

Degree semantics, polarity, and the grammaticalization of comparative operators into complementizers*

Julia Bacskai-Atkari

1 Introduction

There are two kinds of comparative degree clauses: degree equatives (AS-clauses), expressing equality, and comparatives proper (THAN-clauses), expressing inequality. The two types are illustrated for English in (1) below:

- (1) a. Ralph is as tall [**as** Peter (is)].
b. Ralph is taller [**than** Peter (is)].

As can be seen, the two types of subclauses differ clearly in their complementizer. However, this is not necessarily the case, and in this way there is no rigid split between degree equatives and comparatives regarding the complementiser itself.

In Modern German, for instance, there is a partial overlap in the complementizer in various non-standard dialects. In the standard variety, degree equatives are introduced by *wie* ‘how, as’ and comparatives are introduced by *als* ‘as, than’.¹ Consider:

*This research was funded by the German Research Fund (DFG), via my research project “The syntax of functional left peripheries and its relation to information structure” (BA 5201/1-1) carried out at the University of Potsdam. I owe many thanks to the audience of DiGS 17 for their helpful questions and suggestions, in particular to George Walkden. I would also like to thank Agnes Jäger, Malte Zimmermann and Ellen Brandner for discussions on various aspects of this research.

¹For the sake of consistency, I am going to gloss *als* as ‘than’ and *wie* as ‘as’, except when the latter is clearly an operator corresponding to ‘how’.

- (2) a. Ralf ist so groß **wie** Peter.
Ralph is so tall as Peter
'Ralph is as tall as Peter.'
- b. Ralf ist größer **als** Peter.
Ralph is taller than Peter
'Ralph is taller than Peter.'

By contrast, regional dialects show the availability of *als*, *wie* and the combination *als wie* in both constructions, as shown by Jäger (2016); see also Eggs (2006); Lipold (1983); Weise (1918). The examples in (3) show the dialectal options for degree equatives:²

- (3) a. buten so still **as** binnen
outside so silent as inside
'outside as silent as inside' (Low German)
(Jäger 2016: 260, ex. 540a, citing Weise 1918: 170)
- b. Dei Schweinsbraan schmeggd genau a so fad **ais** **wia** dei Schbinad
your roast.pork tastes exactly PRT so stale than as your spinach
'Your roast pork tastes just as stale as your spinach.' (Bavarian)
(Jäger 2016: 260, ex. 541a, citing Merkle 1975: 171)
- c. A Flugzeug is genauso deia **wiar** a Loggomodiv.
an aeroplane is just.as expensive as a locomotive
'An aeroplane is just as expensive as a locomotive.' (Bavarian)
(Jäger 2016: 260, ex. 539a, citing Merkle 1975: 171)

The examples in (4) show the dialectal options for comparatives:³

²The pattern in (3a) has largely disappeared across dialects and it is attested only in traditional North German (Low German) dialects. The pattern given in (3b) is attested in dialects to the south of the Berlin–Braunschweig line, including southern dialect areas like Bavarian, Alemannic and Hessian, as well as mid-central varieties like Upper Saxon and Thuringian. The pattern in (3c) is attested in the same areas as (3b), as well as in northern varieties (essentially in all regional dialects), and it corresponds to the standard pattern. See Jäger (2016) for a detailed description.

³The pattern in (4a) is identical to the standard pattern; it is the only pattern attested in the dialect areas north to the Berlin–Braunschweig line but it also occurs in the rest of the regional dialects. The patterns given in (4b) and (4c) are both attested in dialects to the south of the Berlin–Braunschweig line, including southern dialect areas like Bavarian, Alemannic and Hessian, as well as mid-central varieties like Upper Saxon and Thuringian. See Jäger (2016) for a detailed description.

- (4) a. De Buu duur länger, **as** de Meister seggt harr.
the construction lasts longer than the master said.PTCP has
‘The construction lasts longer than the master said.’ (Low German)
(Jäger 2016: 230, ex. 502b, citing Lindow et al. 1998: 300)
- b. Ich bin gresser **als** **wie** du
I am taller than as you
‘I am taller than you.’ (Upper Saxon)
(Jäger 2016: 230, ex. 502b, citing Weise 1918: 174)
- c. Da kommt de Brihe teirer **wie**’s Flääsch
there comes the broth more.expensive as.the meat
‘The broth is more expensive than the meat’, fig. ‘it is not worth the effort’
(Thuringian)
(Jäger 2016: 230, ex. 503; Rudolstadt, ThWB 973)

The complementizers *als* and *wie* represent two options that differ diachronically, too: *als* is the older form and *wie* is more innovative (cf. Jäger 2010; 2016). Naturally, there are considerable overlaps (see Jäger 2016: 228–279), yet it seems clear that Southern dialects are more innovative in allowing *wie* in both constructions, while Northern dialects are more conservative and some of them still preserve the older equative pattern with *als*. On the other hand, degree equatives are more innovative than comparatives, given that the newer pattern (with *wie*) is well established in most dialects and counts as the standard, while *wie* in comparatives is substandard and does not appear in all dialects. This raises the question why degree equatives are more innovative than comparatives in German and, if applicable, in other languages, too.

In order to gain some cross-linguistic insights in this respect, I am going to examine an unrelated language, Hungarian, as well. Hungarian is especially interesting because in Modern Hungarian there is a full overlap in the complementizer between degree equatives and comparatives, yet the two constructions show differences in the overtness of the same complementizer.⁴ The complementizer itself is *mint* ‘as, than’ (to be glossed consistently as ‘as’). In addition to the complementizer, various overt operators are allowed, many of which can appear together with a lexical XP, too (see Kenesei 1992;

⁴At first glance, the situation seems to be similar to South German dialects using *wie* both in equatives and in comparatives (see Jäger 2010; 2016; 2017). However, these dialects show variation in the complementizer, as the option with *als* is allowed in comparatives (just like in the standard language). Further, the complementizer cannot be left out in either case.

Bacskai-Atkari 2014b).⁵

Consider the pattern for degree equatives:

- (5) a. Mari olyan magas, **mint amilyen (magas)** Péter.
Mary so tall as how.REL tall Peter
'Mary is as tall as Peter.'
- b. Mari olyan magas, **mint** Péter.
Mary so tall as Peter
'Mary is as tall as Peter.'
- c. Mari olyan magas, **amilyen (magas)** Péter.
Mary so tall how.REL tall Peter
'Mary is as tall as Peter.'

As can be seen, it is possible for the complementizer and the operator to co-occur; at the same time, either of them is sufficient on its own.

By contrast, the following pattern can be observed in comparatives:

- (6) a. Mari magasabb, **mint amilyen (magas)** Péter.
Mary taller as how.REL tall Peter
'Mary is taller than Peter.'
- b. Mari magasabb, **mint** Péter.
Mary taller as Peter
'Mary is taller than Peter.'
- c. *Mari magasabb, **amilyen (magas)** Péter.
Mary taller how.REL tall Peter
'Mary is taller than Peter.'

While the doubling configuration is again possible and the complementizer is sufficient on its own, the operator cannot occur without the complementizer, as indicated by the ungrammaticality of (6c). Hungarian hence demonstrates a clear contrast between degree equatives and comparatives in that an overt operator is sufficient in the former but not in the latter clause type, and this difference cannot be attributed to the different morpho-phonological properties of either the complementizer or the operator in questions, since they are identical. In fact, Hungarian is not unique in this respect: similar

⁵Overt operators are possible in various languages, also in combination with an overt complementiser, including non-standard varieties of English and Dutch (see Bacskai-Atkari 2018b: 90–100). Note that the overtness of the operator is a prerequisite for the appearance of an overt adjective cross-linguistically, referred to as the “Overtness Requirement” by Bacskai-Atkari (2018b: 100–102).

patterns can be observed cross-linguistically (see Bacskai-Atkari 2016b). This raises the question what makes the presence of the overt complementizer necessary in comparatives.

