

**Discourse-driven asymmetries between embedded interrogatives
and relative clauses in West Germanic***

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Abstract. The article examines embedded constituent questions and relative clauses in West Germanic, arguing that asymmetries regarding doubly filled COMP patterns are due to information-structural differences. While both clause types involve operator movement, they differ crucially regarding the information-structural status of the operator: in interrogatives, the operator can be associated with discourse-new information, while in relative clauses the operator is discourse-old and can be potentially left out. This asymmetry regarding information-structural properties has further important consequences. First, doubling patterns involving an overt operator and an overt complementiser emerge across West Germanic languages in embedded questions but not in relative clauses. Second, the reanalysis of the operator into a complementiser is attested in relative clauses but not in embedded interrogatives.

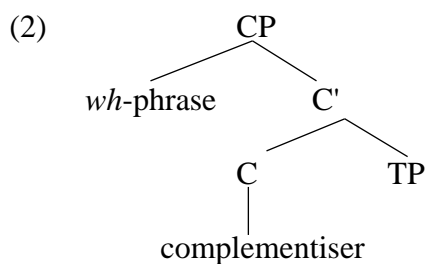
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1 Introduction

Finite embedded clauses are often introduced by complementisers: the term complementiser originally refers to the fact that such elements turn a clause into a complement clause. This is illustrated for *that* in (1) below:

- (1) a. *The turtle is swimming.*
b. *I know **that** the turtle is swimming.*

In addition to complementisers, the left periphery of the clause may also host clause-typing operators, such as *wh*-phrases in English interrogative and relative clauses. In standard generative approaches, conforming to the general X-bar schema, operators are located in the specifier and complementiser in the head of a CP projection, as represented in (2):



This configuration accounts for the syntactic differences known to exist between them. On the other hand, it predicts that the two elements can co-

occur in the indicated order:¹ this is indeed the case in West Germanic languages historically and dialectally, while the standard varieties impose a ban on such combinations, schematised in (3):

(3) *_[CP *wh*-phrase complementiser]

Such a constraint (traditionally referred to as the Doubly Filled COMP Filter)² rules out the co-presence of two overt elements, indicating that there is more to the relation between the two elements than the rather categorical separation suggested by (2). A further point of interaction is shown by non-standard varieties of West Germanic that allow the co-occurrence of the two elements, contrary to (3). This is illustrated below:

¹ As pointed out by Gisborne & Truswell (2017: 27-28), the analysis in (2) correctly predicts that the reverse order (e.g. **that who*) is not attested. This ordering restriction follows from the specifier and head status of the respective elements in any analysis adopting a single CP rather than multiple CPs (see Bacskai-Atkari 2018, 2020c).

² The original formulation of the filter goes back to (Chomsky & Lasnik 1977: 435, cf. Keyser 1975) and is formulated as follows:

(i) *_[COMP *wh*-phrase complementiser]

The position of complementisers was identified in earlier versions of generative grammar as COMP. In this vein, Chomsky & Lasnik (1977: 426) assume that all complementisers are base-generated in COMP. In addition, *wh*-elements are supposed to target the COMP position when moving to the left (Chomsky & Lasnik 1977: 434).

- (4) a. % *I wonder **which book that** you bought.*
b. % *This is the book **which that** you bought.*

The example in (4a) illustrates an embedded interrogative and the example in (4b) illustrates a relative clause. As (2) and (3) suggest, the two constructions are similar in that both involve the combination of a *wh*-phrase (here: *which book* and *which*) and a complementiser (here: *that*); one might therefore expect them to show similar behaviour. This is, however, not entirely the case: while doubling patterns in embedded interrogatives are common across West Germanic dialects, doubling in relative clauses is comparatively rare. This suggests that the interaction between the two elements is not only regulated by the syntactic template, as given in (2), but there are other relevant properties that regulate surface patterns.

The similarity between (4a) and (4b) regarding their surface patterns may at first suggest that the same kinds of elements are involved in both constructions, that is: (i) there is no distinction between interrogative and relative operators, and (ii) the complementiser in relative clauses is identical to the regular finite complementiser used in embedded interrogatives. Languages like German, however, that make a morphological distinction between the relevant elements in both (i) and (ii), refute this, as will be discussed in Section 3.

In addition to the asymmetry mentioned above, the separation between complementisers and operators is not as rigid as may seem. Van Gelderen

(2004, 2009) describes various cases of reanalysis that involve former operators used as complementisers: this process is an instance of grammaticalisation as it involves the loss of features. For example, English *that*, which was originally a relative pronoun, lost its case, gender and person/number features and could be reinterpreted as a complementiser: the aforementioned features (in particular gender and case) would have been incompatible with its status as C.³ The change is thought to be motivated by economy: the configuration involving a complementiser involves fewer features.

In this article, I will critically evaluate this claim, concentrating on whether feature economy truly drives this change. I will argue that the information-structural properties of the specifier element are of key importance, resulting in an asymmetry between doubling effects in embedded interrogatives and doubling effects in relative clauses in West Germanic languages. In this way, the observed asymmetries are also discourse-driven; these factors may be more decisive than clause-typing features. In addition, I will argue that some changes in relative clauses may be driven by analogy from other operator patterns.

³ Apart from these morphosyntactic properties, relative specifiers differ from complementisers in terms of preposition stranding: relative operators may pied-pipe the preposition to [Spec,CP], while complementisers always strand the preposition (see Gisborne & Truswell 2017: 29–31).

The paper is organised as follows. Section 2 discusses the relative cycle underlying many changes in the left periphery of relative clauses. Section 3 examines the connection between doubling effects and information structure. Section 4 discusses the changes attested in English. Section 5 is dedicated to the examination of potential interactions between information structure and the Noun Phrase Accessibility Hierarchy.

2 Reanalysis

As mentioned in the introduction, relative pronouns can be reanalysed as complementisers (van Gelderen 2004, 2009). Similar changes are not characteristic for embedded interrogatives: while certain original interrogative pronouns may end up as finite subordinators, this involves a change in the clause type as well (as in the case of English *how* used as a mere subordinator ‘that’, see van Gelderen 2009: 144-145). The reasons for this asymmetry will be dealt with in the next section.

Such a reanalysis process can be observed in the history of the English relative marker *that*,⁴ which started as a relative pronoun and came to be reanalysed as a complementiser. The pronoun stage is illustrated by the following

⁴ See also Romaine (1982: 63-64) for an earlier analysis of the same stages.

example from Old English, where *that* (*þa*) precedes the original relative complementiser *þe*:

- (5) *ac gif we asmeagaþ þa eadmodlican dæda þa þe he*
 but if we consider those humble deeds that that he
worhte, þonne ne þincþ us þæt nan wundor
 wrought then not seems us that no wonder
 ‘But if we consider the humble deeds that he wrought, then that will not
 appear marvellous to us.’

(Blickling Homilies, example and translation from Morris 1880: 33)

In Middle English, *that* (*þat*) was used as a grammaticalised complementiser; the original complementiser was lost:

- (6) *and suggeð feole þinges... þat næuere nes i-wurðen*
 and say many things that never not.was happened
 ‘and say many things that never happened’
 (Layamon, *Brut*, Caligula version 11472-3; example from van Gelderen
 2009: 162)

The reanalysis of *that* into a complementiser left the specifier of the CP free in the sense that the relative operator could be renewed; this resulted in

doubling patterns with the new *wh*-based relative operators (van Gelderen 2004, 2009):

(7) *the est orisonte, which that is clepid comounly the ascendent*

‘the East horizon, which is commonly known as the ascendent’

(Chaucer *Astrolabe* 669.17-8, from 1391; example from van Gelderen 2004: 87)

Note that (7), unlike (5) and (6), is a non-restrictive (appositive) relative clause. As pointed out by Zimmermann (2012: 318), while the stage illustrated by (6) involved *that* as a relative complementiser for both restrictive and non-restrictive relative clauses, *wh*-relatives (including doubling patterns) were predominantly (80% for *which*-relatives) used in non-restrictive relative clauses (see also Romaine 1982: 60-61). This was also the starting point for the decline of *that* in non-restrictive relative clauses (Zimmermann 2012: 318, citing Romaine 1984: 102; see also Romaine 1980: 222, Romaine 1982: 69; the same tendency can be observed in Middle Scots as well, see Romaine 1982: 140, citing also Caldwell 1974). A similar asymmetry concerns Old English relative clauses: the pattern involving the complementiser *þe* is characteristic of restrictive relative clauses, while the more innovative pattern involving the relative pronoun *se* is more likely to appear in non-restrictive relative clauses (Zimmermann 2012: 323-325). It appears that appositive relative clauses are more innovative in terms of the

change. Such asymmetries are found beyond the domain of relative clauses: as shown by Jäger (2018), non-degree equatives (similatives) are also more innovative than degree equatives throughout the history of German, which may well have to do with the fact that non-degree equatives have more freedom in their syntactic attachment (Bacskai-Atkari 2020b).

