conditional meaning of *sollen* that is relevant for the present article is not at least partially due to the fact that the verb occurs inside a conditional protasis. I return to this in Section 4.1.

Under a cartographic approach such as taken by [Cinque \(1999\)](#), modal expressions are hierarchically ordered in the functional clause structure, and interact with other functional material in this hierarchy. A partial hierarchy showing only the mood, modality and tense heads is given in (15).

- (15) Mood<sub>evidential</sub> > Mod<sub>epistemic</sub> > Tense<sub>past</sub> > Tense<sub>future</sub> > Mood<sub>irrealis</sub> >  
 Mod<sub>(alethic) necessity</sub> > Mod<sub>(alethic) possibility</sub> > Mod<sub>volitional</sub> > Mod<sub>obligation</sub> (>)  
 Mod<sub>ability/permission</sub>

In order to determine which of the functional heads in (15) conditional *sollte* realises, its stackability with other modal expressions can be tested. First, it can co-occur with and takes scope over the dynamic and deontic meaning of *können* ‘can’ (16), but not its epistemic meaning. It should be noted, how-



ever, that epistemic modals are independently unavailable in conditional clauses (Leirbukt 1997; Haegeman 2010b), which is also demonstrated by the ungrammatical translation in (16).<sup>11</sup> This also entails that while *sollte* can be used epistemically, as shown by (14b), conditional *sollte* cannot be epistemic itself.

- (16) **Sollte** er um 6 schon zu Hause sein **können**, ...  
 should he at 6 already at home be can  
*ability*: ‘should he be able to be home at 6, ...’  
*permission*: ‘should he be allowed to be home at 6, ...’  
 \**epistemic*: ‘should it be a possible/plausible assumption that he is home at 6, ...’

This points to it being merged in a position above the positions where root modality is encoded, following the logic based on which such functional hierarchies are established, though the exact ordering with respect to  $\text{Mod}_{\text{epistemic}}$  is not yet clear. Like epistemic modals, conditional *sollen* can only be finite. The example in (17a) from Holl (2001) shows the unavailability of non-finite forms of epistemic *müssen* (here, a present participle). It was seen above that conditional *sollen* is only available in the past subjunctive in PDG. But even though in general, an analytic past subjunctive can be formed from any verb with the help of the auxiliary *würde* ‘would’, this option is excluded for conditional *sollen*, showing that, like epistemic modals, it cannot be non-finite, (17b).

- (17) \*non-finite epistemic modal / \*non-finite conditional modal
- a. (after Holl 2001: 230)  
 \*der sich jetzt sicher ärgern müssende Erwin  
 the REFL now certainly annoy must Erwin  
 ‘the certainly annoyed with himself must-be(ing) Erwin’
  - b. \*Wenn Griechenland den Euro verlassen **sollen würde**, könnte  
 if Greece the Euro leave shall.INF would could  
 dies zu einem Zusammenbruch der Währungsgemeinschaft  
 this to a break-up of.the monetary.union

<sup>11</sup> Copley (2006) argues for English epistemic *should* that it asserts that the proposition expressed is true in the most plausible epistemically accessible world, but that a more informative epistemic state is possible. Conditional *should*, and arguably also conditional *sollte*, which is diachronically and synchronically very similar (Breitbarth 2015; Breitbarth et al. 2016), makes no such assertion. Instead of referring to epistemic states (of the speaker), it refers to states of the world.

führen.

lead

‘If Greece would/should leave the Euro, this could lead to a break-up of the monetary union.’

Recall that Nishiwaki (2013) takes the meaning of conditional *sollte* to be irrealis mood. Haegeman (2010b) proposes to analyse the conditional modals in Dutch and Flemish (*mocht* ‘may.PAST.SUBJN’ and *moest* ‘must.PAST.SUBJN’, respectively) as realising Cinque’s Mood<sub>irrealis</sub> head, which under her movement analysis of conditional clauses (cf. also Bhatt & Pancheva 2006) is also the launch site of the conditional operator. In case of asyndetic protases, Haegeman assumes that the modal moves to C along with the operator (which moves to SpecCP).

(18)  $[_{CP} OP_w [_{C'} C [_{TP} [_{Mood_{irrealis}P} t_w moest ]]]]$

I therefore tentatively apply Haegeman’s analysis to German and propose to analyse conditional *sollen* as the realisation of a Mood<sub>irrealis</sub> head, and provide more arguments from a diachronic perspective in Section 4 below.

## 4 Analysing the diachronic development

The question arising now is how conditional *sollen* got to be in Mood<sub>irrealis</sub>, historically, and whether it has undergone further changes that can explain the diachronic developments discussed in Section 2. It has variously been argued that modal meanings are stages of a grammaticalization cline; epistemic meanings appear historically later than root meanings (Diewald 1999 for German, Roméro 2005 for English), while on the other hand, original lexical meanings (‘know’ for *can* or ‘owe’ for *shall*) are lost. In order to account for the development of conditional *sollte*, Roberts & Roussou’s (2003) approach to grammaticalization will be adopted. The general pattern of change is an ‘upwards reanalysis’ of an element as the exponent of a higher functional head, to which it originally moved from a lower position.

In other words, the lexical item that formerly realized a lower head has now become the realization of a higher functional head. This can be schematically represented as [...]:

$[_{XP} Y + X [_{YP} \dots t_Y \dots]] > [_{XP} Y = X [_{YP} \dots Y \dots ]]$ .