In this article, I am going to argue that the differences regarding the complementizers between degree equatives and comparatives follow from the fact that comparatives are always negative polarity environments, whereas degree equatives are not necessarily negative polarity environments (for instance, they are negative polarity environments in English but not in German, see also Hohaus & Zimmermann 2014). This ultimately follows from degree semantics and no true negation is involved in the left periphery. A negative-like property (see section 4) has to be lexicalised overtly by a functional head in the clause; a true negative operator is of course ruled out, there being no proper negation either. It follows that an operator can replace the complementizer with respect to the overt marking of clause type in degree equatives easier since in this case the absence of the overt complementizer does not involve a loss in marking the negative-like property. Consequently, equatives are more innovative diachronically. On the other hand, operators may ultimately appear as grammaticalized complementizers in comparatives, too:⁶ in the two case studies presented in this paper, this largely follows from analogy⁷ with equative clauses. This will be shown to have been the case in the history of German. In addition, there are languages where complementizer doubling was also essential in bringing about the change, as will be argued for Hungarian.

⁶This reanalysis process is a well-known mechanism also underlying the “relative cycle” of Van Gelderen (2004; 2009). Arguments in favour of such a reanalysis are discussed by Jäger (2010) and especially by Bacskai-Atkari (2014a). The point of the present article is not to illustrate this process but rather to investigate under which circumstances it takes place and under which circumstances other processes took place rather, as evidenced by German.

⁷In such cases, the new element X in construction A is taken over from a construction B, based on the similarity between the two constructions. In this way, new elements can appear in a given clause type, rather than merely reusing already possible material, as would be the case in reanalysis.

2 Comparative and equative complementizers in German

Regarding the complementizer in standard present-day West-Germanic languages, German seems to be exceptional both in degree equatives and in comparatives. Consider the following examples for degree equatives from English, Dutch and German, respectively:

- (7) a. Ralph is as tall **as** Peter.
 b. Sophie is zo groot **als** Lieke.
 Sophie is so tall as Lieke
 ‘Sophie is as tall as Lieke.’
 c. Ralf ist so groß **wie** Peter.
 Ralph is so tall as Peter.
 ‘Ralph is as tall as Peter.’

As can be seen, the subordinate clause is introduced by *as* in English and *als* in Dutch. The two are cognates and both derive from the element *so*. English *as* derives from *eall-swa* (*all* + *so*), the forms *swelce* (*swilce*, *such*) and *so* (*swa*) are also possible equivalents historically in *as*-constructions (see Kortmann 1997: 315–317; see also López-Couso & Méndez-Naya 2014: 312–314 and references there). Essentially, Dutch *als* can also be derived from *also* (*al* + *so*). In fact, German *als* has an identical etymology: it derives from Old High German *also* (*all* + *so*), whereby various forms of *so* are possible historically in *as*-constructions (see Jäger 2010). Three examples are given from Old High German in (8a), from Old Saxon in (8b),⁸ and from Middle High German in (8c).

- (8) a. inti gibit imo // só manag **so** her bitharf.
 and give him.DAT so much so he needs
 ‘and give him as much as he needs’ (*Tatian* 72, 28–29)
 (Jäger 2016: 49, ex. 71)
 b. sô hôho afhuõbi, **so** duot himilrîki
 so high elevate so does heaven
 ‘raise as high up as heaven does’ (*Heliand* 32.2626)
 c. waer er sô milt **als** lanc, er hete tugende vil
 be.COND.3SG he so generous as tall he have.COND.3SG virtues many

⁸The Old Saxon data – so far not discussed considerably in this context – are taken from the DDD Referenzkorpus Altdeutsch.

besezzen
 possess.INF
 ‘If he were as generous as he is tall, he would have had many virtues.’
 (Walther von der Vogelweide, *Werke* Bd. 1, 118f; Eggs 2006: 22, ex. 12)

As can be seen, Old High German and Old Saxon conform to the regular West-Germanic pattern in that degree equatives are introduced by elements related to *as* (see above); Modern German is innovative in that the complementizer is *wie*.

The element *wie* at first appeared in [Spec,CP], in addition to the original complementizer *so*. Consider the following example:

- (9) er bi unsih tod thulti, so **wio so** er selbo wolti
 he by us death suffered as how as he self wanted
 ‘he suffered death by us, as he himself wished’
 (*Otfrid* V, 1, 7; Jäger 2010: 488, quoting Schrodtt 2004)

Similar patterns were attested in Old High German free relatives with other *wh*-elements as well; in all these cases, *so* is in the C head and the operator is in the specifier of the same projection (Bacskai-Atkari 2018c: 25; Jäger 2010: 488; cf. Behaghel 1928 and Paul 1920), resulting in a classical “Doubly Filled COMP” pattern.⁹

Consider the examples for comparatives in English, Dutch and German, respectively:

- (10) a. Ralph is taller **than** Peter.
 b. Maria is groter **dan** Jan.
 Mary is taller than John
 ‘Mary is taller than John.’
 c. Ralf ist größer **als** Peter.
 Ralph is taller than Peter
 ‘Ralph is taller than Peter.’

Again, the complementizers *than* and *dan* are etymologically identical (note also that English *then* and *than*, as well as German *denn* and *dann* are also etymologically; see Rutten 2012 for West Germanic and Jacon and Wilhelm Grimm’s *Deutsches Wörterbuch*)¹⁰ and they constitute the regular West-Germanic pattern, whereas Modern Ger-

⁹Such patterns are common in (West)-Germanic languages in interrogatives and, to a lesser extent, in relative clauses. See Bacskai-Atkari (2018c) for a comparative analysis of the three clause types in West Germanic, particularly in South German dialects.

¹⁰These elements most probably do not derive from original comparative operators but they are

man *als* is exceptional and innovative. However, just as with degree equatives, comparatives show the regular West-Germanic configuration in earlier periods of German. The example in (11a) shows the relevant pattern for Old High German, and the one in (11b) for Old Saxon:

- (11) a. Eno ni birut ir furirun **thanne** sie sín?
 well not are.2PL you.PL greater than they are.3PL
 ‘Are you not much better than they are?’ (*Tatian* 70, 17)
 (Jäger 2016: 30, ex. 40)
- b. that he sî betara **than** uui
 that he is.SBVJ better than we
 ‘that he is better than we are’ (*Heliand* 3.212)

Again, both Old High German and Old Saxon conform to the regular West-Germanic pattern described above. Modern German is innovative in showing the original equative complementizer in comparatives. In addition to *denn/dann*, a negative-like version *wan* is attested historically (as shown by Jäger 2016: 74–95, this element was quite common in Middle High German and it almost exclusively occurs in negative polarity contexts, such as when there was a negative element in the matrix clause), which survives in a few dialects in Swiss German (see Friedli 2005 on *wan* and *weder*).

As described by Jäger (2010: 471–475), Middle High German was mostly like Old High German, and the changes affecting the complementizers can be observed from Early New High German onwards, especially from the second half of the 16th century. In degree equatives, *wie* came to replace *als*: in this process, the incentive factor is the availability of *wie* as a degree operator in another context (interrogatives) anyway.¹¹ In comparatives, *als* came to replace *denn*: in this process, analogy plays a crucial role as *als* was introduced into comparatives by way of analogical extension from degree equatives.

Regarding the relationship between *als*, *wie* and *als wie* in both degree equatives and rather related to the negation-like property (see Stolz 2013 and Bacskai-Atkari 2016b on the typological distinction). It should be kept in mind that the grammaticalisation process from operator to head is not the only way comparative (or equative) complementisers may emerge; see also the discussion in section 4.