One of the factors relevant for deciding whether a given element is an operator or a complementiser is its relative position in the CP. In addition, West Germanic relative complementisers are not sensitive to the referent,⁵ while relative operators are, and they can be inflected for case, number and gender as well. Precisely these features must be lost during reanalysis: this was facilitated in English by the general loss of overt inflection on nominal elements. This kind of restriction also explains why German relative

⁵ This leads to the conclusion that relative complementisers are invariable in these languages and this seems to be the earliest relativisation strategy across Germanic (see also Romaine 1982: 64-65 and Gisborne & Truswell 2017: 25). Note, however, that this does not presuppose the incompatibility of the above features with complementiser status per se. Gender and case are incompatible with complementiser status, while person and number are not, as evidenced by the fact that certain varieties, including Bavarian, show complementiser agreement in other constructions (see Fuß 2004). It must be stressed that the conclusions given here do not necessarily carry over to other languages. In many Bantu languages, for instance, complementiser agreement is common with a matrix element. This is true for Lubukusu, where agreement can also be observed in relative clauses, whereby the complementiser shows agreement (in noun class) with the head noun (see Diercks & Sikuku 2013).

pronouns (inflected for case, number and gender) and Dutch relative pronouns (inflected for gender) have not been reanalysed as complementisers. The question may still arise why the operator is renewed in the first place: the complementiser is apparently preferred due to reasons of economy and the operator merely corresponds to a gap in the relative clause that is recoverable anyway in headed relative clauses. This issue will be discussed in the next section.

At this point, what is worth highlighting is that the complementiser strategy is altogether more dominant in English than the relative pronoun strategy: as noted by van Gelderen (2009), *wh*-pronouns are promoted by prescriptive rules but as far as spoken language is concerned, speakers prefer *that* over a *wh*-pronoun (see also the observation of Romaine 1982: 129, citing Sweet 1900; see also Montgomery & Bailey 1991, van Gelderen 2004, Tagliamonte et al. 2005). In regional dialects of Britain, the complementiser strategy (involving either the traditional *that* or the more innovative *what*) is preferred (see Herrmann 2005). South German dialects also predominantly use the complementiser *wo*, in Bavarian also *was* (see Fleischer 2004a, 2017 on Hessian; Brandner & Bräuning 2013 on Bodensee Alemannic; Weiß 2013 on Bavarian; Salzmann 2017 on Zurich German). The same is attested, for instance, in Mennonite Low German (Kaufmann 2018). Other dialects of German and most dialects of Dutch (Boef 2013), however, do not use relative

complementisers at all. It follows that these dialects do not have doubling patterns either.⁶

3 Doubling and information structure

As mentioned in Section 1, doubling effects occur both in embedded interrogatives and in relative clauses, yet not to the same extent: while doubling is common in embedded interrogatives across West Germanic dialects, it is comparatively rare in relative clauses. In this section, I show that this can be drawn back (i) to differences in information structure⁷ and (ii) to the fact that finiteness on C is preferably lexicalised overtly in these dialects. Chomsky & Lasnik (1977) suggest that the operator and the complementiser have similar functions in the clause. Indeed, as the interchangeability of the two in English demonstrate,⁸ both elements may type the clause as relative on their own:

⁶ Similar preferences are also suggested by language acquisition data, see Adani, Sehm & Zukowski (2013).

⁷ In terms of the basic notions of information structure, this paper follows Krifka (2008), in the tradition of Chafe (1976).

⁸ This interchangeability does not always hold, though. In particular, there is a ban on *that*-relatives in non-restrictive relative clauses in Standard English, and the same option is not

- (8) a. *This is the book **which** was published last week.*
b. *This is the book **that** was published last week.*

This interchangeability is also crucial in terms of the relative cycle: similar to the Jespersen-cycle affecting negative markers, the doubling stage, as exemplified in (7), is a potential intermediate change in the process during which the older (single-element) pattern is overtaken by the newer (likewise single-element) pattern. Regarding the Jespersen-cycle in Middle English, Wallage (2013) argues that information structure played a role in that the older pattern involving single *ne* was favoured in discourse-old propositions, while the newer stage involving the combination *ne... not* was favoured in discourse-new propositions. Similar claims were made by Schwenter (2006), Hansen (2009) and Hansen & Visconti (2009) for Romance languages. Wallage (2013) also shows that the spread of the new pattern was independent of these discourse constraints, though. Still, the fact that discourse constraints have an effect on whether a doubling pattern is preferred is clearly not restricted to the issue of embedded interrogatives and relative clauses examined here.

attested in the function “object of preposition” unless the preposition is stranded; see Section 5.

Doubling patterns are attested in embedded interrogatives as well, as illustrated by the following non-standard example:

(9) *She wondered **in which city that** I lived.*

In this case, a complex *wh*-phrase (*in which city*, containing both a lexical noun and a preposition)⁹ is located in [Spec,CP], and the complementiser *that* is also overt. The pattern in (9) is only synonymous with the pattern involving a single operator, not with the one involving a single complementiser. Observe:

- (10) a. *She wondered **in which city / where** I lived.*
 b. *She knew **that** I lived in London.*

The example in (10a) illustrates an embedded interrogative clause, just like (9), whereas the example in (10b) shows an embedded declarative clause. The complementiser *that* does not type the clause as interrogative and in Standard English, it is a declarative complementiser incompatible with an interrogative clause: this feature specification prevents doubling patterns like (9) in this variety, without having to resort to an additional surface filter (as proposed

⁹ As shown by Bayer & Brandner (2008) for South German varieties, doubling patterns are especially likely to appear with complex *wh*-phrases.

by Chomsky & Lasnik 1977) similar to (3). Non-standard dialects allowing (9) differ inasmuch as *that* is available as a mere finite complementiser which is compatible with an interrogative clause.

The same conclusion holds for other West Germanic languages as well. Doubling patterns are common in West Germanic interrogatives: as noted by Schallert et al. (2016: 6), only Yiddish seems to be an exception in this respect. An example is given from Alemannic in (11) below:

- (11) *I woass it wieviel dass er für des Auto zahlt hät.*
I know not how.much that he for the car paid has
'I don't know how much he paid for the car.' (Bayer & Brandner 2008: 87)

The same can be observed in Dutch:

- (12) *Ik vraag me af wie dat er morgen komt.*
I ask myself PRT who that there tomorrow comes
'I wonder who is coming tomorrow.' (Koopman 1997)

Just like in the English example in (9), both (11) and (12) contain a *wh*-element that makes the clause interrogative and a finite subordinator (*dass* and *dat*) that is in these cases not specified for marking declarative clause

type. In both languages, the standard varieties do not use the complementiser in these cases.

The obligatoriness of the *wh*-operator in interrogatives but not in relative clauses is indicative of a difference in the information-structural status of the operator in the two constructions. The relevant distinction can best be formulated as discourse-new vs. discourse-old. In interrogatives, the operator is associated with discourse-new information; in the classical scenario, the *wh*-part of a constituent question corresponds to a focused element in the answer (see Krifka 2008: 250, citing Paul 1880). The *wh*-phrase is associated with the presence of alternatives and it regularly bears main stress.¹⁰ Consider the following examples:

- (13) a. ***What*** did you do yesterday?
 b. I wonder ***what*** Mary did yesterday.

