RESEARCH

Should a conditional marker arise … The diachronic development of conditional *sollte* in German

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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).

1 Introduction

1.1 Background

All West Germanic (and some Romance)[1] 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 (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.'

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[1] 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.).

  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.[2]

They add in a footnote

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

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 conditio-nals 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)[4] and (b) from the newly available Referenzkorpus Mittelhochdeutsch (ReM; 2.5 million tokens in 395 texts),[5] Klein & Dipper (2016). The NHG data are drawn from the written

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[2] '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 realizability also attributed to it.' [AB]

[3] '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]

[4] 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.

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

archive of the German Reference Corpus (DeReKo; ca. 7.3 billion words in total),[6] 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,[7] 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* 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

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(i)   a.   tok_anno = "." &
        tok_anno = /sol.*/ &
        #1 . #2

     b.   tok_anno = /sol.*/ &
        punc = "$E" &
        #1 . #2

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

[6] 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*

[7] 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.

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** sîn.
         him seemed a   heavy   burden if he his.GEN without should 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 wohl leiden,
         if   me the important   fun   make shall so can I   well bear
         daß jemand   das Bedeutende ernsthaft aufführt.
         that someone the important   seriously performs
         'If the important is supposed to entertain me, I can bear someone perform-
         ing the important seriously.'

     c. *Present-Day German* (A97/OKT.28020; 1997)
         Wenn es im   Februar blühen **soll**, müssen die Blumenzwiebeln jetzt
         Wenn it in.the February blossom shall must   the flower.bulbs   now
         in   die Erde.
         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)*
         ſcolde ich die wale   han . ſo ne   irchunte   ich nie   deheinin man
         should I   the choice have so NEG recognized I   never 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 Aufschlüsse
         should you me therefore in this   affair   advice and information
         geben wollen, so werde ich sehr dankbar sein.
         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

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

syndetic			
	modal	**conditional**	**total**
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			
	modal	**conditional**	**total**
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

also be expressed by *suln/sollen* in the present indicative, (4).[8] In PDG, while the conditional meaning can only be expressed using the past (subjunctive) form *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)
   ſcol er da warden erſlagen . 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, wenn
   shall with this witness NEG enough be so know I NEG when
   überhaupt deren genug sein werden
   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 ſine wǒnder elliv ſagen . ſo mǔ=ſen wir di wile haben
   should we his miracles all say so must we the time 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, daß die
   according.to the provincial.law were however necessary that the
   Majorität 2/3 sein müßte, wenn sie beschlußfähig sein **sollte**.
   majority 2.3 be must if it quorate 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 werden, so
   should the flowers however to young chickens fed be so
   durften sie auf keinen Fall abgebrochen worden sein.
   must they under no circumstance broken been be
   'If the flowers were **intended/supposed** to be fed to young chickens,
   under no circumstances could they have been broken off.'

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[8] (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 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 verdāmen
            should I   this in my   age break   so should me   God 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, warden 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   ausgefallen
            should it robbery been   be   would the loot marginal turn.out
            sein, sagen die Ermittler.
            be   say   the investigators
            'In case it was robbery, the loot would have been marginal, according to the investigators.'

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

(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 doch guot.
should she love   against you teach do=her NEG pain she is   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 die meisten
should the avian.flu   yet   other.places break.out   would the most
Kreise   und Kommunen   dennoch gut   vorbereitet.
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.'

Content-level linkage is the most frequent type in all three subcorpora (Table 3), 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; 13th c.)
süllen diu   lant niht mit frid   wesen, sô lâz ich nieman niht genesen.
shall   the(se) lands NEG with peace be   so let I   no.one 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, müsste er
should the VfL the 35-year.old   NEG   anymore have   want   should it
ihn   abfinden.
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; 13th c.)
   Soltestu   han gelebet all din rechten leptag, du hettest der
   should = you have lived   all your rightful life   you had   the.GEN
   burden so vil   off yn geworffen das er darunder   must sin
   burden so many on him thrown   that he thereunder must be
   gevallen, er wolt   oder en = wolt.
   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 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 realization 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 die Ungnade
       shall REFL the statesman   him.GEN remember so must him the disfavour
       des   Fürsten während der Arbeit überfallen.
       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,[9] besides a number of modal meanings, (11), which show a certain

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

[9] 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.