¹¹Overt comparative operators tend to be surface-identical to their interrogative degree operator counterparts cross-linguistically, see Bacskai-Atkari (2018b: 90–100).

comparatives, the traditional view (also reflected in Jäger 2010) was that *als* changed via an intermediate step *als wie* to *wie*. However, as shown by Jäger (2016: 291–298), this is actually not valid: the combination *als wie* appears in both degree equatives and comparatives after the appearance and/or establishment of *wie* as the complementizer. Hence, the changes can be schematically represented as follows for degree equatives and comparatives, respectively:¹²

- (12) a. *als(/so)* → *wie* (→ *als wie*)
 b. *dann/denn* → *als* → *wie* (→ *als wie*)

The change can be detected in non-degree equatives (similatives) the earliest, followed by degree equatives (the degree equatives discussed here) in the 19th century (affecting the standard language and most dialects); the two essentially undergo the same changes, though (see Jäger 2016: 294). In comparatives proper, the change starts from the original complementizer *dann/denn*: the change to *als* took place mainly in the 17th–18th centuries, thus at a time when degree equatives were predominantly introduced by *wie*; subsequently, the change to *wie* in various dialects took place in the 20th century, when the same dialects already had *wie* in degree equatives.

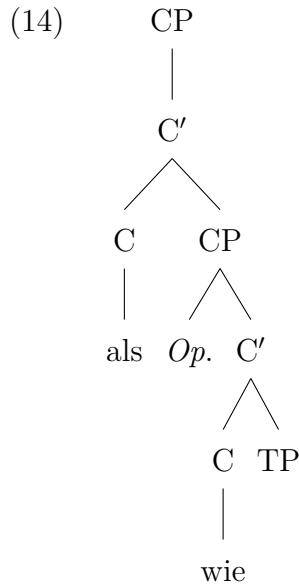
While the doubling pattern with *als wie* is not a middle stage historically, it still provides important information concerning the structure of the left periphery. Contemporary examples were given in section 1 above; since *als wie* appeared after the emergence of *wie* as a complementizer in degree equatives, there are historical examples for *als wie* in degree equatives, too: consider:

- (13) Da steh ich nun, ich armer Tor! Und bin so klug **als wie** zuvor.
 there stand.1SG I now I poor.M fool and am so wise than as formerly
 ‘Here now I stand, poor fool, and I’m just as wise as formerly.’ (Goethe, *Faust*
 I.4)

I follow Bacskai-Atkari (2014a;b) in assuming that in these doubling cases there are two

¹²See Jäger (2016: 294) for a comprehensive table showing the individual stages. Note that Jäger (2016: 294), contrary to Jäger (2010: 476), does not include *als wie*, as it is no longer taken to be a middle stage in the developments on the left periphery but rather as a further change involving the matrix degree element. The schematic representations in (12) also follow the more recent analysis.

CPs (cf. Jäger 2010; 2016, who assumes a combination of a ConjP and a CP).¹³ This is illustrated in (14) below:



As can be seen, both *als* and *wie* are complementizers. There are arguments in favour of the status of *wie* as a complementizer and not as an operator, as opposed to the interrogative degree operator *wie* (see Bacskai-Atkari 2014a,b). In particular, *wie* in subclauses cannot take a lexical AP (even though the lexical AP can be phonologically realized), which is an option always available with degree operators, even if they allow the AP to be stranded.¹⁴ This is illustrated in (15) below:

¹³While neither of the CPs is a designated projection in a cartographic sense (see the arguments against a cartographic analysis provided by Bacskai-Atkari 2018c), the combinations that can be observed here are severely restricted by degree semantics. Some lower complementizers are like German *wie* in that they are specific for comparatives, whereas other lower complementizers are either essentially relative complementizers (e.g. English *what*, see Bacskai-Atkari 2018b: 91) or declarative ones (e.g. German *dass*). This topic cannot be possibly explored in the present paper; for further discussion see Bacskai-Atkari (2016b).

¹⁴This is a reliable test cross-linguistically, especially in the case of operators that derive from their interrogative operator counterparts, see Bacskai-Atkari (2018b: 82–100). Such examples, however, are rare in corpora and can be gained rather via elicitation. I have not found such examples in the historical German corpora and Jäger (2016) mentions none either. Evidence for the earlier operator status of *wie* comes from other constructions, such as (9), which show the relative status of *wie* with respect to a complementizer. In addition, Jäger (2010: 486–487) notes that the complementizer status of *wie* in present-day German is also evidenced by its co-occurrence with lower complementizers in hypothetical comparatives (see Bacskai-Atkari 2018a for a more detailed analysis of the development of these

- (15) a. Der Tisch ist so lang **wie** das Büro **breit** ist.
 the.M table is so long as the.N office wide is
 ‘The table is as long as the office is wide.’
- b. *Der Tisch ist so lang **wie breit** das Büro ist.
 the.M table is so long as wide the.N office is
 ‘The table is as long as the office is wide.’
- c. %Der Tisch ist länger als **wie** das Büro **breit** ist.
 the.M table is longer than as the.N office wide is
 ‘The table is longer than the office is wide.’
- d. *Der Tisch ist länger als **wie breit** das Büro ist.
 the.M table is longer than as wide the.N office is
 ‘The table is longer than the office is wide.’

The role of *wie* in (14) is primarily the marking of the comparative property, even though the higher complementizer is specified for [compr], too. Before turning to the analysis of why degree equatives and comparatives show differences, let us first consider similar doubling effects in a different language, too.

3 Diachronic developments in Hungarian

The diachronic changes attested in Hungarian comparatives mostly took place in Old Hungarian (9th–16th centuries) and partly continued into Middle Hungarian (16th–18th centuries). The original comparative complementizer both in degree equatives and in comparatives was *hogy* ‘how, that’ (cf. Haader 2003): in comparatives, this element was followed by the negative Pol head *nem* ‘not’ (or by *sem* ‘neither’), the sequence of *hogy nem* possible fusing into *honnem* (see Bacskai-Atkari 2014a;b). The element *mint* ‘how, as’ appeared already in Old Hungarian as an operator (cf. Haader 2003) and it came to be the eventual comparative complementizer both in degree equatives and in comparatives, yet its appearance and distribution shows asymmetries between the two clause types.

Let us first consider the pattern in equatives. The operator use of the element *hogy* and *mint* (in the sense of ‘how’) is attested already in the earliest texts; consider the following examples, taken from the same text:¹⁵

constructions). This was evidently not possible in previous stages.

¹⁵The historical Hungarian examples, unless otherwise specified, are taken from the “Old Hungarian Concordance” corpus.

- (16) a. furifete mufia!|| etetý ýmletí. ug **hug** ana fciluttet.
 bathes washes feeds breastfeeds so how mother child.POSS.ACC
 ‘she bathes, washes, feeds and breastfeeds him as a mother does her child’
 (*Königsberg Fragment and its Ribbons*, beginning of the 13th century)
- b. Ez oz ýften **mynt**evt efmeríuc!
 this the God how.he.ACC know.1PL
 ‘this is God as we know him’
 (*Königsberg Fragment and its Ribbons*, beginning of the 13th century)

The element *mint* is also attested in degree equatives on its own:

- (17) Mondom byzonnyal tyneknek, merth Salamon es mynden hew dyczófegheben
 say.1SG surely you.DAT that Solomon also all his glory.INE
 nem volth olyan rwhazatos **mynt** ezekkezzól egyk
 not was so arrayed how among.these one
 ‘And yet I say unto you, That even Solomon in all his glory was not arrayed like
 one of these.’ (*Jordánszky Codex* 371, Matthew 6:29, 1516–1519)

As of 7th August 2019, the normalized part of the “Old Hungarian Concordance” corpus contains no examples for single *hogy* in degree equatives proper. It is, however, attested in combination with *mint*:¹⁶