(Roberts & Roussou 2003: 198)

This type of reanalysis is so common because by assumption, there are economy constraints operative in natural language, and the reanalysed structure is more economical in certain respects. Roberts & Roussou adopt Longobardi's (2001) simplicity metric (19):

- (19) A structural representation  $R$  for a substring of input text  $S$  is simpler than an alternative representation  $R'$  iff  $R$  contains fewer formal feature syncretisms than  $R'$ .  
(Roberts & Roussou 2003: 201)

Essentially, in a structure with movement, the moving element is merged with two features, one allowing it to merge in the lower position and one triggering it to move to the higher position. After reanalysis, the formerly moving element has only the feature triggering merge in the higher position.

Although Roberts & Roussou (2003) assume a more simplified functional hierarchy, their account is in principle able to handle the rise of different modal and postmodal meanings if coupled with a more fine-grained hierarchy, as also acknowledged by Roberts (2010; 2012). Roberts mentions the diachronic meaning development of the English premodal *motan/must* (cf. Solo 1977; Traugott and Dasher 2002: 122f) as a potential case demonstrating a change from  $\text{Mod}_{\text{ability/permission}}$  to  $\text{Mod}_{\text{obligation}}$  and then to  $\text{Mod}_{\text{epistemic}}$  on Cinque's (1999) hierarchy.

Combining Cinque's functional hierarchy with the grammaticalization approach of Roberts & Roussou (2003) has the advantage of allowing to capture two properties often connected to grammaticalization, viz. synchronic gradience of grammatical categories and diachronic gradualness of category changes. Although Roberts (2010: 47; note 3) is careful to hedge that the correlation between the two is not straightforward, Roberts & Roussou's (2003: 36) statement that "much of the allegedly continuous or cline-like nature of grammaticalization is due to multiple 'lexical splits'; [whereby] the different readings attributed to a single lexical item correspond to different positions in which it may be merged in the clause structure" covers both synchronic gradience and diachronic gradualness. Multiple lexical splits lead to the association of a certain element with different functional heads, giving rise to gradience. Further, new, more grammaticalised, meanings of lexical items associated with "higher" functional heads appear to always arise historically later than such associated with lower heads. This leads to the often observed grammaticalization clines. An older association between a lexical item and a given functional head does not automatically disappear

as soon as a new one becomes possible (“divergence” in grammaticalization; Hopper 1991: 24f).

#### 4.1 The grammaticalization of conditional *sollte*

I propose that the conditional use of *sollte* developed out of lower modal meanings by upward reanalysis (Roberts & Roussou 2003) through the functional hierarchy. The question now is in which steps this development proceeded. In the literature, three options are sketched: First, according to van der Auwera & Plungian (1998), who discuss the grammaticalization paths of modal meanings more generally, “postmodal” meanings such as conditional develop out of epistemic necessity or possibility. Second, for the development of *sollte* more specifically, Van Den Nest (2010) surmises a deontic input meaning. Finally, according to Fritz (1997a), the conditional meaning of *sollte* arises from a combination of the futurity *sollen* could express in older stages of the language up to ENHG and the uncertainty of the past subjunctive.<sup>12</sup>

The problem with a development from epistemic necessity or possibility to conditional as envisaged by van der Auwera & Plungian is the unavailability of epistemic modals in conditional protases. Also in terms of Cinque’s hierarchy, epistemic modality, expressing a speaker’s belief about a proposition, is hierarchically higher than the modification of a proposition as achieved by expressions of modality.

In favour of the hypothesis that the temporal (future) use of *suln* was the input to the grammaticalization of the conditional use, *suln* was the most frequent periphrastic future marker in MHG (Diewald 1999: 321), and was only in the 14<sup>th</sup> through 16<sup>th</sup> centuries replaced by the periphrastic expression with *werden* (Ebert et al. 1993: 391f). A problem with assuming upwards reanalysis from Tense<sub>future</sub> to Mood<sub>irrealis</sub> is that Mood<sub>irrealis</sub> is below Tense<sub>future</sub> in Cinque’s hierarchy. While it is possible that the hierarchy needs a revision<sup>13</sup>, there are two arguments that make a development out

<sup>12</sup> “Wir finden also durchweg den charakteristischen Zukunftsbezug von *sollen*, wobei der Konjunktiv das Element der Unsicherheit signalisiert” [thus we consistently find the characteristic future reference of *sollen*, with the subjunctive indicating the element uncertainty] (Fritz 1997a: 291).

<sup>13</sup> Cinque does not give direct evidence for his proposed order Tense<sub>future</sub> > Mood<sub>irrealis</sub> > Mod<sub>(alethic)necessity/possibility</sub>, only indirect evidence coupled with the assumption that transitivity holds. Even though he provides evidence for a distinction between “epistemic” and “alethic” modality (Cinque 1999: 78f), he does not give direct evidence for Mod<sub>epistemic</sub> > Tense<sub>future</sub> or Mod<sub>epistemic</sub> > Mod<sub>(alethic)necessity/possibility</sub>. His evidence for Tense<sub>future</sub> > Mood<sub>irrealis</sub> is furthermore weak: “Evidence for this order is *apparently* provided by the

of a future use less likely. First, the future meaning of *suln* was never fully developed. As argued by Zeman (2013), the temporal and modal meanings of *suln* in MHG were highly context-dependent, making it difficult to speak of a clearly grammaticalised future periphrasis, which could be captured as merger of *suln* in Tense<sub>future</sub> under Roberts & Roussou's analysis.<sup>14</sup> Given the persistence of modal overtones even in the future use of *suln* (cf. also Diewald & Habermann 2005), it is more likely that *suln* was originally merged low, e.g. in Mod<sub>volitional</sub> (because of its bouletic meaning) or perhaps Mod<sub>obligation</sub>, and moved to Tense<sub>future</sub> (in temporal use) or Mood<sub>irrealis</sub> (in conditional use). Second, the conditional use of *suln* is already very well established in MHG. Furthermore, *sculan* already had a special role in conditionals in OHG. In Notker's Boethius-translation, the present indicative (though not the past subjunctive) of *sol* 'shall' is used always against the Latin original, and replaces the Latin potential mood (~ 'in case ...'), while other modal verbs (*mag*, *uile* 'may, want') used in conditionals largely follow the Latin original (Furrer 1971: 56–7). We can take this to indicate that the conditional use of *suln/sollen* is quite old, and had been established /grammaticalized earlier than the future use, though both may have arisen at similar times.