¹⁰ There is a strong correlation between discourse-new and stress, yet no one-to-one correspondence, as discussed by Büring (2013: 874-876). One reason behind this is that the relevant properties represent non-prosodic information that is mapped onto the prosodic component from syntax rather than being prosodic properties (see Büring 2013: 860-861). Krifka (2008: 248) suggests that a focus property indicates the presence of alternatives (this idea in turn goes back to von Stechow 1981 and to Rooth 1985, and it was adopted by later analyses, see Büring 2013).

The sentences in (13) can be uttered out of the blue: the *wh*-elements do not necessarily point to any antecedent in the discourse.¹¹ Some *wh*-elements slightly differ, though; consider the following counterparts of (13):

- (14) a. ***Which book*** did you read on the train?
b. I wonder ***which book*** Mary read on the train.

In these cases, the *wh*-element is D-linked: a certain set of books is understood as GIVEN in the discourse: *which* asks for a value that is part of this set. As formulated by Bošković (2002: 360), “the range of felicitous answers is limited by a set of objects familiar to the speaker and the hearer as a result of it already being referred to in the discourse or being salient in the context”.

¹¹ Note that discourse-new does not equal new information. In (13a), for instance, the information asked for is not new for the hearer; this is a possible scenario in (13b) as well, where the hearer may or may not know what Mary did the previous day. Using a different predicate for (13b), we can also have a configuration in which what Mary did is not new for the speaker:

- (i) I know ***what*** Mary did yesterday.

While it is evidently possible that *wh*-phrases represent old information (both in terms of the speaker and in terms of the reader), it is not necessarily the case that the relevant information is present in the preceding discourse. In addition, newness cannot be equalled with focusing either, as discussed by Krifka (2008: 255-257), so that focus-like properties are not even necessarily expected to be related to newness (contrary to the “information focus” proposed by Halliday 1967).

This evidently differs from (13), where no such discourse-linked set is available for *what*. In other words, the referent is not (necessarily) discourse-old in either case, while the range of possible referents is GIVEN in (14) but not in (13).¹²

Ordinary (headed) relative clauses differ in that the relative operator expresses discourse-old information: it is co-referent with the head noun. I adopt a matching analysis rather than a head-raising analysis for relative clauses (see Salzmann 2017: 55-179 on arguments in favour of the matching analysis, and see also Lees 1960, 1961, Chomsky 1965, and Sauerland 1998; 2003 for similar views, as well as Bhatt 2005 for a comparative summary). Let us take the following example:

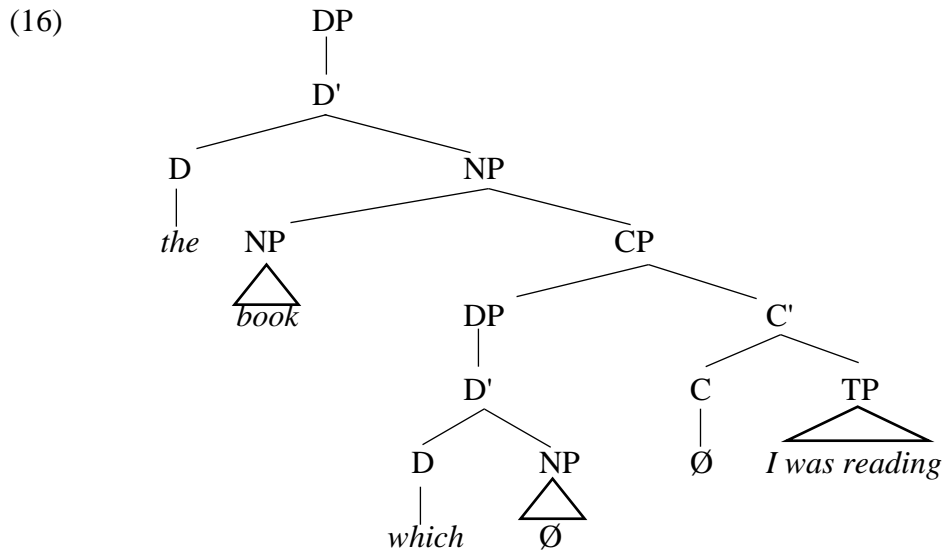
(15) *The book **which** I was reading is boring.*

¹² Headless (or free) relative clauses are similar to (13) in this respect. Consider:

(i) *I liked **what** I saw.*

The referent of *what* is typically discourse-new and there is no head noun in the matrix clause either. I assume that free relatives are essentially a subtype of *wh*-clauses (see Groos & Riemsdijk 1981) and will not discuss them separately in the remainder of this paper. According to Van Riemsdijk (2006), among others, the matrix clause contains an empty DP in these cases. Free relatives show the same doubling effects in South German dialects that are attested in embedded interrogatives (see Weiß 2013: 781). The same is true for Flemish (Zwart 2000: 358, citing Vanacker 1948: 143).

Assuming that the relative clause is adjoined to the head noun (adjoined to NP), the relevant part of the syntactic structure is given in (16):



The NP in the relative clause has no overt phonological content (here represented simply as zero, but one may in principle assume deletion as well) and it has the same reference as the head noun (here: *book*). The relative pronoun thus carries discourse-old information: the referent is not simply recoverable from the discourse but is in fact bound to be the head noun. In addition, the relative pronoun moves to the [Spec,CP] position from within the relative clause and it bears a syntactic function, in this case that of the direct object. The specific syntactic function is, however, recoverable from

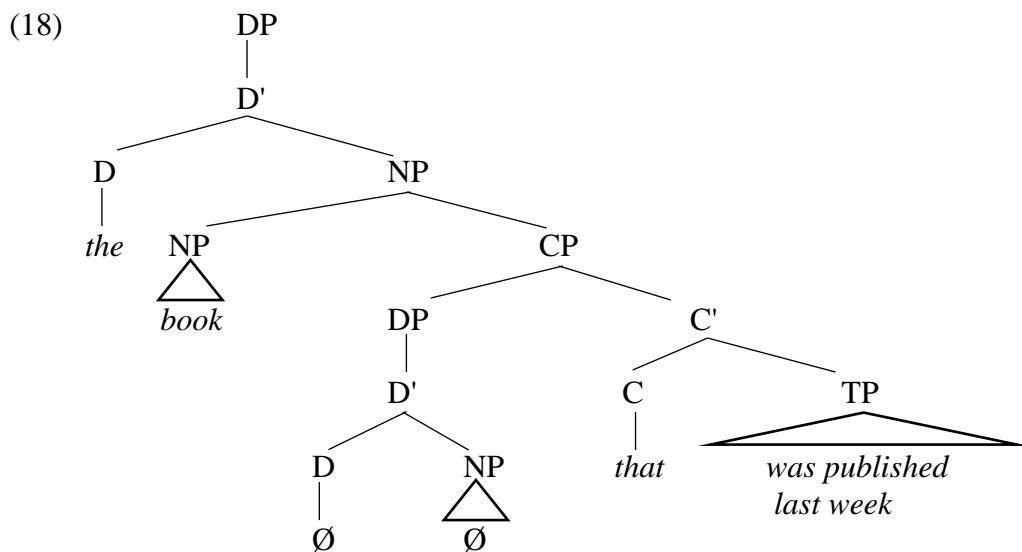
the rest of the clause: the gap is identifiable in argument relative clauses. This is illustrated by the following examples from German:¹³

- (17) a. *Das ist der Mann, **der**/*den*
 that is the.M.NOM man that.M.NOM/that.M.ACC
mich gesehen hat.
 I.ACC seen has
 ‘That is the man who saw me.’
- b. *Das ist der Mann, ***der**/den*
 that is the.M.NOM man that.M.NOM/that.M.ACC
ich gesehen habe.
 I.NOM seen have.1SG
 ‘That is the man who I saw.’