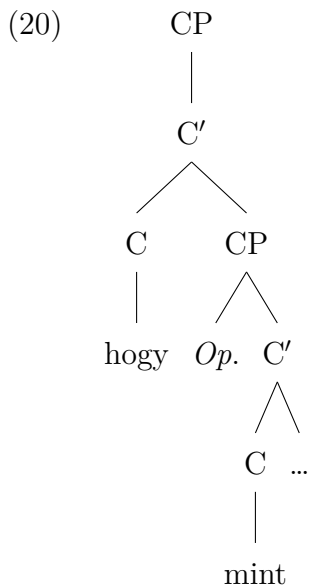
- (18) mínd anne bşegşs kşnhullatasoc mene a vízeknec sokassaghí
 all so.much plenty crying.PL as.much the waters.DAT multitude.POSS.PL
 sem volnanac en elştem kellemetşsek/ Auág foganatosoc **hoğ mint**
 neither be.COND.3PL I before.1SG pleasant.PL or effective.PL than how
 akki zşnetlen a kereztfanac ş keserúseget ý testeben víselí
 who incessantly the rood.DAT he bitterness.POSS.ACC he body.POSS.INE bears
 ‘not even as much crying as the multitude of waters would be as pleasant and
 touching to me as the one who incessantly bears the bitterness of the rood in his
 body’ (*Nagyszombat Codex* 40–41, 1512/1513)

The findings indicate that while the operator use of *hogy* is still attested in Old Hungarian, in degree equatives it has already given way to the new element *mint*. This considerably differs from the pattern in comparatives proper (see below and Bacskai-Atkari 2014a). The changes in degree equatives can be schematized as follows:

¹⁶The combination *hogy mint* is glossed as ‘that how’ to indicate that the higher element is actually a complementiser marking finiteness only in such combinations already; see the discussion below.

(19) *hogy* → *hogy mint* → *mint*

It seems plausible that in the middle stage initially neither element was obligatory: that is, while either *hogy* or *mint* had to be overt to mark [compr], one of them was sufficient.¹⁷ This is reminiscent of the pattern attested in Modern Hungarian with *mint* and comparative operators, see section 1. The structure for the doubling pattern (taking now *mint* as a complementizer and no longer as an operator) is shown in (20) below:



However, it seems that this doubling pattern was reanalyzed quite early as one involving a finiteness marker and a comparative element, leading to the loss of [compr] on *hogy*, making it impossible for this element to introduce degree equatives on its own. This is in line with the general spread of *hogy* as a finite subordinator in this period (Bacsikai-Atkari 2016a).

The structure is similar to the German doubling pattern given in (14), even though, as will be argued in the next section, the pattern emerged differently in the two languages. Let us now turn to the pattern in comparatives. The earliest pattern involves the com-

¹⁷Typologically, the pattern involving an overt matrix degree element and a comparative clause as its complement is very much a European phenomenon (see, for instance, Stolz 2013). While some European languages have zero (ordinary) relative clauses, the same kind of pattern is not attested in comparative clauses (either degree equative or comparative proper). Note, however, that zero relatives are also subject to various restrictions in languages like English and hence the lack of zero comparatives is not surprising by itself. The reasons behind this, however, should be explored by future work.

plementizer *hogy* and the negative polarity marker *nem* (see Bacskai-Atkari 2014a):¹⁸

- (21) Zōnèkm̄g te meltatlākodatod m̄v èllènōc m̄t iob
 cease.SBJV.3SG.PRT you indignance.POSS.2SG we against.1PL because better
 hog èlèuènèn zolgallonc Nabuhodonor nag kiralnac &
 that alive serve.SBJV.1PL Nebuchadnezzar great king.DAT and
 alazkoggonc te nèkéd **hog nē** meghaluāc m̄v vèzèdelmōcbèn
 cringe.SBJV.1PL you you.DAT that not PRT.dying.1PL we peril.POSS.1PL.INE
 m̄vnmagonc m̄v zolgalatōknac karat zènuèggüc
 ourselves we service.POSS.1PL.DAT damage.POSS.ACC suffer.SBJV.1PL
 ‘cease to be indignant towards us because it is better for us to serve the great
 king Nebuchadnezzar alive and to cringe before you than to suffer the damages
 of our service dying’ (*Vienna Codex* 14, after 1416)

A later configuration involves the combination of the C head *hogy*, the polarity marker *nem* and *mint*, which was either an operator or a complementizer at this stage:

- (22) Te igyekevezeted az isteny zolgalatban jnkab légen arra hog
 you diligence.POSS.2SG the divine service.INE rather be.SBJV.3SG that.SUB that
 az zent irasnak igy ebevl lelky ertelmet vegy es
 the sacred writing.DAT thus this.ELA spiritual sense.ACC take.SBJV.2SG and
 aytatossagnak keuansagat **hog nem mynt** vduarlokeppen eneklesnek
 prayer.DAT desire.POSS.ACC that not as courting singing.DAT
 mogyat tegyed
 mode.POSS.ACC do.SBJV.2SG
 ‘your diligence in serving God should be directed at gaining a spiritual under-

¹⁸Note that the spelling in the Old Hungarian example differs from modern standard spelling, just as is the case with the German examples. In Old Hungarian spelling, the macron on a vowel indicates a following nasal consonant. While the example in (21) contains a tensed clausal comparative complement, it is also possible to have a clause reduced to a single remnant. Consider:

- (i) mert iob ènnèkem halal **hog nē** èlèt
 because better I.DAT death that not life
 ‘because death is better for me than life’
 (*Vienna Codex* 244, after 1416)

The same applies to the other constructions presented in the paper. This provides evidence that the relevant patterns are not tied to the presence of an overt lexical verb (which differs from comparatives containing *dass* in German or *what* in English. Nevertheless, as also demonstrated by the nominative case-marking in (i), there is a clause in the underlying structure, unlike in true phrasal comparatives. See Bacskai-Atkari (2017) for a discussion of the difference between reduced clausal comparatives and phrasal comparatives (and references there).

standing of the Scripture and a desire for prayer, rather than at taking the opportunity to sing for courting’ (*Horvát Codex* 138v–139r, 1522)

Note that the negative element could be left out occasionally when the C heads *hogy* and *mint* were combined with each other:

- (23) edesseget erze nagyoban **hogymint** annak elötte
 sweetness.ACC felt.3SG greater that.as that.DAT before.3SG
 ‘(s)he felt sweetness even more than before’ (*Lázár Codex* 71r, after 1525)

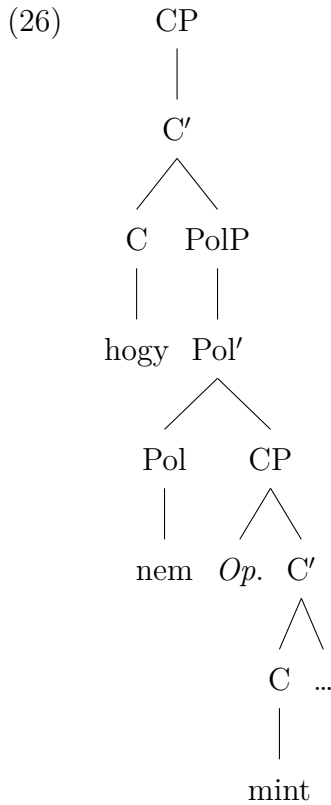
Finally, single *mint* is attested in Old Hungarian comparatives as well:

- (24) Es parāčola hog a kèrencè hètzer inkab gerièztèt nec
 and commanded.3SG that the furnace seven.times rather heat.CAUS.COND.3SG
mēt zokotvala gerièztèt ni
 as use.be.PST heat.PASS.INF
 ‘and he commanded that they should heat the furnace one seven times more
 than it was wont to be heated’ (*Vienna Codex* 127, after 1416)

Again, the patterns show considerable overlaps in time (see Bacskai-Atkari 2014a), yet the changes in comparatives can be schematized as follows:

- (25) *hogy nem* → *hogy nem mint* → *hogy (nem) mint* → *mint*

While the third stage shows some optionality in the realization of the polarity marker, the presence of the polarity marker is contingent on the availability of a higher C that must also be lexicalized (see Bacskai-Atkari 2014a). Conversely, the polarity marker *nem* can be absent only if *mint* is realized overtly. The structure of *hogy mint* is analogous to (20), while the structure of *hogy nem mint* is given in (26) below (see Bacskai-Atkari 2014a;b, Bacskai-Atkari & Dékány 2014):



Since the PolP is not a clause-typing projection on its own, it must be selected by a C head above it. Obviously, *mint* could be the operator itself in earlier stages, just like in (20), patterning with ordinary relative operators.

