

Where do relative specifiers come from?

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1 Introduction

This paper argues that the emergence of dependent *wh*-relatives in Middle English was an instance of diffusion of a novel syntactic property through the set of *wh*-forms, construed as a series of reanalyses of individual lexical items. This seemingly parochial claim takes on a broader significance in the context of two well-established findings about the typology of relativization.

First, similar constructions (dependent relatives containing a filled [Spec,CP], or **relative specifier**) have an unusual typological distribution: they are largely clustered in Indo-European languages, but probably not present in Proto-Indo-European. This leads us to ask where relative specifiers come from, or more broadly, how daughter languages can share an otherwise rare property which they did not inherit from a common ancestor.

Second, the research tradition stemming from Keenan and Comrie (1977) associates relative specifiers with positions low on the **Accessibility Hierarchy**. Romaine (1980, 1982, 1984) describes the genesis of English dependent *wh*-relatives in just those terms: they were initially confined to low-accessibility functions, and subsequently spread up the hierarchy. This pattern is very common among languages with relative specifiers (Hendery 2012), and may be a diachronic universal.

These findings invite analyses based on two tenets: (1) a near-complementarity between the initial distribution of dependent *wh*-relatives and *that*-relatives, the **primary relativization strategy** in Keenan and Comrie's terms, which suggests that *wh*-relatives emerged to replace the earlier demonstrative series of relativizers in functions which could not be relativized by *that* (Romaine 1982:450); (2) work by Keenan and Hawkins (1987), Hawkins (1995), and Kirby (1996) grounding the Accessibility Hierarchy in processing factors, which suggests that patterns described in the terms of the Accessibility Hierarchy should have explanations in those terms. These functionalist analyses ask “in Language *L* at time *t*, which forms were available for which types of relativizaton?”. This approach leads to a surprising position, where formally distinct elements (such as demonstratives and interrogatives) are considered part of the same system, provided that they do the same job. Accordingly, we find quotes like this:

“distinct [relativization] strategies in [a complementary] relationship are no more different than complementarily distributed allophones. And just as different allophones of a particular phoneme are phonetically similar to

each other, different [relativization] strategies in a given language must be syntactically similar.” (Maxwell 1982:142–3)

In contrast, we pursue a **lexicalist** approach (Kroch 1994): we consider a dynamically evolving population of forms and ask how they were used at a given time. By giving primacy to individual forms and the syntagmatic relations that they enter into, we walk away from the prospect of construing this aspect of language as “un ensemble où tout se tient” (Meillet 1908). Likewise, we cannot construe this change as an instance of Meillet’s “renouvellement formel”. We believe this is for the best, for several reasons.

First, modern generative syntax is lexicalist, almost without exception. In the past 25 years, theorists have converged on a model of syntax with two components: (1) a large amount of lexical items, each consisting of information stored in a particular format, and (2) a limited and probably invariant set of schemata for recursively combining lexical items. Such a description encompasses all flavours of Construction Grammar (Goldberg 1995, Culicover and Jackendoff 2005, Boas and Sag 2012), Categorial Grammar (Steedman 2000), and Dependency Grammar (Tesnière 1959, Hudson 2007), as well as Minimalism (Chomsky 1995). However, it excludes approaches such as the Standard Theory (Chomsky 1965) or the framework of Huddleston and Pullum (2002), in which a larger and in principle open-ended set of bespoke rules for combining syntactic units is specified.

Second, the panchronic typological distribution of dependent relative specifiers can be explained in terms of two components: a general theory of directional change, and a distinctively Indo-European initial state. We claim that this initial state concerns the PIE **k^wi-/k^wo-*forms, used in relative correlative constructions and elsewhere, from which the English *wh*-series, along with cognates in other IE languages, are descended. If this is accurate, a history of this family of lexical items can form part of a theory of the typological distribution of dependent relative specifiers.

Finally, we believe that the facts (at least, the fine-grained details about the development of dependent *wh*-relatives in English) support this approach. In many respects, the development of ME dependent *wh*-relatives out of OE free *hw*-relatives is an unremarkable, gradual syntactic and semantic change, largely explicable in language-internal terms. In contrast, certain details of the genesis of dependent *wh*-relatives do not lend themselves to a purely functional analysis.

In this chapter, we focus on the nonfunctional details of this change. Section 2 summarizes the diachronic typology of relative specifiers. Section 3 discusses work relating this typology to the Accessibility Hierarchy. Section 4 presents new data that suggest that a lexicalist alternative should complement the accessibility-based approach. Finally, Section 5 concludes.