There is a fourth possibility that has not yet been discussed in the literature. Given the early availability of OHG *sculan* as translation of Latin potentialis in conditionals, and given the common bouletic use of *sollte*<sup>15</sup>, an intermediate step in the reanalysis from root modality to conditional (deontic, as surmised by Van Den Nest) may be volitional modality and alethic possibility, which lie between them on Cinque's (1999) hierarchy, (20).

$$(20) \quad \text{Mood}_{\text{irrealis}} \leftarrow \text{Mod}_{(\text{alethic}) \text{ possibility}} \leftarrow \text{Mod}_{\text{volitional}} \leftarrow \text{Mod}_{\text{obligation}}$$

Creole language Ndyuka ..." (Cinque 1999: 73) (emphasis mine). Finally, he does not give evidence for the order Mood<sub>irrealis</sub> > Mod<sub>(alethic)necessity/possibility</sub>, only for Mood<sub>irrealis</sub> > Mod<sub>root</sub>.

<sup>14</sup> For instance, by assuming that the movement to Tense<sub>future</sub> was triggered by a formal feature such as a categorial [v] feature (Roberts 2012: 359; note 5), requiring lexicalisation of Tense<sub>future</sub> by a verbal head.

<sup>15</sup> E.g. (i)

- (i) Ehrich (2001: 165)  
 Du sollst jetzt endlich den Rasen mähen. Ich habe es dir schon  
 you shall now finally the lawn mow I have it you already  
 hundertmal gesagt.  
 a.hundred.times said  
 'I demand you finally mow the lawn. I have already told you a hundred times.'

According to von Fintel (2006: 21-22), “bouletic modality [...] concerns what is possible or necessary given a person’s desires”; “it has a circumstantial modal base and an ordering source based on a relevant person’s desires”. This would justify locating it in Cinque’s  $\text{Mod}_{\text{volitional}}$ . The semantics associated with the conditional protasis as a whole could then give rise to the interpretation of *solte* as expressing (alethic) possibility, the meaning also seen in (14c). Both bouletic (21a) and (alethic) possibility uses (21b) are in fact attested in MHG.

- (21) a. *Middle High German (Rennewart; after 1243)*  
 Siner sorgen der wart wette Da er gemaches **solte**  
 his sorrow he was relieved when he bedroom should  
 pflegen  
 remain.in  
 ‘He was relieved of his sorrows when he was requested to stay  
 in the bedroom.’
- b. *Middle High German (Kaiserchronik; 1140/50)*  
 alle clageten si den rat daz man durch sulhe getat  
 all bemoaned they the advice that one through such act  
 . di fröen **solte** uerliefen  
 the lady should lose  
 ‘All bemoaned the advice that one should lose the lady through  
 such an act.’

An additional argument in favour of the assumption that conditional *sollte* arose via  $\text{Mod}_{\text{volitional}}$  and  $\text{Mod}_{(\text{alethic}) \text{ possibility}}$  is the fact that conditional *suln* in MHG competed in its conditional use with *mügen* ‘may’, as shown in Section 2.4 above. Like MHG *suln*, *mügen* had (and still has) volitional and possibility uses as well, as seen in (11) in Section 2.4 above.

That is, conditional *suln/sollen* started out as an exponent of  $\text{Mod}_{\text{volitional}}$  and  $\text{Mod}_{(\text{alethic}) \text{ possibility}}$  in conditional protases, and over time came to merge directly in  $\text{Mood}_{\text{irrealis}}$ , after the earlier movement from these heads was lost due to upwards reanalysis.<sup>16</sup> The fact that MHG conditionally used *suln* still largely obeys the sequence of tenses and allows present tense in conditional protases (cf. Table 4) indicates that it was still merged in a modal projection, and that upward reanalysis had not yet taken place. That the conditional

<sup>16</sup> A potential problem for this proposal might be that this reanalysis affects only one lexical item, not a whole class (here, the modal verbs) as required under Roberts & Roussou’s account. However, this seems to be typical of the developments affecting modal verbs. For instance, not all modals have undergone a change from  $\text{Mod}_{\text{ability/permission}}$  to  $\text{Mod}_{\text{obligation}}$ , as *must* is argued to have in its history (Roberts 2010; 2012).

meaning is not always easy to disentangle from a “modal” meaning, cf. (22a) vs. (22b), is expected under the current analysis: “modal” meanings are possible still today, and under Roberts & Roussou’s (2003) approach, the preservation of the old meaning is a case of a lexical split, or divergence characteristic of grammaticalization.