While degree equatives and comparatives show a largely parallel development (see Bacskai-Atkari 2014a), some asymmetry can be observed. On the one hand, doubling constructions (and triple combinations) in comparatives, shown in (26), can be observed even in Middle Hungarian, while single *mint* is sporadic in Old Hungarian. By contrast, single *mint* is available in degree equatives early on. The asymmetry is reminiscent of the changes attested in German (see section 2) in that degree equatives are more innovative than comparatives; however, the two changes show greater overlaps.¹⁹

¹⁹A further difference is related to regional variation and standardization. As mentioned in section 1, some developments in German can be detected in certain regional varieties only. Throughout the history of German varieties, comparative and equative complementizers show regional variation. Accordingly, the standard variety is also unaffected by certain changes that apply to regional varieties. The situation is different in Hungarian, where no regional differences can be detected in this respect.

4 Degree semantics, negative polarity and feature changes

Based on the data presented in the previous sections, the question arises why degree equatives are more innovative than comparatives (in German and in Hungarian) and why German demonstrates a clear drag-chain from degree equatives to comparatives (see Jäger 2016), whereas the two clause types show almost parallel development in Hungarian. In this section, I am going to argue that the differences can primarily be traced back to comparatives semantics and the way syntactic changes were driven by feature changes. This is in line with what Baker (2008) dubbed as the Borer–Chomsky Conjecture (going back to Borer 1984 and Chomsky 1995), according to which syntactic change is the result of changes in the lexicon. In essence, this view hypothesises that syntactic change exist only as a reflex of changes in other components of language (see the discussion in Biberauer & Walkden 2015).

As shown by Seuren (1973), comparative clauses are negative polarity environments. This is attributed to the fact that comparative clauses are downward entailing environments (see Ladusaw 1979 on the relation between downward entailment and negative polarity contexts, and the later analyses of von Stechow 1984 and Heim 1985; 2000, and for a newer analysis, Hohaus & Zimmermann 2014). Downward entailing environment is due to the maximality operator; as argued by Hohaus & Zimmermann (2014), comparative constructions involve a maximality operator and, in its scope, a comparative operator in the semantics, whereby neither is tied to a particular syntactic projection and to the notion of degree (that is, they are present in non-degree equatives, too). Recall the examples in (1), repeated here as (27):

- (27) a. Ralph is as tall **as** Peter (is).
b. Ralph is taller **than** Peter (is).

In both kinds of degree comparison constructions, two degrees are compared to each other: d (in the matrix clause) and d' (in the subordinate clause). In degree equatives, d is the same or higher than d' : in (27a), the degree to which Ralph is tall is the same as or higher than the degree to which Peter is tall. In comparatives, d is higher than d' : in (27b), the degree to which Ralph is tall is higher than the degree to which Peter is

tall. The degree d associated with the matrix degree element in degree equatives (*so/as* in German/English) is thus the maximum for the value of d' . Given this relation, the matrix degree element can also lexicalize the maximality operator:²⁰ alternatively, the maximality operator is lexicalised lower, that is, by the equative complementizer. Naturally, there can be only a single maximality operator in a single construction and it depends on the specific language how this property is set. By contrast, the matrix degree element in comparatives (*-er* in German/English) expresses merely a higher degree than d' but it does not set the maximal value of d' . This property has to be expressed by a lower syntactic projection, which is the comparative complementizer. Importantly, the maximum value of d' is itself not equal to d and this property is reflected by the relevant element in the subclause.

I suggest that the difference between degree equatives and comparatives can be traced back to the properties described above. The maximality operator can be expressed by the matrix element in degree equatives but not in comparatives. As a consequence, the CP in the degree equative clause is associated with equality by default, while in comparative clauses it is associated with inequality (see Jäger 2016). The property of equality/inequality is inherited from the matrix degree element. Complementizers differ in terms of their feature specification: some of them are specified either as marking equality, [EQ], or as inequality, [INEQ], while others are unspecified.

This property of inequality is similar to negation and expletive negation in that it has to be lexicalized by a phonologically visible element (see Dryer 2013 on the necessity of lexicalizing negation cross-linguistically). As there is no negative operator in the comparative subclause (there being no true negation involved when the inequality of the two degrees is expressed), this is carried out by the comparative complementizer. This kind of inequality marking (referred to as “degree negation” descriptively by Bacskai-Atkari 2016b) encoded by the complementizer is reflected by the fact that many languages contain a negative-like element in the complementizer (see Bacskai-Atkari 2016b). Complementizers that inherently contain a negative-like element are specific for comparative clauses; however, it is also possible to have complementizers in the topmost C head that are lexically specified as comparative, [compr], but do not express inequal-

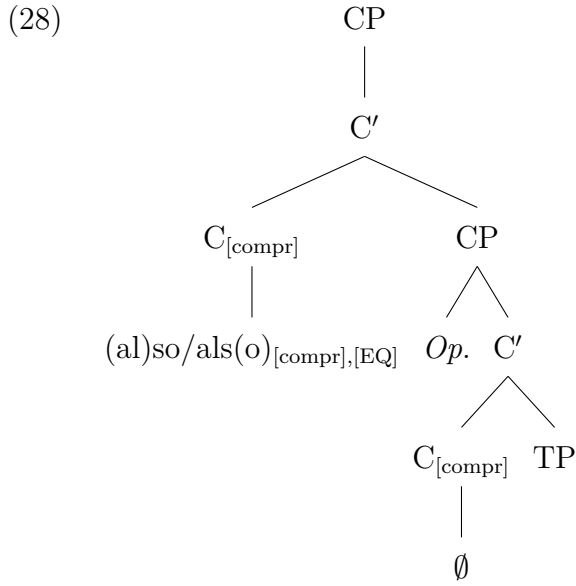
²⁰Note also that, according to standard (comparative) semantics, degree equatives and comparatives involved the same maximality operator (see, for instance, Beck 2011).

ity: these complementizers can be shared between degree equatives and comparatives, as is the case in the history of German *als* and *wie*, and this applies to Hungarian *mint* as well. The case of Hungarian *hogy* is special inasmuch as it was apparently licensed in comparatives expressing inequality only with an overt PolP as a complement, which encoded inequality phonologically. Note that the polarity marker in Old (and Middle) Hungarian is very high up in the clause, as it can indeed appear between two CP layers and cannot be considered as an instance of negation or expletive negation (contrasting also with Romance expletive negation in comparatives, see the Romance data of Seuren 1973).

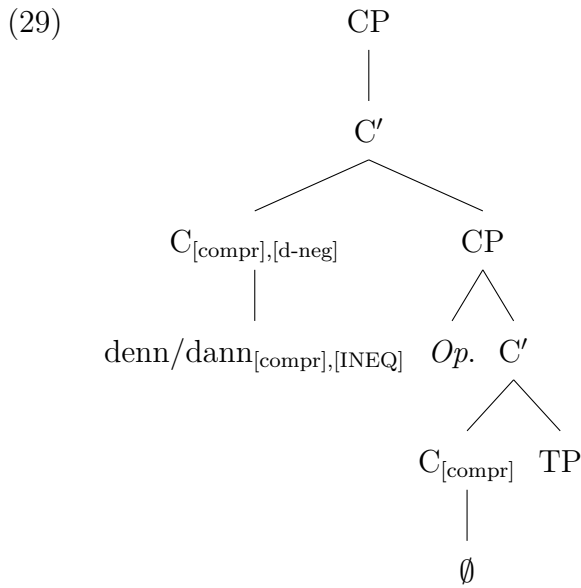
The differences in the properties to be encoded have consequences for the structure of the CP-periphery in the subclause. In degree equatives, there is no degree inequality to be expressed and as the matrix equative element can take up the function of lexicalizing the maximality operator, it is possible to have a single CP in the subordinate clause. At the same time, a double CP is possible if the maximality operator is lexicalized by a complementizer above the CP containing the comparative operator. In comparatives, degree inequality has to be lexicalized and the matrix degree element cannot take up the function of lexicalizing the maximality operator, meaning that a double CP is necessary in the subclause, whereby the higher CP is responsible for encoding inequality and the lower CP hosts the comparative operator (overt or covert): the head of this CP is either a comparative complementizer or a more general relative complementizer (see Bacskai-Atkari 2016b).