¹³ As can be seen, relative pronouns in German are usually demonstrative-based pronouns (*der/die/das*); this is the most common pattern and it can be observed already in Old High German and in Old Saxon (Fleischer 2004a: 232). However, it is also possible to use *wh*-pronouns (*welcher/welche/welches*) for the same functions: this option is less common and more formal. In addition, adverbial relative clauses also show *wh*-pronouns, such as the locative adverbial *wo* ‘where’ and prepositional adverbials (e.g. *wonach* ‘after what’). With certain matrix elements such as *etwas* ‘something’, not only the regular neuter relative pronoun *das* but also its *wh*-counterpart *was* can be used (Brandt & Fuß 2014). These elements, however, do not show the doubling effects discussed in this paper (presumably due to the constraints on the exact relative features, see Bacskai-Atkari 2020c) and will therefore be not discussed any further here.

As indicated, the relative pronouns are not exchangeable: German inflects relative pronouns for case. The syntactic function of the relative pronoun is recoverable from the rest of the relative clause and its referent is recoverable from the head noun.

This predicts that pattern in which the relative pronoun is not overt should in principle be possible. Indeed, patterns like (8b) shows that an overt complementiser is also sufficient.¹⁴ The corresponding structure is shown in (18) below.



¹⁴ In English, it is also possible to have so-called zero relatives, where neither the pronoun nor the complementiser is overt:

- (i) *The book I was reading is boring.*

This option is limited in English as well (for instance, it is not available in subject relative clauses in the standard language) and it is impossible in German.

The zero operator is licensed due to its information-structural status. The structures in (16) and (8) are in fact identical as the basic template is concerned: the difference lies in the relative pronoun and the relative complementiser occupying different positions, in line with the distinction made in Section 1.¹⁵

While in English the complementiser *that* in relative clauses is phonologically identical to the finite complementiser *that* in embedded interrogatives, it is worth mentioning that relative complementisers are actually distinct in their function, and they type the clause as relative instead of being mere finiteness markers (Bacskai-Atkari 2018, 2020c). In South German dialects, for instance, the relative complementiser is *wo* and not the regular finite complementiser *dass*:

(19) *Ich suech ebber wo mer helpe künnt.*

I search someone REL I.DAT help.INF could

‘I am looking for someone who could help me.’ (Brandner & Bräuning 2013: 140)

Such complementisers may also co-occur with overt relative operators:

¹⁵ The differentiation also captures yet another difference, which is that the relative pronoun is licensed in non-finite clauses, while *that* as a complementiser imposes selectional restrictions on the subclause.

- (20) *Des Geld, des wo ich verdiene, des geheert mir.*
the.N money that.N REL I earn.1SG that.N belongs I.DAT
'The money that I earn belongs to me.' (Fleischer 2017)

Such doubling patterns are attested in South German dialects (see Brandner & Bräuning 2013, Weiß 2013, Fleischer 2017) and also in English both historically and synchronically, as discussed in Sections 1 and 2. Van Gelderen (2013: 59) notes that such examples are attested “in some varieties of English”, yet they do not seem to be as common as Doubly Filled COMP patterns in embedded interrogatives.¹⁶ Similarly, while doubling patterns in embedded interrogatives are indeed very common across West Germanic and may even be obligatory in certain dialects (see Bayer & Brandner 2008),

¹⁶ The difference is difficult to measure precisely as the relevant constructions are substandard and stigmatised, so that both grammaticality judgements and corpora are problematic as sources: the acceptance may be influenced by prescriptive considerations and doubling hardly occurs in written language. Some grammaticality judgements from speakers of relevant varieties reveal that speakers accepting doubling in relative clauses also accept doubling in embedded interrogatives, but the implication does not hold vice versa. This issue, however, should be investigated more systematically. Regarding English, a good collection of relevant data is the one by Beatrice Santorini (<https://www.ling.upenn.edu/~beatrice/examples/doublyFilledCompExamples.html>): interestingly, all of the examples given here (as of 2 May 2020) are from embedded interrogatives and free relatives, but none from headed relative clauses.

doubling patterns in relative clauses are at most optional (see Brandner & Bräuning 2013)¹⁷ and not attested in all dialects (cf. Boef 2013 on Dutch dialects).

As shown in connection with (8) and (10) above, the operator and the complementiser in relative clauses have similar functions (in terms of clause typing), whereas this is clearly not the case in embedded interrogatives. This is also related to the different information-structural properties of interrogative and relative operators: unlike interrogative operators, relative operators always express maximally recoverable information and as such they can be left out altogether or they can be reduced to expressing clause-typing information. On the other hand, when considering diverse syntactic patterns, it appears that West Germanic languages preferably lexicalise the C position as this is attested as the only option in most patterns. This is ultimately responsible for the insertion of the finite complementiser in embedded interrogatives and for the preference towards the relative complementiser strategy (over the relative pronoun strategy) in relative clauses. Apart from these dialect data, the lexicalisation of finiteness on C can also be observed in the general V2 property of West Germanic languages (which still holds in German and Dutch, but historically English was also a V2 language) and to

¹⁷ Similar results are reported for Hessian in the SyHD-Atlas: the overall majority (100 out of 119) speakers who accept the complementiser in embedded interrogatives also prefer this option all over others (Weiß 2017), while doubling in relative clauses is altogether a minority pattern even in the South (Fleischer 2017).

T-to-C movement in Present-Day English¹⁸ (for a detailed discussion, see Bacskai-Atkari 2020c, following Pittner 1995).

It follows that in embedded interrogatives, doubling effects are expected to be the preferred option: the operator is necessary due to information structure and the complementiser is inserted to mark finiteness. On the other hand, the relative complementiser strategy is expected to be the preferred option in relative clauses: this types the clause as relative and lexicalises finiteness on C, and no overt operator is actually necessary in addition, as the operator in relative clauses is recoverable. Note that the relative complementiser strategy is possible only if the given variety has a relative complementiser at all: if this is not the case, there is no choice between the strategies. These expectations are borne out from present-day West Germanic dialect data. In the standard varieties, the situation is different as doubling is prohibited.

¹⁸ This is illustrated in (i) below:

- (i) *Where should we go?*

In this case, the *wh*-element *where* moves to [Spec,CP], while *should* moves from T to C: as the subject remains in [Spec,TP], this results in a reversed order of the subject and the auxiliary. The movement of an overt auxiliary is always required in main clause interrogatives (not only in constituent questions but also in polar and alternative questions): if there is no overt auxiliary, the dummy auxiliary *do* is inserted.

4 Historical changes in English

At this point, one might wonder why relative pronouns are used at all if they are not necessary and if the complementiser strategy is generally preferred anyway. This question obviously arises in connection with dialects that have relative complementisers, of course, as the zero relative strategy is altogether not very common and hence at least a single relative marker is expected to be possible. Specifically, English has both relative pronouns and complementisers in all dialects, including Standard English, and while the preferences indeed differ (see Section 2), the choice is undoubtedly there.

As discussed in Section 2, doubling patterns are attested already in Old English relative clauses, as a way of reinforcement. Interestingly, doubling patterns are not reported from Old English embedded interrogatives (Nawata 1999: 123; see also Schallert et al. 2016: 11). Assuming that doubly filled COMP patterns are related to the V2 property of the language in some way, this is not even surprising inasmuch as Old English was not a strict V2 language, allowing also for V-last main clauses (Walkden 2014: 94-106). Nawata (1999) also proposes that there might be a link between V2 and DFC patterns. However, he advocates a cartographic approach in which two distinct projections host the operator or the fronted XP on the one hand and the complementiser or the verb on the other hand. The idea is that the loss of V2 in English involved the loss of DFC patterns automatically as the projection in question was lost. This approach is highly problematic: for one

reason, while genuine V2 patterns are lost until the end of the Middle English period, DFC patterns are well-attested in present-day non-standard varieties as well, especially in the case of embedded interrogatives, which should not be possible if the position had been lost.

Doubly filled COMP patterns with *that* in the C position are attested in Middle English. According to Allen (1977), such doubling patterns first appeared in embedded interrogatives (end of 13th century) and later in relative clauses (beginning of 14th century). Note that the co-occurrence of *that* with a *wh*-operator was not restricted to constituent questions but it is in fact attested with *whether* in polar questions as well (Bacskai-Atkari 2020c).