- (22) a. *Middle High German (Alexander (R. v. E.), l.14407–14408; 13<sup>th</sup> c.)*  
 soldich mich an dich ergebn, sô möhtich ungerne lebn!  
 should = I myself to you give.up so would = I unwillingly live  
**root/bouletic**: ‘If I had to give myself up to you / if it were desirable to someone for me to give myself up to you, I would be loathe to live.’  
**conditional**: ‘In case I give myself up to you, I would be loathe to live.’
- b. *Middle High German (Kaiserchronik, l.6–8; 12<sup>th</sup> c.)*  
 die tumben dunchet iz arebeit, sculn si iemer iht  
 the foolish think it work shall they ever anything  
 gelernen od ir wîstuom gemêren.  
 learn or their wisdom enhance  
**root**: ‘The foolish consider it work if they ever have to learn anything, or enhance their wisdom.’

While offering an account for the rise of the conditional use of *suln/sollte*, this proposed upwards reanalysis in (20) still fails to account for the diachronic changes in the distribution of conditional *sollte* and of *sollte*-protases, viz. the increasing restriction to past subjunctive, the rise of the “mixed” tense-mood pattern, the increasing restriction to content-level conditionals, and for the special behaviour of *sollte*-V1-conditionals compared to other V1-conditionals. Such an account will be attempted in the next Subsection.

## 4.2 *Sollte as an emerging conditional marker*

As noted above, the connectedness with contextual factors, especially for older stages of the language, makes the exact analysis of modal meaning difficult (e.g. Zeman 2013). Note, however, that the conditional meaning is already attested in MHG, and very frequently so, too. As far as a distinction between circumstantial and conditional uses is possible (cf. ambiguities such as exemplified in (22a)), there is a striking correlation in the corpus used for the present study, which is diachronically becoming more



pronounced, between the tense and mood of the modal and its interpretation: the circumstantial use becomes restricted to present tense, while the conditional use becomes restricted to the past tense (see Table 2 in Section 2.1).

That is, the past subjunctive is increasingly associated with the hypothetical conditional, irrealis mood, meaning of conditional *sollen*. In asyndetic conditionals, *sollte* can now only have the conditional meaning, while in syndetic ones, where there is a conditional complementizer *wenn* ‘if’, it is still free to be interpreted as deontic. This observation points at a syntagmatic fixation of conditional *sollte* that is expected if it is undergoing a grammaticalization process (Lehmann 1995).

Besides the loss of competing modals expressing the conditional meaning, viz. MHG *mugen*, and hence of paradigmatic variability, there are other syntagmatic restrictions building up, too, and hence, there is further grammaticalization according to Lehmann’s (1995) parameters. As seen in Section 3, example (17b), conditional *sollte* can only be finite. This finiteness restriction points at it being interpreted above Tense (Erb 2001). The fact that it, like epistemic modals, does not express temporal information is also witnessed by its (historically increasingly) frequent combination with present tense apodoses (cf. Table 4), despite it invariably being past subjunctive in PDG (Table 2) suggests that it is interpreted above Tense<sub>past</sub>. Given the (partial) hierarchy in (15), this indicates that conditional *sollte* is in the process of a further upward reanalysis.

Recall that under Haegeman’s (2010b) analysis, the conditional modal verb in Mood<sub>irrealis</sub> fronts to left periphery together with conditional operator in verb-initial conditionals, (23a). Reis & Wöllstein’s (2010: 137) intuition that *sollte* in V1-conditionals seems to be functionally equivalent to a conditional complementizer like *falls* can now be interpreted as conditional *sollte* being in the process of becoming an exponent of conditional C by upward reanalysis, (23b). As shown by Van Den Nest (2010), verb-first clauses could already early on in the history of German be used as conditional protases. Therefore, the development of *sollte* as a pure conditional marker could piggy-back off this generally available option.<sup>17</sup>

<sup>17</sup> For ease of exposition, irrelevant intermediate projections and possible specifiers are omitted, and right-headed projections below CP are assumed to account for sentence-final placement of *sollte* in syndetic conditionals, with *wenn* ‘if’ merged in C, (i).

(i) 
$$\begin{bmatrix} \text{CP} & \text{OP}_w & [\text{C}' & [\text{C} \text{ wenn}] & [\text{TP}_{\text{past}} & [\text{TP}_{\text{future}} & [\text{Mood}_{\text{irrealis}} \text{P} & t_w & [\text{Mood}_{\text{irrealis}}' & [\dots] & [\text{Mood}_{\text{irrealis}} \text{ sollte}] ]]]]] \end{bmatrix}$$



- (23) a.  $[_{CP} OP_w [_{C'} [_C \textit{sollte}_i] [_{TP_{past}} [_{TP_{future}} [_{Mood_{irrealis}P} t_w [_{Mood'_{irrealis}} [ \dots ] t_i ]]] T_{future} ] T_{past} ]]]]$   
 b.  $[_{CP} OP_w [_{C'} C = \textit{sollte} [_{TP_{past}} [_{TP_{future}} [_{Mood_{irrealis}P} t_w [_{Mood'_{irrealis}} [ \dots ] Mood_{irrealis} ]]] T_{future} ] T_{past} ]]]]$

Such a(n ongoing) reanalysis can at once account for the loss of temporal distinctions in conditional protases with *sollte*. In particular, conditional *sollte* is no longer associated with past tense (despite being morphologically past subjunctive), but just expresses conditionality. This accounts for the increased frequency of predictive conditionals in PDG compared to MHG. This sets it apart from the deontic modal which still enjoys full paradigmatic variability, demonstrating the divergence, or lexical split characteristic of grammaticalization (Hopper 1991: 24f). It can also help account for the higher incidence of conditional *sollte* in V1-protases, which in PDG is ca. 23% higher than in syndetic protases (see Table 1).