Let us now turn to the analysis of the historical constructions and the feature changes inducing syntactic reanalysis. I will adopt the features [compr] for comparative and [d-neg] for (degree) inequality used by Bacskai-Atkari (2016b) for the sake of simplicity and I assume that both have to be lexicalized overtly in the subordinate clause by some element in order to type the clause properly.

Starting with German, the earliest patterns can be described as follows. In degree equatives, the following structure is assumed:



Syntactically, there is only one feature, [compr], to be encoded here. The operator is covert and is on the scope of the higher complementizer.²¹ The structure of the CP in comparative clauses is essentially similar:

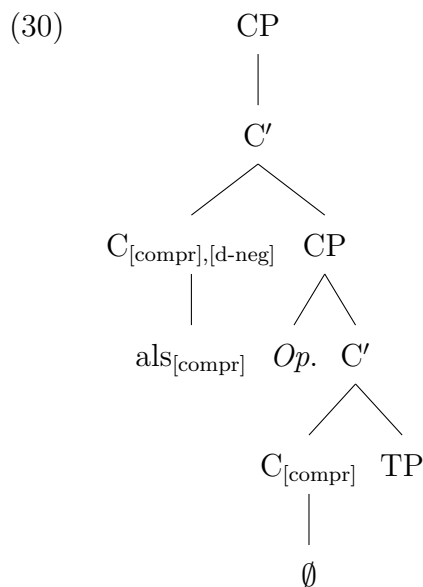


The difference between (28) and (29) lies in the lexical features of the complementizers: *denn/dann* encodes inequality (given here as INEQ), while *so/als* encodes equality (given here as EQ). Either complementizer is incompatible with the non-matching clause type at this stage.

As discussed in section 2, the first step of reanalysis affecting German comparatives is

²¹As mentioned before, there is no reason to suppose that the element *denn/dann* derives from a comparative operator; regarding this element, (29) is taken to be the starting point.

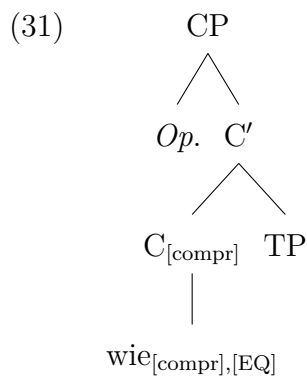
the extension of *als* to comparatives. This change was enabled by the grammaticalization of *als* into a comparative complementizer specified as [compr] but no longer equipped with a lexical feature encoding equality. This was enabled by two factors. First, the change started in non-degree equatives (see Jäger 2016), where the complementizer expresses similarity rather than equality; second, in degree equatives the matrix equative element encodes equation already and can take over this function from the complementizer, which ultimately becomes unspecified for equality/inequality and is hence compatible with both kinds of matrix elements (see above). Given this, the element *als* was no longer incompatible with constructions such as (29) and was analogically extended, resulting in (30):



Note that *als* does not have to be lexically specified as a negative-like element: degree inequality, [d-neg], has to be lexicalized by inserting an overt element into C but the particular element does not have to match this feature, though it should not be incompatible with it either. At this stage, degree equatives have exactly the same structure, the difference from (28) being only that *als* is no longer specified as equative. In line with Jäger (2016), I assume that this change is motivated by economy: once the lexical feature of equality is lost on the element, the same complementizer is available in both types of comparatives.

However, once *als* came to be a mere [compr] marker (unspecified for [EQ]/[INEQ]), in equatives this induced a further change, starting again from non-degree equatives: this was the introduction of the overt comparative operator and later complementizer *wie*,

already present in non-degree equatives in Old High German (see Jäger 2010). This was able to lexicalize the comparative property in the lowest CP, given that it started as an operator in the specifier thereof (that is, where the comparative operator is regularly located, see Bacsikai-Atkari 2014a). In such cases, however, the [compr] feature to be encoded in the subclause is already checked off and marked overtly, and hence there is no need to generate a further CP layer: in degree equatives, the matrix equative element can also lexicalize the maximality operator (see the discussion above). Hence, the left periphery of the degree equative clause is as follows:²²



In this case, *wie* is specified as equative inherently. This reflects the Standard German pattern: *wie* is [EQ] and *als*, which used to be unspecified, has disappeared from equatives and is therefore associated only with [INEQ].²³

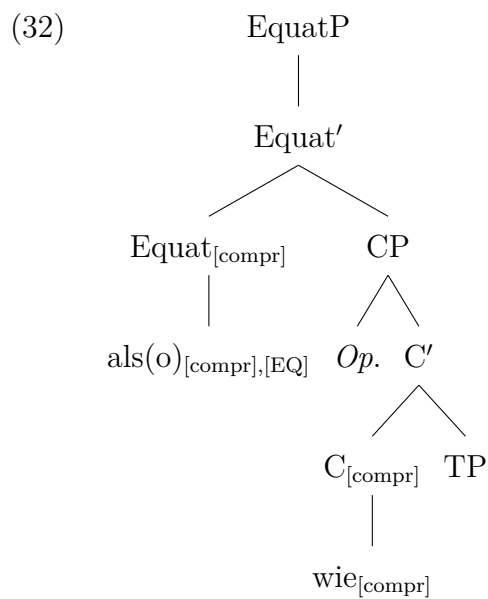
Again, as several southern dialects of German show, *wie* can lose this lexical feature and become a more grammaticalized element, and as such it can be analogically extended to comparatives, just like it was described for *als*. In these dialects, it is underspecified for [EQ]/[INEQ]. The recurrent changes attested with comparative particles is referred to as the comparative cycle by Jäger (2010; 2016) and it essentially shows a canonical example of grammaticalization in that the loss of lexical features induces reanalysis in the syntax, whereby the new syntactic configuration can lead to the appearance of previously covert elements.

Naturally, the processes described here raise the question how the doubling pattern *als*

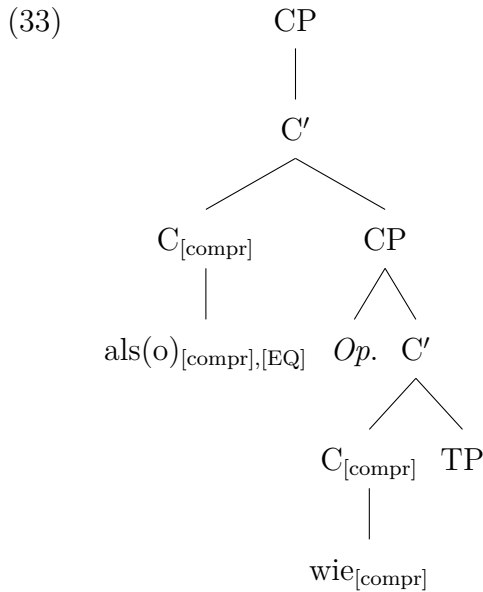
²²Naturally, as long as *wie* was still an operator, it was located in [Spec,CP]: in this case, the head would be empty.