The appearance of *that* in interrogatives is essentially unproblematic: it involves feature loss in the sense that this element does not type the clause as declarative anymore and as such it is not specified as [-wh]. The process is in line with the principle underlying grammaticalisation that a given element is lexically impoverished rather than enriched.

I suggest that the availability of doubling patterns in embedded interrogatives was an incentive for the emergence of doubling patterns in relative clauses as well. Van Gelderen (2004, 2009) treats the new *wh*-based relative pronouns as innovations that were licensed because the specifier position was now available. Watanabe (2009) argues that *wh*-elements were bare indefinites in Old English, and they were used together with visible or invisible quantifiers; once this property was lost, *wh*-elements could also be used as relative pronouns in Middle English, as they were no longer associated with complete

propositions. Still, it is not clear from either of these facts why *wh*-pronouns were actually introduced into relative clauses: neither the availability of the position nor the feature changes affecting the pronouns account for their appearance. On the other hand, once the pronouns became less specific, it is very probable that the availability of doubling patterns of the form *wh+that* in embedded interrogatives analogically fostered the appearance of doubling patterns of the form *wh+that* in relative clauses. In embedded interrogatives, the operator was naturally overt (see above), yet, as the general distribution of *wh*-elements in Early Middle English was different from that in Present-Day English, their appearance in relative clauses was very plausible on the basis of analogy. The pattern *wh+that* was ultimately available for embedded polar questions, embedded constituent questions,¹⁹ free relatives and headed relatives.

The underlying differences in information structure necessarily led to different outcomes, though, overwriting the surface similarity of the analogical patterns. In embedded questions, the *wh*-element is necessarily overt due to its information-structural status: for the same reason, it cannot lose its phi-features and undergo reanalysis either. Embedded interrogatives

¹⁹ Romaine (1982: 62-63) also notes the possibility that interrogatives had an effect on the development of relative clauses, yet this merely concerns the introduction of the pronoun and does not specify the role of features. She makes a crucial point, though, in refuting the idea (as proposed by Curme 1912) that mere form similarity between the pronouns would make sound predictions in this respect.

thus constitute a relatively conservative environment where the syntactic status of the operator remains stable over time. By contrast, the relative operator does not have to be overt even after its introduction, as the relative complementiser can sufficiently type the clause and the operator is recoverable. This weakens doubling patterns: the new *wh*-pronouns, unlike Old English *that*, have not become fully uninflected and/or they show sensitivity to the referent and thus none of them can be reinterpreted as a general relative marker.

5 Information structure and the Accessibility Hierarchy

One might wonder whether there is any additional reason to think that analogy proceeded from embedded interrogatives to relative clauses and not vice versa. After all, the two doubling patterns appeared right after each other; in principle, there could be a confound in the available data.

There are two factors to consider here. One is that the complementiser in embedded interrogatives is unlikely to have been triggered from relative clauses, whereas the development from declarative clauses is straightforward: this merely involves the loss of the clause-typing feature, which makes *that* a general complementiser that can still appear in its original environments (that is, declarative clauses). Van Gelderen (2009: 157-161) shows that declaratives in Old English involved a correlate in the matrix clause: this

correlate is the origin of *that*, which was later reanalysed as part of the subordinate clause. Consider:

(21) *forðam wearð ylða bearnum undyrne cuð....*

therefore became to.elders to.children not.hidden known...

þæt þe Grendel wan hwile wið Hroþgar

that that Grendel fought while against Hrothgar

‘Therefore, all mankind found out in sad tidings that Grendel fought against Hrothgar.’

(*Beowulf* 149–151, Klaeber edition; example taken from van Gelderen 2009: 158)

In this case, the element *that* is in the [Spec,CP] position of the embedded declarative clause and the complementiser *þe* is located in C, resulting in a doubling pattern familiar from relative clauses. The same scenario can be observed in German: as shown by Axel (2009) and Axel-Tober (2017), the element *das/dass* was initially a demonstrative element in the matrix clause, which came to be reanalysed as a relative pronoun introducing a correlative clause. Subsequently, such adjunct clauses were reanalysed as complement clauses, making the subclause the sister of the matrix lexical verb (Axel 2009: 23, Axel-Tober 2017: 55). In this scenario, the original correlative element is weakened in its referential function: this is especially true in declarative clauses, where neither English nor German preserved matrix correlates,

whereas the head noun was preserved in both languages in relative clauses. The further development of a more impoverished complementiser marking merely finite embedding is hence more likely to have taken place from declaratives than from relative clauses: the declarative clause type is also the least marked.

The other factor to be mentioned here concerns the status of the operator. As mentioned before, the operator is obligatorily overt in (embedded) constituent questions, irrespective of its syntactic function in the clause. By contrast, the *wh*-based relative operator was at the beginning not possible in any of these functions. Essentially, the role of the operator in relative clauses is to mark the given function explicitly, and the most likely candidate for this function could be found in a similar fronting construction in Middle English. Unlike the demonstrative-based relative operator, which was reanalysed from the matrix correlative element, the *wh*-element was not part of relative clauses originally: its introduction does not involve reanalysis but borrowing.

It is worth mentioning here that German shows similar developments in the history of its relative clauses. As described by Coniglio (2019), Old High German originally used a relative complementiser *pe*, which is the same West Germanic complementiser as the Old English one. The demonstrative-based relative pronoun (*der/die/das*) was introduced as an innovation, just like in the case of English *that*. However, these pronouns were not reanalysed in German: they are inflected for case, number and gender and cannot be interpreted as complementisers. This is in line with the preservation of case-

marking in German, contrary to English, where case/gender marking was lost on the relative pronoun *that* (and more generally on nominal elements). The introduction of the new relative pronouns in German thus led to doubling effects on the one hand, just as in English, yet it did not trigger a further reanalysis step, contrary to English.

Regarding the differences between functions, it has been suggested in the literature that the development of relative markers may be influenced by the Noun Phrase Accessibility Hierarchy of Keenan & Comrie (1977). According to this scheme (see also Keenan 1975), nominal expressions are accessible to different degrees; subjects are the most accessible, followed by other roles: subject > direct object > indirect object > oblique object (complement of preposition) > genitive (possessor phrase) > object of comparison. It is possible for a language not to relativise certain functions at all: if so, it does not relativise functions lower in the hierarchy either. West Germanic languages do not relativise objects of comparison. Hawkins (1995), Keenan & Hawkins (1987) and Kirby (1996) ground the Hierarchy in processing factors (subject relative clauses are the easiest to process).

Coniglio (2019: 163) suggests that the introduction of the relative pronoun in German first affected subject relative clauses and proceeded to other functions along the Noun Phrase Accessibility Hierarchy. He suggests that one possible reason for this may be that the element which is most likely to be fronted anyway is the subject. This is further supported by the fact that

subject relative clauses are more easily processed than any other relative clause type (see, for instance, Wanner & Maratsos 1978).

Romaine (1982: 61) and Gisborne & Truswell (2017: 31-32) suggest exactly the opposite process for Middle English: they observe that the *wh*-strategy first appeared very low on the scale, namely with genitives and with objects of prepositions. Gisborne & Truswell (2017: 31-32) consider the *wh*-strategy to be a secondary option in this period (as Romaine 1982: 152 put it, this option appears to have entered the system through the “back door”). In this respect, *wh*-based relative pronouns show similar behaviour to resumptive pronouns in other languages (Kirby 1996; but see the critical evaluation of Gisborne & Truswell 2017: 32-35).

This direction does not follow from the higher frequency of subject relatives, as suggested for Old High German, but rather from the fact that pronouns may ease processing, especially in the lower functions. However, as Gisborne & Truswell (2017: 35) point out, this observation does not imply any sort of necessity on diachronic change: relative clauses in these functions were possible even before *wh*-pronouns appeared (for instance with demonstrative-based pronouns, see Gisborne & Truswell 2017: 35-37), so that there was no pressure for the emergence of these forms. Moreover, this would not explain why the same strategy spreads to the higher functions.