There are a number of potential counterarguments to conditional *sollte* being on its way to becoming a C-element.<sup>18</sup> First, if *sollte* were a complementizer like *falls* ‘in case’, one would expect (24b) to be equally acceptable as (24a). However, the difference in acceptability with a V1-conditional without *sollte* (24c) is suggestive of the contribution of *sollte*. Generally, V1-protases cannot follow the matrix clause (Reis & Wöllstein 2010). The fact that a *sollte*-V1-protasis is more acceptable in this position therefore seems to suggest that there is in fact a difference between *sollte*-V1-protases and V1-protases without *sollte*.<sup>19</sup>

<sup>18</sup> I thank three anonymous reviewers for their comments.

<sup>19</sup> I thank an anonymous reviewer for the examples. There are further differences between regular and *sollte*-V1-conditionals. While regular V1-conditionals have been argued by to be unintegrated syntactically into their matrix clauses (Axel & Wöllstein 2009), V1 conditionals with *sollte* show to a much lesser degree the signs of lack of syntactic integration. For instance, variable binding into the protasis (i), question-answer pairs in elliptical constructions (ii), and the availability of low construal of the protasis (iii) seem to point to a greater degree of integration than V1 conditionals normally allow (cf. Axel & Wöllstein 2009). The examples in (i) and (ii) are based on Axel & Wöllstein’s examples (5) and (8), respectively. The processing study by von Wietersheim (2016) confirms the relevance of variable binding (as in (i)) for the question of whether an adverbial clause is syntactically embedded in the matrix clause. The example in (iii) is based on tests for the syntactic integration of left-peripheral frame-setting adverbials devised by Haegeman & Greco (2018).

- (i) a. Sollte sein<sub>i</sub> Sohn etwas ausgefressen haben, wäre jeder Vater<sub>i</sub>  
 should his son something done.wrong have would.be every father  
 besorgt.  
 worried

- (24) a. Wir sagen die Party ab, **falls** die Maria krank ist.  
we say the party off in.case the Maria ill is  
'We call off the party in case Maria is ill.'
- b. ??Wir sagen die Party ab, **sollte** die Maria krank sein.  
we say the party off should the Maria ill be  
'We call off the party should Maria be ill.'
- c. \*Wir sagen die Party ab, ist die Maria krank.  
we say the party off is the Maria ill  
(intended) 'We call off the party, if Maria is ill.'
- 
- 'Should his son have done something wrong, every father would be concerned.'
- b. Hat sein<sub>\*i</sub> Sohn etwas ausgefressen, ist jeder Vater<sub>\*i</sub> besorgt.  
has his son something done.wrong is every father worried
- c. Hätte sein<sub>\*i</sub> Sohn etwas ausgefressen, wäre jeder Vater<sub>\*i</sub> besorgt.  
had his son something done would.be every father worried
- (ii) Unter welchen Umständen würden Sie einen Bentley kaufen?  
under which circumstances would you a Bentley buy  
'In what circumstances would you buy a Bentley?'
- a. (?)– Sollte ich im Lotto gewinnen.  
should I in.the lottery win  
'– In case I win the lottery.'
- b. \*– Gewänne ich im Lotto.  
win.SBJV I in.the lottery
- (iii) a. Sollte ihr Auto einen Kratzer bekommen, sagt Maria, dass sie die Polizei  
should her car a scratch get says Maria that she the police  
rufen würde.  
call would  
**High construal:** 'In case her car got a scratch, Maria says that she would call the police.' (*scratch* → *say*)  
**Low construal:** 'Maria says that, in case her car got a scratch, she would call the police.' (*scratch* → *call police*)
- b. Bekommt ihr Auto einen Kratzer, sagt Maria, dass sie die Polizei ruft.  
gets her car a scratch says Maria that she the police calls  
<sup>ok</sup>High / \*Low
- c. Bekäme ihr Auto einen Kratzer, sagt Maria, dass sie die Polizei rufen  
got.SBJV her car a scratch says Maria that she the police call  
würde. <sup>ok</sup>High / (?) \*Low  
would

In the current paper, however, I have chosen not to consider whether *sollte*-protases (asyn-detic or not) are syntactically integrated into their matrix clauses, given the subtlety of the judgments, and the impossibility of finding relevant examples and counterexamples in a (diachronic) corpus.

Second, one might object that conditional *sollte* has the same interpretation in conditional protases without movement of *sollte* to C. However, I only claim here that *sollte* is in the process of becoming a conditional marker, with the potential of later becoming a C-element, but that it has not yet completed this development. The fact that the conditional interpretation (roughly, ‘in case’) has developed early, in both asyndetic and syndetic protases, but that the use in asyndetic protases becomes more frequent in PDG, is an argument in favor of such an ongoing reanalysis.

Third, a potential counterargument is the fact that a complementizer *sollte* would take a bare infinitive as its complement, and that there are no comparable C-elements in German: There are either complementizers (like *dass* ‘that’, *wenn* ‘if’, *falls* ‘in case’, ...) taking a finite verb, or complementizers taking a *zu* ‘to’-infinitive (like *um* ‘in order to’ or *anstatt* ‘instead of’). Given the semantic, and partially distributional, similarity to *falls* (Reis & Wöllstein 2010), however, it is not expected that a complementizer-*sollte* would compete with non-finite complementizers. Rather, one may expect the lexical verb eventually to become finite. A transitional period with a bare infinitive would not be so unusual. There are relevant parallels in other languages where formerly finite auxiliaries undergo grammaticalization. Estonian for instance expresses negation by an invariable negative auxiliary that has historically lost all its finiteness features (unlike other Uralic languages, such as Finnish or North Sámi, where the negative auxiliary still inflects for person and number), followed by the infinitive of the main verb. That is, the loss of finiteness features on the grammaticalising auxiliary has not (yet) led to the expression of person and number on the lexical verb in Estonian. Under the cartographic approach, finiteness is represented high, in the lowest head of the C-domain (Rizzi 1997). This is above the domain of mood and modality. It is therefore theoretically not impossible for a head being reanalysed from Mood<sub>irrealis</sub> to a head in the C-domain to continue to express finiteness information. Eventually, an emerging complementizer *sollte* would cease to carry the finiteness features of the clause. These would then be realised on the verb that was originally selected by the modal.