²³Essentially, there is thus no complementizer change from equative to comparative, but rather a change from equative to unspecified to comparative. This is in line with the general assumption that linguistic change is gradient.

wie can be handled. Jäger (2016) shows that the appearance of *als* in *wie*-equatives is not the residue of the earlier *als*-pattern in degree equative clauses but the reanalysis of the matrix equative element, again starting from non-degree equatives. This is compatible with the analysis presented here and involves a change in labelling. Adopting the analysis of Lechner (2004) in terms of the comparative subclause being a complement of the matrix degree head, I assume that the matrix equative element takes the CP as its complement; given that in non-degree equatives there is no degree involved, I indicate this XP as EquatP in the following representation instead of DegP but it could be thought of as a more general functional projection as well:



The sequence of two comparative functional heads can be reanalyzed as the sequence of two CPs as well, without any changes in the relevant features [compr] and the lexical feature of the higher functional head:



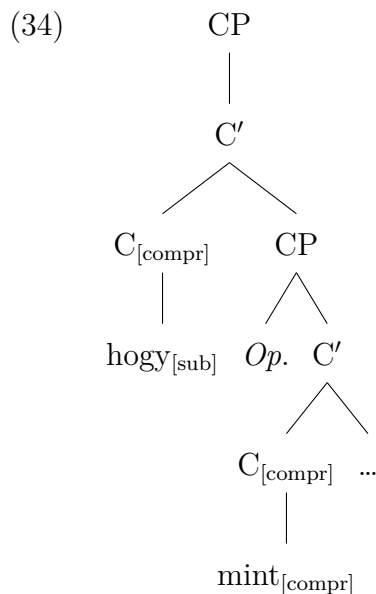
Again, the same construction can be extended to comparatives, too. The double CP construction is transparent since the *wie*-CP corresponds to a proper comparative CP containing the operator.²⁴ In comparative clauses, the two CPs are necessarily present due to the semantics anyway (the higher projection hosting the maximality operator and the lower projection hosting the comparative operator, see above) and hence the doubling construction exhibits a one-to-one correspondence with the underlying structure in this respect.

The asymmetry between degree equatives and comparatives can hence be attributed to degree semantics and has to do with the fact that the loss of lexical features can more readily occur in degree equatives, from which certain changes may analogically spread, too.

Let us now turn to the question of why Hungarian is slightly different. As was described in section 3, the change from *hogy (nem)* to *mint* took place via an intermediate step where a double CP was overtly realized. Regarding degree equatives, the availability of clauses introduced by a single *mint* as a comparative operator (see (16b) above) is in line with the assumption that degree equatives do not have to have a double CP layer: the CP containing the comparative operator may suffice, just as in the history of German or as in Modern Hungarian (see section 1). The question is rather why the change involved the availability of a doubling step, contrary to German, where *als* was replaced

²⁴Transparency is one of the leading principles of syntactic change, see, for instance, Lightfoot (1979).

by *wie*. On the one hand, doubling in Hungarian involved a surface distinction between degree equatives introduced by *hogy* (*mint*) and comparatives introduced by *hogy nem* (*mint*): the presence or the absence of PolP was indicative of whether the clause was equative or comparative, but PolP was licensed only if there was an overt C above it (that is, it was not a clause-type marker itself but an element determined by the clause-typing element).²⁵ On the other hand, there was a particular feature loss involved with *hogy*: as described by Bacskai-Atkari (2016a), *hogy* came to be a general subordinator during Old and partly Middle Hungarian. This involved the loss of its [compr] feature, and the comparative operator started to be lexicalized presumably during the weakening of this lexical feature as a way of marking [compr] overtly. Hence, the sequence *hogy mint* could ultimately consist of two overt elements with two distinct functions: one marking finite subordination and the other marking the comparative property.²⁶



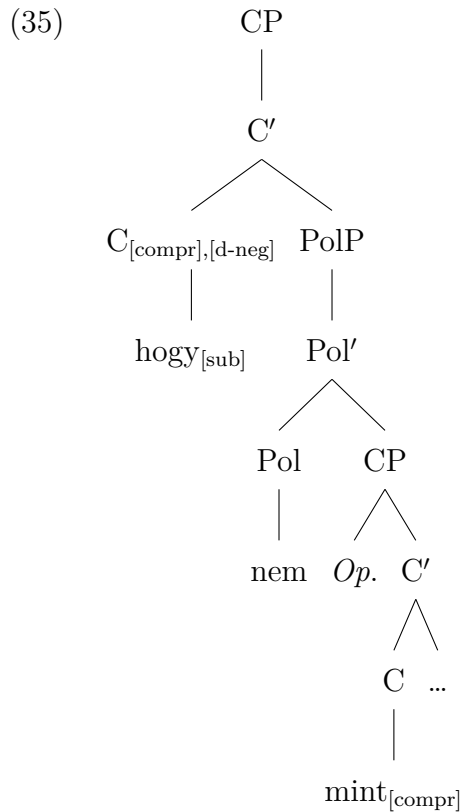
Ultimately, these constructions disappeared utterly from the language: the reason is most probably the fact that the highest complementizer became optional as it came to be reinterpreted as a mere finite subordinator and finite embedding was later encoded by the original lower complementizer. With the establishment of *mint* as the compara-

²⁵This kind of dependency can be observed in expletive negation more generally: the negative-like element is not a proper negator but an element that is contingent upon the presence of another element. Negative polarity items are likewise dependent on a certain licensing condition.

²⁶Recall that *mint* is not specified lexically as either [EQ] or [INEQ]. Note also that, just like in the case of German *wie*, as long as *mint* was still an operator, it was located in [Spec,CP]: in this case, the lower C head would be empty. See Bacskai-Atkari (2014a).

tive complementizer and with the appearance of new comparative operators (Bacsikai-Atkari 2014a), doubling of the type given in section 1 is possible.

The situation in comparative clauses is different inasmuch as the PolP is also present:



While inequality is lexicalized by *hogy* in the higher C head, it is not lexically specified as a polarity marker, which is why a PolP is generated right below it.²⁷ In this configuration, *mint* can take over the function of marking the clause type only after it has been established as a comparative complementizer but it cannot appear on its own as an operator. The overt presence of a PolP indicates for the language learner that *mint* cannot be the element lexicalizing [d-neg], which is presumably a conserving effect for the particular configuration. The same cannot be said about degree equatives where no separate polarity marker is present and by the feature loss on *hogy* the marker of [compr] can be ultimately assigned to *mint*. Nevertheless, since the feature loss on *hogy* affected

²⁷Note that this is a language-specific setting: overt polarity markers – either in a PolP or lower in the clause – are attested in some languages but not in others, independently of the fact whether the comparative complementizer is identical to the one introducing degree equatives. German, for instance, does not have such a marker either synchronically or historically, even though the use of a unified complementizer is attested both in present-day and in historical dialects. See Bacsikai-Atkari (2016b) on cross-linguistic aspects.

both clause types in the same period, the feature loss being a more general process, it is expected that the change from *hogy* to *mint* in comparatives should show considerable overlaps between the two clause types; as opposed to German, the role of analogy is minor.

5 Conclusion

This paper presented a cross-linguistic study of the diachronic development of comparatives, providing a formal account for why comparative operators generally grammaticalize into complementizers in degree equatives more readily than in comparatives. I argued that this is so because the degree equatives do not necessarily have a double CP layer and because comparatives have to encode (degree) inequality, which has to be lexicalized by a functional head. This is a preserving factor for original complementizers in comparative clauses; in degree equative clauses, the features of the comparative operator essentially match those of the C head, and it is also possible not to lexicalize the C head itself.

I demonstrated that the loss of features is a key factor in the changes at the CP-periphery in comparatives, in line with the Borer-Chomsky Conjecture. In German, the loss of lexical features on the complementizer in degree equatives resulted in a general comparative complementizer that could be analogically extended to comparatives. In Hungarian, the loss of the [compr] feature on the original comparative complementizer facilitated the reanalysis of the comparative operator into a complementizer as it came to be the ultimate marker of the relevant property. In either case, an asymmetry between degree equatives and comparatives is attested in a way that can be expected on the basis of degree semantics, and as such the described changes follow from more general principles of universal grammar.