2 Relative specifiers in English and elsewhere

2.1 Definitions

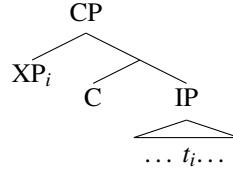
We are concerned with three binary distinctions among relative clauses. First, **dependent relatives** (1a) are clauses adjoined within noun phrases, while **free relatives** (1b)

are clauses with the external distribution of noun phrases (or of certain other categories — see Bresnan and Grimshaw 1978 and discussion below).

- (1) a. I'll have [NP the food [CP that she's having __]]
 b. I'll have [NP [CP what she's having __]]

We assume the structure in (2) for either variety of relative clause.

(2)



Two distinguished positions in (2) are the complementizer position, filled by *that* in (1a), and the [Spec,CP] position, filled by *what* in (1b). Either position can be filled or empty independently of the other, which gives us a 2×2 subclassification of dependent relatives.¹

- (3) The food $\frac{\text{which that}}{\text{that}} \frac{\text{which}}{\emptyset}$ she's having.

Although *the food which that she's having*, with a **doubly-filled comp**, is ungrammatical in Present-Day English, structurally similar examples like (4) are attested in the 14th–15th centuries,² as described by Keyser (1975).

- (4) blisfulness is [NP that thing [CP [for whiche] that [IP alle thise othere thinges ben desired]]] (cmboeth,434.C1.226)

We call elements like *for whiche* **relative specifiers**, and elements like *that* **relative complementizers**. We also talk about **dependent relative specifiers** (relative specifiers in dependent relatives), and so on.

The analysis of *wh*-phrases as specifiers and *that* as a complementizer correctly predicts that *wh*-phrases always precede *that* when they co-occur. That is, examples like (5) are never attested.

- (5) *The food [that which she's having]

Wh-specifiers are also phrasal. (4) contains the *wh*-PP *for whiche*, and examples as elaborate as (6) can be found in Middle English.

- (6) þe þrid degré and maner of leuing... [CP [PP In [NP þe whiche solitari forme and maner of leuyng]] C⁰ [IP þou maist...]] (cmcloud,14.18)

¹For reasons that we only partly understand, free relatives always have a filled specifier and empty complementizer.

²All examples are from the York–Toronto–Helsinki Corpus of Old English Prose (YCOE, Taylor *et al.* 2003) and the Penn–Helsinki Parsed Corpus of Middle English (PPCME, Kroch and Taylor 2000), unless otherwise stated.

Such complexity is no longer possible in Present-Day English relatives. However, we should be reluctant to analyse PDE *wh*-phrases as relative specifiers if none of them were phrasal.

In contrast, complementizers, being heads, are syntactically simple. This lies behind Allen's (1980) observation that *that* (and its Old English predecessor *þe*) never piedpipe prepositions.

- (7) a. the person [that we spoke [to __]]
 b. *the person [[to that] we spoke __]

Furthermore, relative specifiers, being the heads of filler–gap relations, may display **connectivity** effects, whereby their form reflects properties of the gap site. Accordingly, *der* in (8) shows nominative case, as determined by the gap, rather than the accusative case of the containing NP.

- (8) Ich fürchte den Herrn [der __ eine Pistole trägt]
 I fear the.ACC man.ACC who.NOM a gun carries
 “I fear the man who carries a gun” (De Vries 2002:118)

As heads do not undergo phrasal movement, there should be no such connectivity effects with relative complementizers. However, complementizer alternations can still be conditioned by the gap site. For example, French *qui* occurs with subject gaps and *que* with object gaps.

- (9) a. l’ homme [qui __ est venu]
 the man that is come
 “the man that arrived”
 b. l’ homme [que t’ as vu __]
 the man that you have seen
 “the man that you saw”

Following Rizzi (1990), we assume that *qui* and *que* are nevertheless relative complementizers, and the alternation results from agreement rather than connectivity. This distinguishes our relative complementizers from the traditional class of invariant relative particles (as opposed to inflecting relative pronouns). The structure we adopted in (2) makes the specifier–complementizer distinction a more natural one, despite the complications in interpreting alternations like that in (9).