Interestingly, it is not hard to find typos or performance errors that could be interpreted as *sollte* having been reanalysed as a (conditional) complementizer, as there is a second finite verb, like *wird* in (25).<sup>20</sup>

<sup>20</sup> Trousdale (2012: 173) reports finding sufficient examples of this type (e.g., *Should Hillary wins the nomination fairly she will be a very good president*) to be sure that the finite inflection on the main verb is not a typo. According to Trousdale, English *should* has, at least informally and potentially still not very commonly, turned into an unambiguous conditional

- (25) (<https://www.tagesschau.de/kommentar/kommentar-mccain-steinmeier-101.html>, 13/03/2015)  
 Sie könnten im Januar 2017, so wie brieflich angedroht, they could in.the January 2017 so as in.a.letter threatened präsidentiale Anordnungen von Obama zurücknehmen, **sollte** Präsident presidential decrees of Obama take.back should president Nummer 45 aus ihren Reihen stammen **wird**. number 45 from their ranks stem become  
 ‘In January 2017, they could, as threatened in a letter, take back presidential decrees by Obama, should President number 45 come from their own ranks.’

Such apparent performance errors are a further indication that a reanalysis of *sollte* as a conditional complementizer is already underway in German.

## 5 Conclusion

The current paper undertook to describe and analyse the diachronic development of conditional *sollte* in German. The corpus study looked at the diachronic development of both syndetic and asyndetic *sollte*-conditionals and found that the paradigmatic and syntagmatic variability of the modal verb is increasingly restricted over time, pointing at an ongoing grammaticalization process. Even though the conditional use of modal verbs, in particular *sculan/suln/sollen* seems to be very old, perhaps going back to OHG, the original sequence of tenses holding in predictive conditionals is lost when the modal becomes restricted to the past subjunctive, regardless of the degree of probability expressed. An earlier competitor for the modal function, *mugen* ‘may’ is pushed aside by *suln/sollte*.

The present paper argued to account for these developments as a grammaticalization of *sollte* in terms of upwards reanalysis (Roberts & Rous-sou 2003) through the functional hierarchy (Cinque 1999). Originally merged in a circumstantial modal head (Mod<sub>obligation</sub> or Mod<sub>volition</sub>), it moves to Mod<sub>(alethic) possibility</sub> and from there to Mood<sub>irrealis</sub> in conditional protases, the latter of which is the head of the projection “launching” the conditional operator (Haegeman 2010b)). This movement is lost when *sollte* is reanalysed as the new exponent of Mood<sub>irrealis</sub>. As proposed by Haegeman (2010b), the exponent of Mood<sub>irrealis</sub> moves along with OP<sub>w</sub> to the left periphery in

---

complementizer, possibly helped along by analogy with *say* (*Say Hillary wins the next US elections ...* (Trousdale 2012: 172).

V1 conditionals. The present paper argued that it is in the process of being reanalysed as a new exponent of conditional C. This can account for the dominance of the V1-pattern, but at the same time the similarities in distribution with syndetic conditionals (without conditional *sollte*) as observed by Reis & Wöllstein (2010). In syndetic *sollte*-conditionals, *sollte* retains the possibility to be merged in Mod<sub>obligation</sub> or Mod<sub>volition</sub>, besides Mood<sub>irrealis</sub>, for much longer, accounting for the greater variability in syndetic protases.

## Abbreviations

ACC = accusative, ENHG = Early New High German, DAT = dative, GEN = genitive, INF = infinitive, MHG = Middle High German, MP = modal particle, NEG = negation, NOM = nominative, NHG = New High German, OHG = Old High German, PST = past tense, PRS = present tense PDG = Present-Day German, PL = plural, PRT = particle, REFL = reflexive, SG = singular, SBJV = subjunctive

## Acknowledgements

This research was funded by an FWO postdoctoral fellowship, grant FWO12/PDO/014. For helpful discussion of the data and comments on earlier versions of this paper, I am very grateful to Lobke Aelbrecht, Karen De Clercq, Sara Delva, Linde Goubert, Liliane Haegeman, Will Harwood, Torsten Leuschner, Rachel Nye, and Amélie Rocquet, as well as the anonymous reviewers for Glossa. Any remaining errors are mine.

## References

- Abraham, Werner. 1989. Syntaktische Korrelate zum Lesartenwechsel zwischen epistemischen und deontisch/volitiven Modalverben. *Groninger Arbeiten zur Germanistischen Linguistik* 30. 145–166.
- Axel, Katrin & Angelika Wöllstein. 2009. German verb-first conditionals as unintegrated clauses: A case study in converging synchronic and diachronic evidence. In Sam Featherston & Susanne Winkler (eds.), *The fruits of empirical linguistics, Vol. II: Product*, 1–36. Berlin/New York: De Gruyter.