The spread of the *wh*-strategy to higher functions is attested relatively early. To provide an example: I searched for the combination “which that” in a parallel-text print of Chaucer’s *Troilus and Criseyde* (from the 1380s), which

is available as part of the Corpus of Middle English Prose and Verse and which comprises three manuscripts (the Campsall, the Harleian and the Cambridge University library manuscripts). There are altogether six hits for the sequence in relative clauses: 4 of these are subject relative clauses, there is one direct object relative and one oblique (where *which* is part of a PP). This indicates that doubling as an option was not restricted to any of the functions, especially not to the ones lower on the scale. The higher proportion with subjects is possibly affected by the higher frequency of subject relative clauses in general²⁰ and by the fact that the pronoun was introduced into subject relatives first. As doubling patterns are attested from the beginning of the 14th century in relative clauses (see Section 4), the patterns in Chaucer's text may indeed reflect a later stage (when the pattern had already spread). For Middle Scots, Romaine (1980: 228-229) and Romaine (1982: 144-157) show that the proportion of *wh*-relatives was altogether higher in the lower functions. This correlates with the later data (see Bacskai-Atkari 2020a regarding the King James Bible) but as the proportion of *wh*-relatives reaches 14% in restrictive relative clauses, this data set can hardly be considered as representative of the initial stage. The proportion of *wh*-relatives is very high in non-restrictive relative clauses and does not show significant differences according to syntactic function. Again, just as with Middle English, it is

²⁰ As pointed out by Romaine (1980: 227-228) and Romaine (1982: 144-149), this prediction is borne out also for Modern English and for Middle Scots.

perfectly possible that *wh*-relatives spread from the higher functions but were more likely to be used in the lower functions. What all these findings suggest is that while the Accessibility Hierarchy makes reasonable predictions about asymmetries, there is no uniform pattern regarding the spread of the individual elements or the point of the hierarchy at which they are introduced first. Still, what undoubtedly matters for us here is that asymmetries between the individual strategies are also influenced by syntactic function and this aspect complements discourse factors (which predict an asymmetry between relative clauses and embedded interrogatives but not between syntactic functions).

Relative clauses again differ in terms of doubling patterns from embedded interrogatives due to discourse-related differences: the operator cannot be left out from embedded interrogatives for any function and the marking of finiteness is not tied to a particular syntactic function either. By contrast, relative clauses contain at most discourse-old visible operators or no visible operator at all, and the realisation of this operator may show correlations with the syntactic function it is associated with. New strategies spread from the highest function (subject) to the ones lower in the scale: this is shown by Coniglio (2019) for Old High German and Herrmann (2005) for present-day English dialects.

The question is interesting especially when compared to subsequent periods. In certain dialects of West Germanic, there is no choice between the pronoun strategy and the complementiser strategy: this is the case in Standard German

and Dutch (just as in most Dutch dialects, see Boef 2013). In South German dialects, the preference is generally towards the complementiser strategy (see Section 3), yet this preference is significantly stronger in relative clauses that are higher in the hierarchy than in ones that are lower (Fleischer 2004a, 2004b). A similar observation is made by Herrmann (2005) and Kortmann & Wagner (2007) for present-day English dialects. As shown by Bacskai-Atkari (2020a: 104), this is the case in the King James Bible as well: both the original version (1611/1769) and the modernised version (1989) show differences in the distribution of *wh*-relatives and *that*-relatives (doubling patterns are not attested): *wh*-relatives are preferred in non-subject relatives (72.44% for direct objects and 71.43% for PPs in the sample in both versions), while subject relatives are predominantly (74.78%) *that*-relatives in the original version and predominantly (69.91%) *wh*-relatives in the modernised version.²¹ The difference between the two versions can be attributed to prescriptive pressure in the modern version.²² It is evident that dialects may

²¹ As pointed out by Romaine (1982: 71), both strategies have been part of the English grammar from Middle English onwards, and the differences we can observe between the individual periods are quantitative rather than qualitative.

²² As described by Austin (1985: 21, 24), this was already the case with 18th-century grammarians (including, for instance, Addison). Ball (1996: 247) points out that this trend was present in the 17th century as well, with writers like Dryden explicitly preferring *who* over *that* (see also Söderlind 1964: 123), but the sharp decline of *that* can be observed in the 18th century. Romaine (1982: 133-134) also shows that the prescriptive trends were slightly divergent for a while but essentially pointed to the same major direction. Interestingly, as the

also differ in their preferences along the lines of the Accessibility Hierarchy. For instance, *that* may well be used in present-day substandard varieties instead of a PP containing a *wh*-pronoun, as in the example below:

(22) *I haven't been to a party yet **that** I haven't got home the same night.*

(van Gelderen 2009: 161, citing Miller 1993: 112)

In this case, the complementiser *that* is used; the standard dialect would use *from which* (optionally stranding the preposition).

Nevertheless, the other asymmetry, namely the one between subject and non-subject relative clauses, is the consequence of the optionality of relative pronouns in general. Keenan & Comrie (1977) show that resumptive pronouns are more likely to occur lower on the scale;²³ resumptive pronouns, just like relative pronouns, indicate the function of the gap. This is more likely to happen in non-subject relative clauses as they are less easy to process and occur less frequently than subject relative clauses.

In this way, the optionality of relative pronouns and the potential functional equivalence between the pronoun strategy and the complementiser strategy point to another consequence besides doubling effects being more likely to

original version preceded these prescriptive considerations, some relative constructions from the King James Bible were cited as incorrect by later grammarians like Lowth (see Romaine 1982: 134).

²³ This also holds for English-based creoles, as pointed out by Dreyfuss (1977: 170).

arise in embedded interrogatives than in relative clauses (and besides the obvious fact that relative clauses may lack overt operators). Namely, while interrogative operators are primarily tied to a certain information-structural status and available in all functions, relative operators may have the primary role of marking certain syntactic functions (provided that other strategies are available), typically ones lower on the hierarchy. This property ultimately stems from their being GIVEN.

This has a further consequence for the relative cycle, discussed in Section 2. We saw that relative operators can be reanalysed as relative complementisers once they lose their case features and phi-features, precisely because they express discourse-GIVEN information. In the case of English *who* and *whom*, case distinction is relevant in Early Modern English and both operators were primarily used with human referents. The operator *which*, however, was possible both with human and with non-human referents (Bacskai-Atkari 2020a) and as it does not show case distinction, it is in principle a perfect candidate for a reanalysed complementiser. This reanalysis step, however, has not taken place (see Herrmann 2005 on the distribution of *which* in present-day dialects), unlike in the case of *that* previously. In other words, the cyclic change seems to have stopped.

This indicates that, apart from inflection, there is yet another factor to be considered, namely whether the operator is more or less evenly distributed among syntactic functions. This is clearly not the case for *which*: the data from Early Modern English strongly suggest that it predominantly occurred

in relative clauses lower on the scale. As these relative clauses are altogether less frequent than subject relatives, it is evident that *which*-relatives (and *wh*-relatives in general) had altogether comparatively little prominence to induce reanalysis.

6 Conclusion

The aim of this paper was to examine the relative cycle attested in relative clauses and to evaluate its possible predictions. The relative cycle involves the reanalysis of a relative operator into a relative complementiser, which in turns makes it possible for new relative operators to appear in the specifier position. The middle stage involving two relative markers is a doubling pattern leading to a classical doubly filled COMP effect. Just as in the case of negative doubling, the two relative markers are largely synonymous. This crucially differs from doubling effects in embedded questions. I argued that the difference between the two clause types goes back to discourse-related differences, as the relative operator expresses discourse-old information that is fully recoverable on the basis of the matrix head noun, while *wh*-elements in interrogatives are essentially focussed and must be realised overtly. However, as the two clause types are related, patterns attested in embedded interrogatives may be analogically extended to relative clauses, leading to the introduction of *wh*-elements in relative clauses in Middle English.

While doubling effects are all-present in West Germanic dialects in embedded interrogatives, they are comparatively rare in relative clauses. I argued that this is again related to the different information-structural status of the respective operators. In dialects that lack relative complementisers, the complementiser position is regularly empty. In many other dialects, however, the complementiser strategy is preferred and the operator is not realised overtly. On the other hand, it seems that while subject relative clauses were crucial concerning the introduction of innovative relative pronouns (and concerning the introduction of novel relative markers generally), the pronoun strategy, at least in English, is primarily associated with non-subject relatives, further restricting the distribution of the relative pronouns in question. This indicates that the relative pronoun is primarily tied to marking syntactic functions overtly.