References

- Bacskai-Atkari, Julia. 2014a. Cyclical change in Hungarian comparatives. *Diachronica* 31(4). 465–505.
- Bacskai-Atkari, Julia. 2014b. *The syntax of comparative constructions: Operators, ellipsis phenomena and functional left peripheries*. Potsdam: Universitätsverlag Potsdam.

- Bacskai-Atkari, Julia. 2016a. On the diachronic development of a Hungarian declarative complementiser. *Transactions of the Philological Society* 114(1). 95–116.
- Bacskai-Atkari, Julia. 2016b. Towards a cross-linguistic typology of marking polarity in embedded degree clauses. *Acta Linguistica Hungarica* 63(4). 389–409.
- Bacskai-Atkari, Julia. 2017. Structural ambiguity and case assignment in Hungarian clausal and phrasal comparatives. In Harry van der Hulst & Anikó Lipták (eds.), *Approaches to Hungarian 15: Papers from the 2015 Leiden conference*, 35–63. Amsterdam: John Benjamins. doi:10.1075/atoh.15.02bac.
- Bacskai-Atkari, Julia. 2018a. Complementizers and negative polarity in German hypothetical comparatives. In Christine Dimroth & Stefan Sudhoff (eds.), *The grammatical realization of polarity: Theoretical and experimental approaches*, 89–108. Amsterdam: John Benjamins.
- Bacskai-Atkari, Julia. 2018b. *Deletion phenomena in comparative constructions: English comparatives in a cross-linguistic perspective*. Berlin: Language Science Press.
- Bacskai-Atkari, Julia. 2018c. Deutsche Dialekte und ein anti-kartografischer Ansatz zur CP-Domäne. In Augustin Speyer & Philipp Rauth (eds.), *Syntax aus Saarbrücker Sicht 2: Beiträge der SaRDs-Tagung zur Dialektsyntax*, 9–29. Stuttgart: Steiner.
- Bacskai-Atkari, Julia & Éva Dékány. 2014. From non-finite to finite subordination: The history of embedded clauses. In Katalin É. Kiss (ed.), *The evolution of functional left peripheries in Hungarian syntax*, 148–223. Oxford: Oxford University Press.
- Baker, Mark. 2008. The macroparameter in a microparametric world. In Theresa Biberauer (ed.), *The limits of variation*, 351–373. Amsterdam: John Benjamins.
- Beck, Sigrid. 2011. Comparison constructions. In Klaus von Heusinger, Claudia Maienborn & Paul Portner (eds.), *Semantics: An international handbook of natural language meaning 2*, 1341–1389. Berlin: Mouton de Gruyter.
- Behaghel, Otto. 1928. *Deutsche Syntax: Eine geschichtliche Darstellung, Band III*. Heidelberg: Winter.
- Biberauer, Theresa & George Walkden. 2015. Introduction: Changing views of syntactic change. In Theresa Biberauer & George Walkden (eds.), *Syntax over time: Lexical, morphological, and information-structural interactions*, 1–13. Oxford: Oxford University Press.
- Borer, Hagit. 1984. *Parametric syntax*. Dordrecht: Foris.

- Chomsky, Noam. 1995. *The Minimalist Program*. Cambridge, MA: MIT Press.
- Dryer, Matthew S. 2013. Negative morphemes. In Matthew S. Dryer & Martin Haspelmath (eds.), *The world atlas of language structures online*, Leipzig: Max Planck Institute for Evolutionary Anthropology. Available at <http://wals.info/chapter/112> (last accessed: 14 May 2015).
- Eggs, Frederike. 2006. *Die Grammatik von als und wie*. Tübingen: Narr.
- Friedli, Matthias. 2005. *Si isch grösser weder ig!* Zum Komparativanschluss im Schweizerdeutschen. *Linguistik Online* 24. 79–113.
- Gelderen, Elly van. 2004. *Grammaticalization as economy*. Amsterdam: John Benjamins.
- Gelderen, Elly van. 2009. Renewal in the left periphery: Economy and the complementiser layer. *Transactions of the Philological Society* 107(2). 131–195.
- Haader, Lea. 2003. Az ómagyar kor: Mondattörténet: Az összetett mondat. In Jenő Kiss & Ferenc Pusztafi (eds.), *Magyar nyelvtörténet*, 500–560. Budapest: Osiris Kiadó.
- Heim, Irene. 1985. Notes on comparatives and related matters. Manuscript. University of Texas, Austin. Available at <http://semanticsarchive.net/Archive/zc0ZjY0M/Comparatives%2085.pdf/> (last accessed: 30 March 2017).
- Heim, Irene. 2000. Degree operators and scope. In Brendan Jackson & Tanya Matthews (eds.), *SALT X*, 214–239. Ithaca, NY: Cornell University.
- Hohaus, Vera & Malte Zimmermann. 2014. Equatives outside the domain of degree constructions. Talk delivered at: Linguistic Evidence 2014, Tübingen, Universität Tübingen, 13–15 February 2014.
- Jäger, Agnes. 2010. Der Komparativzyklus und die Position der Vergleichspartikel. *Linguistische Berichte* 224. 467–493.
- Jäger, Agnes. 2016. *Vergleichskonstruktionen im Deutschen: Diachroner Wandel und synchrone Variation*: Universität zu Köln habilitation.
- Jäger, Agnes. 2017. “mit eynre ander manier dan nu”: Historische Variation bei Vergleichskonstruktionen. In Marek Konopka & Angelika Wöllstein (eds.), *Grammatische Variation*, 65–84. Berlin: Mouton de Gruyter.
- Kenesei, István. 1992. On Hungarian complementisers. In István Kenesei & Csaba Pléh (eds.), *Approaches to Hungarian 4*, 37–50. Szeged: JATE.

- Kortmann, Bernd. 1997. *Adverbial subordination: A typology and history of adverbial subordinators based on European languages*. Berlin: Walter de Gruyter.
- Ladusaw, William. 1979. *Negative polarity as inherent scope*: University of Texas, Austin dissertation.
- Lechner, Winfried. 2004. *Ellipsis in comparatives*. Berlin: Mouton de Gruyter.
- Lightfoot, David. 1979. *Principles of diachronic syntax*. London: Routledge.
- Lindow, Wolfgang, Dieter Möhn, Hermann Niebaum, Dieter Stellmacher, Hans Taubken & Jan Wirrer. 1998. *Niederdeutsche Grammatik*. Leer: Schuster.
- Lipold, Günter. 1983. Möglichkeiten der Komparation in den deutschen Dialekten. In Werner Besch et al. (eds.), *Dialektologie: Ein Handbuch zur deutschen und allgemeinen Dialektforschung*, 1232–1241. Berlin: Mouton de Gruyter.
- López-Couso, María José & Belén Méndez-Naya. 2014. On comparative complementizers in English: Evidence from historical corpora. In Nila Méndez-Naya Vazques (ed.), *Creation and use of historical English corpora in Spain*, 311–333. Newcastle upon Tyne: Cambridge Scholars Publishing.
- Merkle, Ludwig. 1975. *Bairische Grammatik*. München: Heimeran.
- Paul, Hermann. 1920. *Deutsche Grammatik, Band 3: Syntax*. Halle: Niemeyer.
- Rutten, Gijsbert. 2012. From adverb to conjunction and back: The (de)grammaticalisation of Dutch *dan*. *Diachronica* 29(3). 301–325.
- Schrodt, Richard. 2004. *Althochdeutsche Grammatik II: Syntax*. Tübingen: Niemeyer.
- Seuren, Pieter. 1973. The comparative. In Ferenc Kiefer & Nicolas Ruwet (eds.), *Generative grammar in Europe*, 528–564. Dordrecht: D. Reidel.
- von Stechow, Arnim. 1984. Comparing semantic theories of comparison. *Journal of Semantics* 3. 1–77.
- Stolz, Thomas. 2013. *Competing comparative constructions in Europe*. Berlin: Walter de Gruyter.
- Weise, Oskar. 1918. Die vergleichenden Konjunktionen in den deutschen Mundarten. *Zeitschrift für deutsche Mundarten* 13. 169–181.