- Bhatt, Rajesh & Roumyana Pancheva. 2006. Conditionals. In Martin Everaert & Henk van Riemsdijk (eds.), *The Blackwell companion to syntax, volume 1*, 638–687. Oxford: Blackwell.
- Boogaart, Ronny. 2007. Conditionele constructies met *moest(en)* en *mocht(en)* in Belgisch-Nederlands en Nederlands-Nederlands. *neerlandistiek.nl* 07.05.
- Breitbarth, Anne. 2015. The development of conditional *should* in English. In Chiara Gianollo, Agnes Jäger & Doris Penka (eds.), *Language change at the syntax-semantics interface*, 293–322. Berlin/New York: De Gruyter.
- Breitbarth, Anne, Sara Delva & Torsten Leuschner. 2016. A (very) imperfect sandwich: English *should*, German *sollte*, Dutch *mocht/moest* as grammaticalizing markers of conditionality. *Journal of Germanic Linguistics* 28. 282–316.
- Cinque, Guglielmo. 1999. *Adverbs and functional heads*. Oxford: Oxford University Press.
- Copley, Bridget. 2006. What should *should* mean? Paper presented at the “Language under uncertainty”-workshop held at Kyoto University, January 21–23, 2005; <https://halshs.archives-ouvertes.fr/halshs-00093569/>.
- Dancygier, Barbara & Eve Sweetser. 2005. *Mental spaces in grammar: Conditional constructions*. Cambridge: Cambridge University Press.
- Diewald, Gabriele. 1999. *Die Modalverben im Deutschen: Grammatikalisierung und Polyfunktionalität*. Tübingen: Niemeyer.
- Diewald, Gabriele & Mechthild Habermann. 2005. Die Entwicklung von *werden* + Infinitiv als Futurgrammem: Ein Beispiel für das Zusammenwirken von Grammatikalisierung, Sprachkontakt und soziokulturellen Faktoren. In Torsten Leuschner, Tanja Mortelmans & Sarah De Groodt (eds.), *Grammatikalisierung im Deutschen*, 229–250. Berlin/New York: De Gruyter.
- Ebert, Robert P., Oskar Reichmann, Hans-Joachim Solms & Klaus-Peter Wegera. 1993. *Frühneuhochdeutsche Grammatik*. Tübingen: Niemeyer.
- Ehrich, Veronika. 2001. Was *nicht müssen* und *nicht können* (nicht) bedeuten können: Zum Skopus der Negation bei den Modalverben des Deutschen. In Reimar Müller & Marga Reis (eds.), *Modalität und Modalverben im Deutschen*, 149–176. Hamburg: Buske.
- Erb, Marie Christine. 2001. *Finite auxiliaries in German*. Tilburg: Universiteit van Tilburg dissertation.
- Fritz, Gerd. 1997a. Deutsche Modalverben 1609: Nicht-epistemische Verwendungsweisen. In Gerd Fritz & Thomas Gloning (eds.), *Untersuchungen zur semantischen Entwicklungsgeschichte der Modalverben im Deutschen*,

- 249–305. Tübingen: Niemeyer.
- Fritz, Gerd. 1997b. Historische Semantik der Modalverben: Problemskizze – exemplarische Analysen – Forschungsüberblick. In Gerd Fritz & Thomas Gloning (eds.), *Untersuchungen zur semantischen Entwicklungsgeschichte der Modalverben im Deutschen*, 1–157. Tübingen: Niemeyer.
- Furrer, Dieter. 1971. *Modusprobleme bei Notker: Die modalen Werte in den Nebensätzen der Consolatio-übersetzung*. Berlin/New York: De Gruyter.
- Glas, Reinhold. 1984. ‘Sollen’ im heutigen Deutsch: Bedeutung und Gebrauch in der Schriftsprache. Tübingen: Narr.
- Haegeman, Liliane. 2010a. The internal syntax of adverbial clauses. In Kleanthes Grohmann & Ianthi Tsimpli (eds.), *Exploring the left periphery*, 628–648. North Holland: Elsevier. Special issue of *Lingua*, 120.
- Haegeman, Liliane. 2010b. The movement derivation of conditional clauses. *Linguistic Inquiry* 41. 595–621.
- Haegeman, Liliane & Ciro Greco. 2018. West Flemish V3 and the interaction of syntax and discourse. *Journal of Comparative Germanic Linguistics* 21. 1–56.
- Heine, Bernd. 1995. Agent-oriented vs. epistemic modality. Some observations on German modals. In Joan Bybee & Suzanne Fleischmann (eds.), *Modality in grammar and discourse*, 17–53. Amsterdam/Philadelphia: John Benjamins.
- Holl, Daniel. 2001. Was ist modal an Modalen Infinitiven? In Reimar Müller & Marga Reis (eds.), *Modalität und Modalverben im Deutschen*, 217–238. Hamburg: Buske.
- Hopper, Paul J. 1991. On some principles of grammaticalization. In Elizabeth Closs Traugott & Bernd Heine (eds.), *Approaches to grammaticalization, vol. 1*, 17–35. Amsterdam/Philadelphia: John Benjamins.
- Klein, Thomas & Stefanie Dipper. 2016. Handbuch zum Referenzkorpus Mittelhochdeutsch. <https://www.linguistics.rub.de/bla/019-klein-dipper2016.pdf>.
- Kratzer, Angelika. 1991. Modality. In Arnim von Stechow & Dieter Wunderlich (eds.), *Semantics: An international handbook of contemporary research*, 639–650. Berlin/New York: De Gruyter.
- Leech, Geoffrey. 2004. *Meaning and the English verb. Third edition*. Harlow: Longman.
- Lehmann, Christian. 1995. *Thoughts on grammaticalization: A programmatic sketch. Second edition*. München: Lincom.
- Leirbukt, Oddleif. 1997. Dimensions of epistemicity in English, German and Norwegian conditionals. In Toril Swan & Olaf Jansen Westvik (eds.), *Modality in Germanic languages: Historical and comparative perspectives*,