2.2 Typology

Dependent relative specifiers fall into two main classes: demonstrative phrases and phrases built around interrogative pronouns like the *wh*-series. Both are largely Indo-European phenomena.³ A 172-language survey (De Vries 2002) showed that each subtype of dependent relative specifier is very significantly concentrated in IE languages.

³Comrie (1998) claims that they are European, rather than Indo-European phenomena, or that they cluster areally rather than genetically. This is partly true, in that some Finno-Ugric languages also have dependent relative specifiers. However, they are also found in Indo-Aryan languages, so there is clearly a genetic component to their distribution too.

	IE	Other
Spec	27 (67.5%)	7 (5.3%)
Wh	19 (47.5%)	3 (2.3%)
Dem	8 (20%)	4 (3%)
No Spec	13 (32.5%)	125 (94.7%)

Table 1: Dependent relative specifiers in 172 languages (based on De Vries 2002)

However, this does not reflect inheritance from a common ancestor, as it is unlikely that Proto-Indo-European had dependent relatives at all. Based on comparison of attested early IE languages, Clackson (2007) argues that PIE probably had only adjoined relatives, for example in correlative constructions. Adjoined relatives are functionally similar to dependent relatives. Formally, though, they are free relatives (Srivastav 1991). The synchronic typological skew of dependent relative specifiers therefore most likely reflects a recurring process whereby certain types of adjoined relatives are reanalysed as dependent relatives. However, the demonstrative and interrogative forms found in dependent relatives are directly descended from PIE ancestor forms.

2.3 English

Throughout its written history, English has had an invariant dependent relative complementizer, *be* in OE, subsequently *that*. OE *be* always strands prepositions (Allen 1980): there are 826 examples like (10a) in YCOE, but none like (10b). Partly because of this, the relative complementizer typically cooccurs with an NP gap.

Two series of dependent relative specifiers have complemented the relative complementizer over the history of English. In OE, a full system of demonstrative relatives is attested. Allen (1980) shows that these are relative specifiers, in our terms. First, they are phrasal, with obligatory piedpiping of prepositions (11). Second, they show connectivity effects, with the case-marking typically determined by the gap site. For instance, *seo* in (12) is nominative, as mandated by the subject gap in the relative, rather than the accusative case associated with the object position of *arærde*. Third, the specifier precedes the complementizer *ðe*.

- (11) his huse, [[of þam] ðe he __ ut ferde]
 his house of that.DAT that he out went
 "his house, out of which he went" (coaelhom,+AHom_4:44.542)

- (12) Ure Drihten arærde anes ealdormannes dohtar, [seo ðe —
 Our lord raised up a.GEN alderman.GEN daughter that.NOM.F that
 læg dead digellice on his huse]
 lay dead secretly in his house]
 “Our lord raised up an alderman’s daughter, who lay dead in the alderman’s
 house in secret” (coaelhom,+AHom_6:176.960)

Demonstrative relatives mainly disappeared with the collapse of case inflections in Early Middle English. Around the same time, dependent *wh*-relatives started to appear. OE *wh*-phrases had three functions which they shared with their cognates in many early IE languages: they occurred as NPI-like indefinites (13), as interrogative forms (14), and in free relatives (15).

- (13) and gif hwa hyt bletsað, þonne ablinð seo dydrung.
 and if who it blesses then ceases DEM illusion
 “And if anyone blesses it, then the illusion is dispelled” (coaelhom,+AHom_30:4.4082)
- (14) Saga me on hwilcne dæig he gesingode
 Say me on which day he sang
 “Tell me which day he sang on” (coadrian,Ad:2.1.4)
- (15) eal swa hwæt swa ic þe gehet eal ic hit gesette
 all so what so I thee promised all I it appoint
 “Whatever I promised you, I will do it all” (cobllick,LS_20_[AssumptMor[BIHom_13]]:147.155.1807)

Although it is notoriously difficult to pinpoint the emergence of dependent *wh*-relatives, (16) is a convincing early example, from the early 12th century.

- (16) ungewædera [[for hwan] eorðwestmas wurdon __ swiðe amyrde]
 bad.weather for which earth.fruits were very damaged
 “bad weather, which seriously damaged the crops” (cochronE,ChronE_[Plummer]:1110.25.3499)

Because dependent *wh*-relatives emerged as demonstrative relatives disappeared, it is tempting to see the two changes as two halves of a larger, systemic change, as English replaced one set of forms with another. Indeed, Romaine (1982), probably the best-known work on the diachrony of *wh*-relatives, suggests as much. We summarize this work in Section 3. However, we think that such an account is incomplete, and give our reasons for moving beyond it in Section 4.