References

- Adani, Flavia, Sehm, Marie & Zukowski, Andrea. 2013. How do German children and adults deal with their relatives. In *Advances in Language Acquisition*, Stavroula Stavrakaki, Marina Lalioti & Polyxeni Konstantinopoulou (eds.), 14–22. Newcastle upon Tyne: Cambridge Scholars Publishing.

- Allen, Cynthia L. 1977. Topics in Diachronic English Syntax. PhD dissertation, University of Massachusetts.
- Austin, Frances O. 1985. Relative which in late 18th-century usage: The Clift family correspondence. In *Papers from the 4th International Conference on English Historical Linguistics: Amsterdam, 10–13 April 1985*, Roger Eaton, Olga Fischer, Willem F. Koopman & Frederike van der Leek (eds.), 15–29. Amsterdam: John Benjamins.
- Axel, Katrin. 2009. Die Entstehung des *dass*-Satzes: Ein neues Szenario. In *Koordination und Subordination im Deutschen*, Veronika Ehrich, Christian Fortmann, Ingo Reich & Marga Reis (eds.), 21–42. Hamburg: Buske.
- Axel-Tober, Katrin. 2017. The development of the declarative complementizer in German. *Language* 93: 29–65.
- Bacskai-Atkari, Julia. 2018. Deutsche Dialekte und ein anti-kartografischer Ansatz zur CP-Domäne. In *Syntax aus Saarbrücker Sicht 2: Beiträge der SaRDIS-Tagung zur Dialektsyntax*, Augustin Speyer & Philipp Rauth (eds.), 9–29. Stuttgart: Steiner.
- Bacskai-Atkari, Julia. 2020a. Changes affecting relative clauses in Late Modern English. In *Late Modern English: Novel Encounters*, Merja Kytö & Erik Smitterberg (eds.), 91–115. Amsterdam: John Benjamins.
- Bacskai-Atkari, Julia. 2020b. Non-degree equatives and reanalysis: A case study of doubling patterns in German and Hungarian. In *Approaches to*

- Hungarian 16: Papers from the 2017 Budapest Conference*, Veronika Hegedűs & Irene Vogel (eds.), 5–23. Amsterdam: John Benjamins.
- Bacsikai-Atkari, Julia. 2020c. German V2 and Doubly Filled COMP in West Germanic. *The Journal of Comparative Germanic Linguistics* 23(2): 125–160.
- Ball, Catherine N. 1996. A diachronic study of relative markers in spoken and written English. *Language Variation and Change* 8(2): 227–258.
- Bayer, Josef & Brandner, Ellen. 2008. On *wh*-head-movement and the Doubly-Filled-Comp Filter. In *Proceedings of the 26th West Coast Conference on Formal Linguistics*, Charles B. Chang & Hannah J. Haynie (eds.), 87–95. Somerville, MA: Cascadilla Proceedings Project.
- Bhatt, Rajesh. 2005. Three theories of relative clauses. Paper presented at LOT Summer School on “The Syntax and Semantics of Nominal Modification”, 26 January 2005.
- Boef, Eefje. 2013. *Doubling in Relative Clauses: Aspects of Morphosyntactic Microvariation in Dutch*. Utrecht: LOT.
- Bošković, Željko. 2002. On multiple *wh*-fronting. *Linguistic Inquiry* 33(3): 351–383.
- Brandner, Ellen & Bräuning, Iris. 2013. The particle *wo* in Alemannic: Only a complementizer? *Linguistische Berichte* 234: 131–169.
- Brandt, Patrick & Fuß, Eric. 2014. Most questionable pronouns: Variation between *das*- vs. *was*-relatives in German. *Linguistische Berichte* 239: 297–329.

- Büring, Daniel. 2013. Syntax, information structure, and prosody. In *The Cambridge Handbook of Generative Syntax*, Marcel den Dikken (ed.), 860–896. Cambridge: Cambridge University Press.
- Caldwell, Sarah. 1974. *The Relative Pronoun in Early Scots*. Helsinki: Société Néophilologique de Helsinki.
- Chafe, Wallace L. 1976. Givenness, contrastiveness, definiteness, subjects, topics and point of view. In *Subject and Topic*, Charles N. Li (ed.), 27–55. New York: Academic Press.
- Chomsky, Noam & Lasnik, Howard. 1977. Filters and control. *Linguistic Inquiry* 8(3): 425–504.
- Chomsky, Noam. 1965. *Aspects of the Theory of Syntax*. Cambridge, MA: MIT Press.
- Coniglio, Marco. 2019. Relative clause marking in historical German. *Linguistische Berichte* 258: 139–177.
- Curme, George O. 1912. A history of English relative constructions. *Journal of English and Germanic Philology* 10: 225–377.
- Diercks, Michael & Sikuku, Justine. 2013. Object Clitics in a Bantu language: Deriving Pronominal Incorporation in Lubukusu. Ms., Pomona College & Moi University.
- Dreyfuss, Gail. 1977. *Relative Clause Structure in Four Creole Languages*. PhD dissertation, University of Michigan.

- Fleischer, Jürg. 2004a. A typology of relative clauses in German dialects. In *Trends in Linguistics: Dialectology Meets Typology*, Bernd Kortmann (ed.), 211–243. Berlin: Mouton de Gruyter.
- Fleischer, Jürg. 2004b. Zur Typologie der Relativsätze in den Dialekten des Deutschen. In *Morphologie und Syntax Deutscher Dialekte und Historische Dialektologie des Deutschen*, Franz Patocka & Peter Wiesinger (eds.), 60–83. Vienna: Edition Praesens.
- Fleischer, Jürg. 2017. Relativsatz-Einleitung. *SyHD-atlas*, Jürg Fleischer, Alexandra N. Lenz & Helmut Weiß (eds.), <<http://www.syhd.info/apps/atlas/#relativsatz-einleitung>> (2 May 2020).
- Fuß, Eric. 2004. Diachronic clues to pro-drop and complementizer agreement in Bavarian. In *Diachronic Clues to Synchronic Grammar*, Eric Fuß & Carola Trips (eds.), 59–100. Amsterdam: John Benjamins.
- van Gelderen, Elly. 2004. *Grammaticalization as Economy*. Amsterdam: John Benjamins.
- van Gelderen, Elly. 2009. Renewal in the left periphery: Economy and the complementiser layer. *Transactions of the Philological Society* 107(2): 131–195.
- van Gelderen, Elly. 2013. *Clause Structure*. Cambridge: Cambridge University Press.
- Gisborne, Nikolas, & Truswell, Robert. 2017. Where do relative specifiers come from? In *Micro-change and Macro-change in Diachronic Syntax*,

Eric Mathieu & Robert Truswell (eds.), 25–42. Oxford: Oxford University Press.

Groos, Anneke & van Riemsdijk, Henk. 1981. Matching effects in free relatives: A parameter of core grammar. In *Theory of Markedness in Generative Grammar: Proceedings of the 4th GLOW Conference*, Adriana Belletti, Luciana Brandi & Luigi Rizzi (eds.), 171–216. Pisa: Scuola Normale Superiore.

Halliday, Michael A. K. 1967. *Intonation and Grammar in British English*. The Hague: Mouton.

Hansen, Maj-Britt M. & Visconti, Jacqueline. 2009. On the diachrony of “reinforced” negation in French and Italian. In *Grammaticalisation and Pragmatics: Facts, Approaches, Theoretical Issues*, Corinne Rossari, Claudia Ricci & Adriana Spiridon (eds.), 137–171. Bingley: Emerald Publishing.

Hansen, Maj-Britt M. 2009. The grammaticalisation of negative reinforcers in Old and Middle French. In *Current Trends in Diachronic Semantics and Pragmatics*, Maj-Britt Mosegaard Hansen & Jacqueline Visconti (eds.), 227–251. Bingley: Emerald Publishing.