- 49–74. Berlin/New York: De Gruyter.
- Leiss, Elisabeth. 2008. The silent and aspect-driven patterns of deonticity and epistemicity. In Werner Abraham & Elisabeth Leiss (eds.), *Modality-aspect interfaces: Implications and typological solutions*, 15–41. Amsterdam/Philadelphia: John Benjamins.
- Longobardi, Giuseppe. 2001. Formal syntax, diachronic minimalism, and etymology: The history of French *chez*. *Linguistic Inquiry* 32. 275–302.
- Mortelmans, Tanja. 2003. The ‘subjective’ effects of negation and past subjunctive on deontic modals: The case of German *dürfen* and *sollen*. In Friedrich Lenerz (ed.), *Modals in the languages of Europe*, 153–182. Amsterdam/Philadelphia: John Benjamins.
- Nieuwint, Pieter. 1989. *Should* in conditional protases. *Linguistics* 27. 305–318.
- Nishiwaki, Maiko. 2013. Modalverben und die (In)Definitheit des Subjekts – unter besonderer Berücksichtigung von *sollen*. In Werner Abraham & Elisabeth Leiss (eds.), *Funktionen von Modalität*, 221–248. Berlin/New York: De Gruyter.
- Nuyts, Jan, Pieter Byloo & Janneke Diepeveen. 2005. On deontic modality, directivity, and mood. A case study of Dutch *mogen* and *moeten*. *Antwerp Papers in Linguistics* 110.
- Quirk, Randolph, Sidney Greenbaum, Geoffrey Leech & Jan Svartvik. 1985. *A comprehensive grammar of the English language*. Harlow: Longman.
- Reis, Marga & Angelika Wöllstein. 2010. Zur Grammatik (vor allem) konditionaler V1-Gefüge im Deutschen. *Zeitschrift für Sprachwissenschaft* 29. 111–179.
- Rizzi, Luigi. 1997. The fine structure of the left periphery. In Liliane Haegeman (ed.), *Elements of grammar*, 281–337. Dordrecht: Kluwer.
- Roberts, Ian. 2010. Grammaticalization, the clausal hierarchy and semantic bleaching. In Elizabeth Traugott & Graeme Trousdale (eds.), *Gradience, gradualness, and grammaticalization*, 45–73. Amsterdam/Philadelphia: John Benjamins.
- Roberts, Ian. 2012. Diachrony and cartography: Paths of grammaticalization and the clausal hierarchy. In Laura Brugè, Anna Cardinaletti, Giuliana Giusti, Nicola Munaro & Cecilia Poletto (eds.), *Functional heads: The cartography of syntactic structures. Volume 7*, 351–367. Oxford/New York: Oxford University Press.
- Roberts, Ian & Anna Roussou. 2003. *Syntactic change: A minimalist approach to grammaticalization*. Cambridge: Cambridge University Press.
- Roméro, Céline. 2005. *The syntactic evolution of modal verbs in the history of English*. Paris: Université Paris III – La Sorbonne Nouvelle dissertation.



- <http://www-sop.inria.fr/miaou/tralics/thesis/thesis.html>.
- Solo, Harry J. 1977. The meaning of \**motan*: A secondary denotation of necessity in Old English? *Neuphilologische Mitteilungen* 78. 215–232.
- Sweetser, Eve. 1990. *From etymology to pragmatics: Metaphorical and cultural aspects of semantic structure*. Cambridge: Cambridge University Press.
- Traugott, Elizabeth Closs & Richard B. Dasher. 2002. *Regularity in semantic change*. Cambridge: Cambridge University Press.
- Trousdale, Graeme. 2012. Grammaticalization, constructions and the grammaticalization of constructions. In Kristin Davidse, Tine Breban, Lieselotte Brems & Tanja Mortelmans (eds.), *Grammaticalization and language change: New reflections*, 167–198. Amsterdam/Philadelphia: John Benjamins.
- Van Den Nest, Daan. 2010. *Emergenz und Grammatikalisierung von V1-Konditionalen. Ein Rekonstruktionsversuch am Beispiel des Deutschen und Englischen*. Ghent: Universiteit Gent dissertation.
- van der Auwera, Johan & Vladimir A. Plungian. 1998. Modality's semantic map. *Linguistic Typology* 2. 79–124.
- von Fintel, Kai. 2006. Modality and language. In Donald M. Borchert (ed.), *Encyclopedia of philosophy. Second edition*, vol. 10, 20–27. Detroit: MacMillan. [<http://mit.edu/fintel/www/modality.pdf>].
- von Wietersheim, Sophie. 2016. Variable binding as evidence for clausal attachment. In Ingo Reich & Augustin Speyer (eds.), *Co- and subordination in German and other languages* (Linguistische Berichte Sonderheft 21), 321–347. Hamburg: Buske.
- Welke, Klaus. 1965. *Untersuchungen zum System der Modalverben in der deutschen Sprache der Gegenwart: Ein Beitrag zur Erforschung funktionaler und syntaktischer Beziehungen*. Berlin: Akademie-Verlag.
- Zeman, Sonia. 2013. Zur Diachronie der Modalverben: *sollen* zwischen Temporalität, Modalität und Evidentialität. In Werner Abraham & Elisabeth Leiss (eds.), *Funktionen von Modalität*, 335–366. Berlin/New York: De Gruyter.