3 Relative specifiers and noun phrase accessibility

Dependent *wh*-relatives emerged gradually, over several centuries. The first examples have adverbial or oblique gaps, and examples with argument gaps only occur c.200 years later. This is surprising because dependent relatives with argument gaps, once they emerge, are the more common variety.

A cluster of publications relate this to Keenan and Comrie's (1977) **Accessibility Hierarchy**, given in (17).

- (17) SU > DO > IO > OBL > GEN > OCOMP (Keenan and Comrie 1977:66)
(SU: subject; DO: direct object; IO: indirect object; GEN: genitive; OCOMP: object of comparison)

Among the findings related to this hierarchy are the following:

- Relativization on positions higher in the hierarchy is more common than on lower positions;
- If a language can relativize on a given position, it can relativize on any higher position;⁴
- Every language can relativize on subjects (the highest position).
- For any position on the hierarchy, there are languages which relativize on that position, but no lower.
- A language may have multiple relativization strategies, but every strategy covers a convex subset of the hierarchy.

Keenan and Hawkins (1987) claimed that the Accessibility Hierarchy reflects a hierarchy of processing ease, with subject-gap relatives the easiest to process. This means that the typology implied by the Accessibility Hierarchy is an example of **Performance–Grammar Correspondence** (Hawkins 1995): parsing preferences in one language are reified as grammatical constraints in another. Kirby (1996) presents a series of simulations demonstrating that, given a parsing-based hierarchy like the Accessibility Hierarchy, Performance–Grammar Correspondence is predicted to emerge diachronically, as a product of a conflict between tendencies to minimize parsing complexity and morphological complexity in the “trigger experience” on the basis of which a child induces a grammar.

OE *þe*-relatives contained a gap in a high-accessibility position: subject, direct object, or complement of P. Demonstrative relatives were available across the whole hierarchy. When dependent *wh*-relatives first emerge, they always contain a gap in a low-accessibility position (genitive, adverbial, or oblique). That is, early dependent *wh*-relatives constitute a **secondary relativization strategy**, confined to the low end of the accessibility hierarchy, and in complementary distribution with the relative complementizer.⁵

Romaine (1980, 1982, 1984) presents the most fully developed account along these lines, based on a variationist analysis of relatives in Middle Scots texts from c.1530–50. She finds (1982, p.151) that *wh*-relatives in her corpus are heavily concentrated in low-accessibility functions: 75% of restrictive relatives with genitive gaps are *wh*-relatives,

⁴This was subsequently slightly amended, but not in a way which concerns us.

⁵Like much research in this tradition, we do not stick to the letter of Keenan and Comrie's original hierarchy: we ignore the OCOMP role; we collapse the IO and OBL functions; and we include gaps of categories other than NP, in particular PP and adverbial gaps, as this is essential for any complete account of early dependent *wh*-relatives.

compared to only 14% with subject gaps. The figures for nonrestrictive relatives are similar, but with a much higher incidence of *wh*-relatives across the board. Romaine also demonstrates that *wh*-relatives can be used as an index of the syntactic complexity of a text. She therefore comments that the *wh*-strategy enters “into the system ‘by the back door’, since it enters the most complex and least frequently occurring positions in the case hierarchy” (p.152).⁶

Hawkins (1995: 448, fn.8) relates this to the following possible universal (see also Hendery 2012:50): “if a language permits relativization using a [+case] strategy on a high position on AH, it permits it on all lower positions that the language permits relativization on.” A [+case] strategy is one where the filler inflects to reflect information about the gap site; this includes relative specifiers. Hawkins notes that this prediction is borne out by all the languages in Keenan and Comrie’s 49-language sample, except for Tongan. Kirby (1996) explains this pattern in terms of complexity: a [+case] relativizer is more morphologically complex than a [–case] relativizer, but that added complexity can contain information which helps to identify the gap. Such information reduces parsing complexity, and is therefore most useful in low-accessibility positions where parsing complexity is greatest. A parallel analysis was developed by Maxwell (1979) for the fact that resumptive pronouns occur in low-accessibility positions, and Maxwell (1982) demonstrated that this implied that resumptive pronouns could only advance up the hierarchy or retreat down it: no other change is compatible with a processing-based universal that confines them to the bottom of the hierarchy. Kirby showed that the same logic can be applied to any [+case] strategy.