Hawkins, John. 1995. *A Performance Theory of Order and Constituency*. Cambridge: Cambridge University Press.

Herrmann, Tanja. 2005. Relative clauses in English dialects of the British Isles. In *A Comparative Grammar of British English Dialects*:

- Agreement, Gender, Relative Clauses*, Bernd Kortmann (ed.), 21–124. Berlin: Mouton de Gruyter.
- Jäger, Agnes. 2018. *Vergleichskonstruktionen im Deutschen*. Berlin: De Gruyter.
- Kaufmann, Göz. 2018. Relative markers in Mennonite Low German: Their forms and functions. In *Syntax aus Saarbrücker Sicht 2: Beiträge der SaRDIS-Tagung zur Dialektsyntax*, Augustin Speyer & Philipp Rauth (eds.), 109–148. Stuttgart: Steiner.
- Keenan, Edward L. & Comrie, Bernard. 1977. Noun phrase accessibility and universal grammar. *Linguistic Inquiry* 8(1): 63–99.
- Keenan, Edward L. & Hawkins, Sarah. 1987. The psychological validity of the accessibility hierarchy. In *Universal Grammar: 15 Essays*, Edward L. Keenan (ed.), 60–85. London: Croon Helm.
- Keenan, Edward L. 1975. Variation in universal grammar. In *Analyzing Variation in Language: Papers from the Second Colloquium on New Ways of Analyzing Variation*, Ralph W. Fasold & Roger W. Shuy (eds.), 136–149. Washington, DC: Georgetown University Press.
- Keyser, Samuel J. 1975. A partial history of the relative clause in English. In *Papers in the History and Structure of English*, Jane Barbara Grimshaw (ed.), 1–33. Amherst, MA: University of Massachusetts.
- Kirby, Simon. 1996. Function, Selection and Innateness: The Emergence of Language Universals. PhD dissertation, University of Edinburgh.

- Koopman, Hilda. 1997. The doubly filled C filter, the principle of projection activation and historical change. Ms. UCLA.
- Kortmann, Bernd & Wagner, Susanne. 2007. A fresh look at Late Modern English dialect syntax. In “*Of Varying Language and Opposing Creed*”: *New Insights into Late Modern English*, Javier Pérez-Guerra (ed.), 279–300. Bern: Peter Lang.
- Krifka, Manfred. 2008. Basic notions of information structure. *Acta Linguistica Hungarica* 55(3–4): 243–276.
- Lees, Robert B. 1960. *The Grammar of English Nominalizations*. The Hague: Mouton.
- Lees, Robert B. 1961. The constituent structure of Noun Phrases. *American Speech* 36: 159–168.
- Miller, Jim. 1993. The grammar of Scottish English. In *Real English*, James Milroy & Lesley Milroy (eds.), 99–138. London: Longman.
- Montgomery, Michael & Bailey, Guy. 1991. In which: A new form in written English. *American Speech* 66: 147–163.
- Morris, Richard. 1880. *The Blickling Homilies of the Tenth Century*, Early English Text Society, os. 58, 63, and 73. London: N. Trübner & Co.
- Nawata, Hiroyuki. 1999. Split-CP, doubly-filled COMP, and locality of language change. *English Linguistics* 16(1): 121–144.
- Paul, Hermann. 1880. *Prinzipien der Sprachgeschichte*. Halle: Niemeyer.
- Pittner, Karin. 1995. The case of German relatives. *The Linguistic Review* 12(3): 197–231.

- Romaine, Suzanne. 1980. The relative clause marker in Scots English: diffusion, complexity and style as dimensions of syntactic change. *Language in Society* 9: 221–249.
- Romaine, Suzanne. 1982. *Socio-historical Linguistics*. Cambridge: Cambridge University Press.
- Romaine, Suzanne. 1984. Some historical and social dimensions of syntactic change in Middle Scots relative clauses. In *English Historical Linguistics: Studies in Development*, Norman Francis Blake & Charles Jones (eds.), 101–122. Sheffield: University of Sheffield Press.
- Rooth, Mats. 1985. Association with Focus. PhD dissertation, University of Massachusetts.
- Salzmann, Martin. 2017. *Reconstruction and Resumption in Indirect A'-Dependencies: On the Syntax of Prolepsis and Relativization in (Swiss) German and Beyond*. Berlin: Mouton de Gruyter.
- Sauerland, Uli. 1998. *The Meaning of Chains*. PhD dissertation, MIT.
- Sauerland, Uli. 2003. Unpronounced heads in relative clauses. In *The Interfaces: Deriving and Interpreting Omitted Structures*, Kerstin Schwabe & Susanne Winkler (eds.), 205–226. Amsterdam: John Benjamins.
- Schallert, Oliver, Dröge, Alexander & Pfeiff, Jeffrey. 2016. Doubly-filled COMPs in Dutch and German: A bottom-up approach. Ms. Universität München / Universität Marburg.

- Schwenter, Scott. 2006. Fine tuning Jespersen's Cycle. In *Drawing the Boundaries of Meaning: Neo-Gricean Studies in Pragmatics and Semantics in Honor of Laurence R. Horn*, Betty J. Birner & Gregory L. Ward (eds.), 327–344. Amsterdam: John Benjamins.
- Söderlind, Johannes. 1964. The attitude to language expressed by or ascertainable from English writers of the 16th and 17th centuries. *Studia Neophilologica* 36(1): 111–126.
- Sweet, Henry. 1900. *A New English Grammar: Logical and Historical*. Oxford: Clarendon Press.
- Tagliamonte, Sali, Smith, Jennifer & Lawrence, Helen. 2005. No taming the vernacular! Insights from the relatives in northern Britain. *Language Variation and Change* 17: 75–112.
- van Riemsdijk, Henk. 2006. Free relatives. In *The Blackwell Companion to Syntax Vol. I*, Martin Everaert & Henk van Riemsdijk (eds.), 338–382. Oxford: Blackwell.
- Vanacker, Valeer F. 1948. *Syntaxis van het Aalsters Dialect*. Tongeren: Michiels.
- von Stechow, Arnim. 1981. Topic, focus and local relevance. In *Crossing the Boundaries in Linguistics*, Wolfgang Klein & Willem Levelt (eds.), 95–130. Dordrecht: Springer.
- Walkden, George. 2014. *Syntactic Reconstruction and Proto-Germanic*. Oxford: Oxford University Press.

- Wallage, Phillip. 2013. Functional differentiation and grammatical competition in the English Jespersen Cycle. *Journal of Historical Syntax* 2: 1–25.
- Wanner, Eric & Maratsos, Michael. 1978. An ATN approach to comprehension. In *Linguistic Theory and Psychological Reality*, Morris Halle, Joan Bresnan & George Miller (eds.), 119–161. Cambridge, MA: MIT Press.
- Watanabe, Akira. 2009. A parametric shift in the D-system in Early Middle English: Relativization, articles, adjectival inflection, and indeterminates. In *Historical Syntax and Linguistic Theory*, Paola Crisma & Giuseppe Longobardi (eds.), 358–374. Oxford: Oxford University Press.
- Weiß, Helmut. 2013. Satztyp und Dialekt. In *Satztypen des Deutschen*, Jörg Meibauer, Markus Steinbach & Hans Altmann (eds.), 764–785. Berlin: Walter de Gruyter.
- Weiß, Helmut. 2016. Doubly-filled COMP. *SyHD-atlas*. In: Jürg Fleischer, Alexandra N. Lenz & Helmut Weiß (eds.), <<http://www.syhd.info/apps/atlas/index.html#doubly-filled-comp>> (2 May 2020).
- Zimmermann, Richard. 2012. Rule independence and rule conditioning: Grammar competition in Old English relative clauses. In *Proceedings of ConSOLE XX*, Enrico Boone, Martin Kohlberger & Maartje Schulpen (eds.), 315–332. Leiden: SOLE.

Zwart, Jan-Wouter. 2000. A head raising analysis of relative clauses in Dutch.

In *The Syntax of Relative Clauses*, Artemis Alexiadou (ed.), 349–385.

Amsterdam: John Benjamins.