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 gefûgen . er wolte   unſer frŏde gerne getrŏben
            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*, l.951; 1230–1275)
            daz wil ich rechen ob ich **mac**
            that will I   avenge if I   may
            'If I can/may, I will avenge it.'

       c.   Volition
            (*Kaiserchronik*, l.2640–2641; 12th 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)
            moehte ich von leide   han   erkorn | den tot,   ich waer lange tot.
            might   I   of suffering have chosen the death I   was long dead
            'If I had chosen death as my way of suffering, I would long be dead.'

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 weſn . ſo wær er ſælbe geneſen
            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 Valbischen
            that had   several done   might   they heard   have the Valbish
            sprâch.
            language
            'Several (people) would have done that, if they had heard the Valbish language'

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

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 realization of the event, excluding counterfactual construal.[10] 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).

(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 einem
          if   Greece   the Euro leave   should could this to a
          Zusammenbruch der   Währungsgemeinschaft führen.
          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; Ehrich 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).

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[10] Cf. already Welke (1965: 99).

(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 gewisse Form
            as avowed   communist   should you.DAT MP   a   certain form
            von Etatismus sympathisch sein.
            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   Motive, für
            it contains already beginnings that.GEN sounds and those.GEN motives for
            die   Keruac später mit *On The Road* berühmt werden sollte.
            which Keruac later   with On The Road famous   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) $\text{Mood}_{\text{evidential}} > \text{Mod}_{\text{epistemic}} > \text{Tense}_{\text{past}} > \text{Tense}_{\text{future}} > \text{Mood}_{\text{irrealis}} > \text{Mod}_{\text{(alethic) necessity}}$
       $> \text{Mod}_{\text{(alethic) possibility}} > \text{Mod}_{\text{volitional}} > \text{Mod}_{\text{obligation}} (>) \text{Mod}_{\text{ability/permission}}$

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

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[11] 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.

(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 $Mod_{epistemic}$ 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 dies zu
              if   Greece   the Euro leave   shall.INF would   could   this to
              einem Zusammenbruch der   Währungsgemeinschaft führen.
              a   break-up   of.the monetary.union   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 $Mood_{irrealis}$ 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 realization of a $Mood_{irrealis}$ 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 $Mood_{irrealis}$, 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 […]:
> $[_{XP} \, Y + X \, [_{YP} \, ... \, t_Y \, ...]] \, > \, [_{XP} \, Y = X \, [_{YP} \, ... \, Y \, ... \,]]$.
> (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 one 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 proceded. 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.[12]

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 14th through 16th centuries replaced by the periphrastic expression with *werden* (Ebert et al. 1993: 391f). A problem with assuming upwards reanalysis from Tense_{future} to $\text{Mood}_{irrealis}$ is that $\text{Mood}_{irrealis}$ is below Tense_{future} in Cinque's hierarchy. While it is possible that the hierarchy needs a revision,[13] there are two arguments that make a development out 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_{future} under Roberts & Roussou's analysis.[14] 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 $\text{Mod}_{volitional}$ (because of its bouletic meaning) or perhaps $\text{Mod}_{obligation}$, and moved to Tense_{future} (in temporal use) or $\text{Mood}_{irrealis}$ (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, uuile* '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 that 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*,[15] an intermediate step in the reanalysis from root

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[12] "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).

[13] Cinque does not give direct evidence for his proposed order $\text{Tense}_{future} > \text{Mood}_{irrealis} > \text{Mod}_{(alethic)necessity/possibility}$, 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 $\text{Mod}_{epistemic} > \text{Tense}_{future}$ or $\text{Mod}_{epistemic} > \text{Mod}_{(alethic)necessity/possibility}$. His evidence for $\text{Tense}_{future} > \text{Mood}_{irrealis}$ is furthermore weak: "Evidence for this order is *apparently* provided by the Creole language Ndyuka …" (Cinque 1999: 73) (emphasis mine). Finally, he does not give evidence for the order $\text{Mood}_{irrealis} > \text{Mod}_{(alethic)necessity/possibility}$, only for $\text{Mood}_{irrealis} > \text{Mod}_{root}$.

[14] For instance, by assuming that the movement to Tense_{future} was triggered by a formal feature such as a categorial [v] feature (Roberts 2012: 359; note 5), requiring lexicalization of Tense_{future} by a verbal head.