We find all of this compelling. However, as an explanation of the genesis of dependent *wh*-relatives, it is still incomplete. The main reason is that Kirby’s simulations, which ground the above explanations of typological reflexes of the accessibility hierarchy, are models of selection among pre-existing variants. They do not contain an equivalent of mutation, or **actuation**. From a functionalist perspective, dependent *wh*-relatives did not need to emerge: they may have expanded the structural repertoire of English by adding a strategy for relativization on low-accessibility positions, but languages do not need to relativize on low-accessibility positions (see Keenan and Comrie’s claim that only subject-gap relatives are universal).

This problem is also reflected in the typological distribution of relative specifiers, as reported in Table 1. Relative complementizers tend to be examples of Keenan and Comrie’s [–case] relativization strategies, in the same way that relative specifiers tend to be [+case] strategies. [–case] strategies are universally associated with high-accessibility positions, just as [+case] strategies occur with low-accessibility positions. We might therefore ask why this low-accessibility strategy is so heavily concentrated in IE languages. Other languages have other strategies for low-accessibility relativization (for example, resumption, Maxwell 1979), so why do they tend to shun this one?

Matters become worse if we consider the death of demonstrative relatives and the

⁶Romaine describes this as **syntactic diffusion** in the sense of Naro and Lemle (1976), where endogenous syntactic changes begin in low-salency environments, while borrowings occur first in highly salient environments. This appears to constitute indirect evidence that dependent *wh*-relatives are an internal development, rather than a borrowing from Latin or French, as assumed by Mustanoja (1960) and Romaine herself. See also Truswell and Gisborne (2015) for a description of aspects of this change in endogenous terms. However, a full discussion of borrowing is beyond the scope of this chapter.

emergence of dependent *wh*-relatives jointly (a step presumably not taken by Romaine because demonstrative relatives were long gone by the 16th century). Both demonstrative relatives and dependent *wh*-relatives are [+case], and so predicted to be confined to the low end of the Accessibility Hierarchy. Processing-based etiologies of the Accessibility Hierarchy therefore concur that multiple [+case] relativization strategies will compete with each other at the low end of the hierarchy. Diachronically, demonstrative relatives receded down the hierarchy at the same time as dependent *wh*-relatives were climbing up it. In other words, dependent *wh*-relatives first emerged in those environments in which demonstrative relatives persisted longest. It is hard to imagine what functional pressure could motivate the innovation of a new [+case] strategy in such circumstances.

The pattern is messy in places, because of orthogonal facts about the diachrony of inflected demonstratives, but we illustrate it with two clear examples. First, *where-relatives* like (18) are attested from the 14th century.

- (18) be þyestre stedes [huer hi zelleþ hare cloþ __]
 the dark places where they sell their cloth
 “the dark places where they sell their cloth” (cmayenbi,45.751)

However, relatives with *there* survive for at least a century beyond this: (19) is from the mid-15th century.

The emergence of dependent *where*-relatives may well have been delayed by competition between *where* and *there*. However, the fact remains that there *was* competition: the two forms coexisted as dependent relative specifiers, even in individual grammars (there are 17 texts in PPCME containing both *there*-relatives and *where*-relatives).

In contrast, demonstrative relatives with high-accessibility gaps died out before their *wh*-counterparts emerged. Late examples of demonstrative relatives with argument gaps can be found in conservative texts dating from around 1200AD, such as (20). However, even the status of these examples is open to question, as they come from copies or translations of earlier texts. Demonstrative relatives with argument gaps are extremely rare in original texts from this period.

- (20) he is iblesced [be be __ her cumet on drihtenes nome].
 he is blessed that that here comes in lord's name
 "he that comes here in the lord's name is blessed" (cmlambx1,5.30)

Dependent *wh*-relatives with argument gaps are, if anything, even rarer in Early Middle English. Isolated examples occur throughout ME, but they only occur with any regularity from the mid-14th century onwards, for example in Wycliffe's New Testament.

- (21) a very liȝt, [which __ liȝtneth ech man that cometh in to this world]
(cmntest,I,1.19)

A graphical illustration may make this clearer. Figures 1 and 2 plot the rate of occur-

rence of demonstrative and *wh*-relatives over time, as a proportion of all relatives with locative gaps (Fig.1) and argument gaps (Fig.2). In Fig.1, dependent *wh*-relatives with locative gaps are all but nonexistent until 1250–1500, when they abruptly become the majority variant. However, demonstrative relatives with *there* do not disappear at that time. Rather they continue to account for around 20% of the dependent relatives with locative gaps throughout that period, before disappearing.

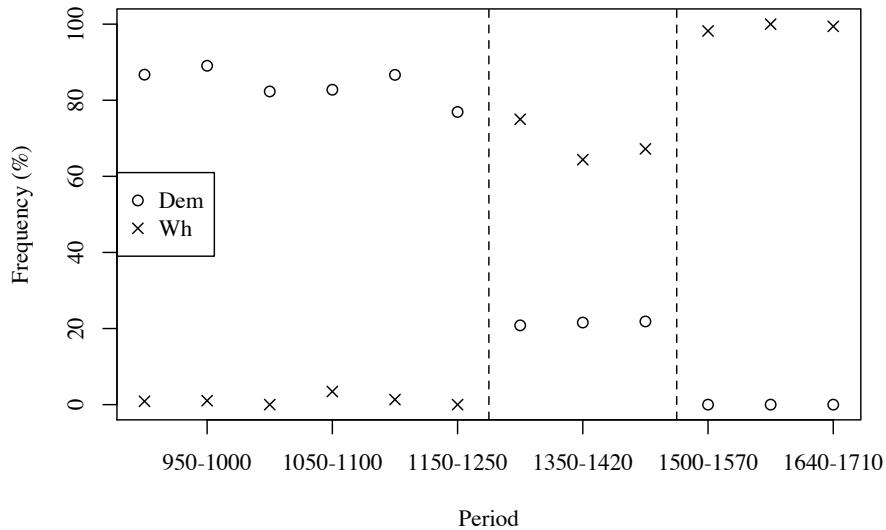


Figure 1: Demonstrative relatives and *wh*-relatives with locative gaps, as a proportion of all relatives with locative gaps, over time

Fig.2 shows that argument *wh*-relatives are all but unattested until 1250, when they start to increase in frequency, roughly following an S-curve. However, demonstrative relatives with argument gaps are long gone by then, disappearing abruptly around 1150. So while Fig.1 shows a 250-year period (1250–1500) where both types of relative specifier cooccur, Fig.2 shows a 100-year period (1150–1250) where *neither* type of relative specifier occurs.⁷

This poses a real challenge to an account of the genesis of *wh*-relatives in terms of their relation to other relativization strategies. In the 13th century, English had a demonstrative strategy for forming relatives with locative adverbial gaps, but not with argument gaps. It developed a second strategy for locative gaps, which also initially did not extend to argument gaps. From a functionalist perspective, dependent *wh*-relatives

⁷The rates of occurrence for the two types of dependent relative at a given time period rarely sum to 100%. This is mainly because of dependent relatives with empty specifiers, such as *that*- or \emptyset -relatives.

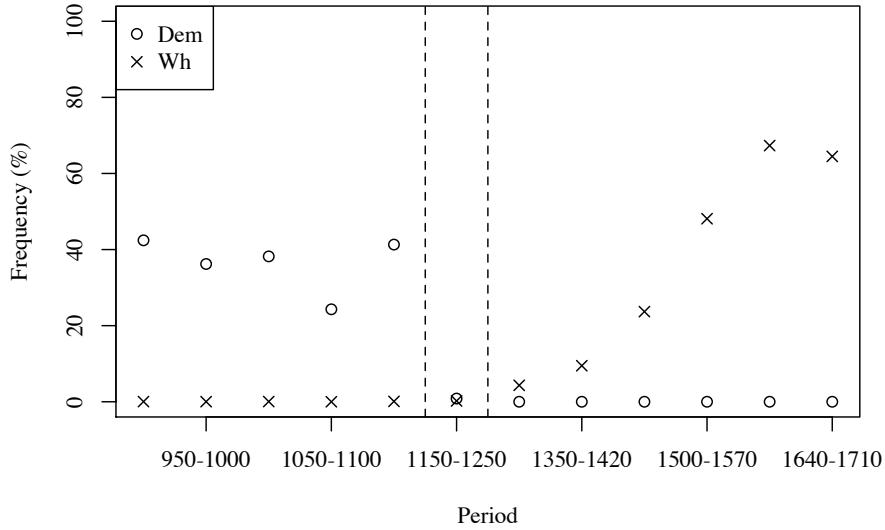


Figure 2: Demonstrative relatives and *wh*-relatives with argument gaps, as a proportion of all relatives with argument gaps, over time

look quite useless.