[15] E.g. (i)

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

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) $Mood_{irrealis} \leftarrow Mod_{(alethic)\ possibility} \leftarrow Mod_{volitional} \leftarrow Mod_{obligation}$

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 $Mod_{volitional}$. 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**   pflegen
            his   sorrow he was relieved when he bedroom   should 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 . di   frŏen
            all bemoaned they the advice that one through such   act   the lady
            solte   uerlieſen
            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 $Mod_{volitional}$ and $Mod_{(alethic)\ possibility}$ 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*, *mugen* 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 $Mood_{volitional}$ and $Mod_{(alethic)\ possibility}$ in conditional protases, and over time came to merge directly in $Mood_{irrealis}$, after the earlier movement from these heads was lost due to upwards reanalysis.[16] 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 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; 13th 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.'

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[16] 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 $Mod_{ability/permission}$ to $Mod_{obligation}$, as *must* is argued to have in its history (Roberts 2010; 2012).

b.   *Middle High German* (*Kaiserchronik*, l.6–8; 12th c.)
die tumben dunchet iz arebeit, sculn si   iemer iht   gelernen od
the foolish think   it work   shall they ever anything learn   or
ir   wîstuom gemêren.
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$_{past}$. 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$_{irrealis}$ 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.[17]

(23)   a. $[_{CP}$ OP$_w$ $[_{C'}$ $[_C$ *sollte$_i$*$]$ $[_{TPpast}$ $[_{TPfuture}$ $[_{MoodirrealisP}$ t$_w$ $[_{Mood'irrealis}$ $[$ … $]$ t$_i$ $]]$ T$_{future}$ $]$ T$_{past}$ $]]]$
       b. $[_{CP}$ OP$_w$ $[_{C'}$ C $=$ *sollte* $[_{TPpast}$ $[_{TPfuture}$ $[_{MoodirrealisP}$ t$_w$ $[_{Moodirrealis'}$ $[$ … $]$ 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.[18] 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*.[19]

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[17] 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) $[_{CP}$ OP$_w$ $[_{C'}$ $[_C$ *wenn*$]$ $[_{TPpast}$ $[_{TPfuture}$ $[_{MoodirrealisP}$ t$_w$ $[_{Moodirrealis'}$ $[$ … $]$ $[_{Moodirrealis}$ *sollte*$]$ $]]$ T$_{future}$ $]$ T$_{past}$ $]]]$

[18] I thank three anonymous reviewers for their comments.

[19] 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$_i$ Sohn etwas   ausgefressen haben, wäre   jeder Vater$_i$ besorgt.
           should his   son   something done.wrong have   would.be every father worried
           'Should his son have done something wrong, every father would be concerned.'

      b.   Hat sein$_{*i}$ Sohn etwas   ausgefressen, ist jeder Vater$_{*i}$ besorgt.
           has his   son   something done.wrong   is every father worried

      c.   Hätte sein$_{*i}$ Sohn etwas   ausgefressen, wäre   jeder Vater$_{*i}$ 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

(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.'

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 invariate 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$_{irrealis}$ 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

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(iii) a.   Sollte ihr Auto einen Kratzer bekommen, sagt Maria, dass sie die Polizei rufen würde.
            should her car   a   scratch get   says Maria that she the police 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. ᵒᵏHigh/*Low
            gets   her car   a   scratch says Mari   that she the police calls

       c.   Bekäme ihr Auto einen Kratzer, sagt Maria, dass sie die Polizei rufen würde. ᵒᵏHigh/⁽ᵗ⁾*Low
            got.SBJV her car   a   scratch says Maria that she the police call   would

In the current paper, however, I have chosen not to consider whether *sollte*-protases (asyndetic 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.

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).[20]

(25)   (https://www.tagesschau.de/kommentar/kommentar-mccain-steinmeier-101.html, 13/03/2015)

Sie	könnten	im	Januar	2017,	so	wie	brieflich	angedroht,	präsidiale
they	could	in.the	January	2017	so	as	in.a.letter	threatened	presidential

Anordnungen	von	Obama	zurücknehmen,	**sollte**	Präsident	Nummer	45	aus
decrees	of	Obama	take.back	should	president	number	45	from

ihren	Reihen	stammen	**wird**.
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 & Roussou 2003) through the functional hierarchy (Cinque 1999). Originally merged in a circumstantial modal head ($Mod_{obligation}$ or $Mod_{volition}$), it moves to $Mod_{(alethic)\ possibility}$ and from there to $Mood_{irrealis}$ 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 $Mood_{irrealis}$. As proposed by Haegeman (2010b), the exponent of $Mood_{irrealis}$ moves along with OP_w to the left periphery in 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 $Mod_{obligation}$ or $Mod_{volition}$, besides $Mood_{irrealis}$, for much longer, accounting for the greater variability in syndetic protases.

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

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

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Competing Interests

The author has no competing interests to declare.

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