Moreover, the diachronic treatments of the Accessibility Hierarchy discussed above actually predict this situation: the two [+case] strategies are expected to cover the same portion of the hierarchy. The same would be true for two [–case] strategies, which would be expected to converge on the top of the hierarchy.⁸

This indicates that, although processing-based work on the Accessibility Hierarchy does an admirable job of predicting aspects of the diachrony of English relatives, it cannot account on its own for the actuation of those changes. We therefore explore an alternative, based on diachronic changes in the functions associated with a given form, rather than the forms that realize a given function.

4 Unsystemic change

Truswell and Gisborne (2015) argues that dependent *wh*-relatives emerge in English through reanalysis of clause-final free *wh*-relatives. (22) shows the functional overlap between free and dependent relatives. (22) contains two sentences, the first apparently

⁸This latter prediction appears slightly inaccurate, given the restricted distribution of [–case] zero-relatives with subject gaps in standard PDE.

with a dependent relative *þa byrigeles hwar ic be leigde*, and the second with a free relative *hwar ic hine byrede*. There is only a small semantic difference between the two: the free relative denotes a goal, while the dependent relative denotes a location.

- (22) Pa cwæð ic to him, æteowe me þa byrigèles [hwar ic þe leigde]. Se Then said I to him show me the tomb where I you laid The Hælend me þa beo þære rihthand genam and me ut lædde [hwar ic hine Saviour me then by the right hand took and me out led where I him byrede]
buried
“Then I said to him, ‘Show me the tomb where I laid you’. The Saviour then took me by the right hand and led me out to where I buried him”
(conicodC,Nic_[C]:149.161–2)

Moreover, free relatives can be used in apposition to a preceding NP. In (23), for instance, it is unclear whether the *hwanon*-clause is an extraposed dependent relative or an appositive free relative. In fact, the same applies to the first relative in (22): although we stated above that it appears to be a dependent relative, it could equally well be a free relative in apposition to *ba byrigeles*.

- (23) þæt se ungesewena wulf infær ne gemete, [hwanon he in to Godes
 that the unseen wolf entrance NE find whence he in to God's
 eowde cume & þær ænig scep of abrede]
 herd come.SBJ and there any sheep off snatch
 "that the unseen wolf may not find an entrance from where he might come into
 God's herd and snatch any sheep" (cochdrul,ChrodR_1:11.1.232)

We claim that this is the ambiguous context which permits the emergence of dependent *wh*-relatives through reanalysis.

Two further points strengthen this claim. First, free *wh*-relatives in OE and early ME are not universally interpreted as generalizing, as is often claimed. They admit definite readings, as in (22), and are particularly likely to be interpreted as definite in clause-final position. Although definite free relatives do not have identical denotations to those standardly assumed for dependent relatives, the difference is quite small, and easily bridged. Again, we refer the reader to Truswell and Gisborne (2015) for details.

Second, adverbial *wh*-phrases are unusually common among clause-final definite free *wh*-relatives. These were the first dependent *wh*-relatives to emerge, as discussed in Section 3. This suggests that adverbial *wh*-relatives have distinctive distributional properties which may favour their reanalysis as dependent relatives, without direct reference to the Accessibility Hierarchy.

However, our focus here is on diffusion rather than actuation, or the question of how dependent *wh*-relatives spread, as this is the focus of work based on the Accessibility Hierarchy. We argue that an account in terms of the Accessibility Hierarchy is incomplete in two respects. First, the spread of dependent *wh*-relatives does not progress smoothly up the Accessibility Hierarchy, but rather from lexeme to lexeme, in a manner consistent with the hierarchy but not determined by it. Second, we will suggest (although scarcity of data will hinder us to an extent) that the later spread of

dependent *wh*-relatives mimicked their initial emergence in ways which can only be explained by reference to the ambiguous context described above.

4.1 Spread from form to form

The emergence of dependent *wh*-relatives shows many hallmarks of gradual diffusion. If accessibility were the sole factor conditioning the spread of dependent *wh*-relatives, we may expect the change to spread gradually up the accessibility hierarchy. That, however, is not what we find. Figure 3 tracks the emergence of dependent *wh*-relatives with subject and object gaps. Impressionistically, the two regression curves are very similar.

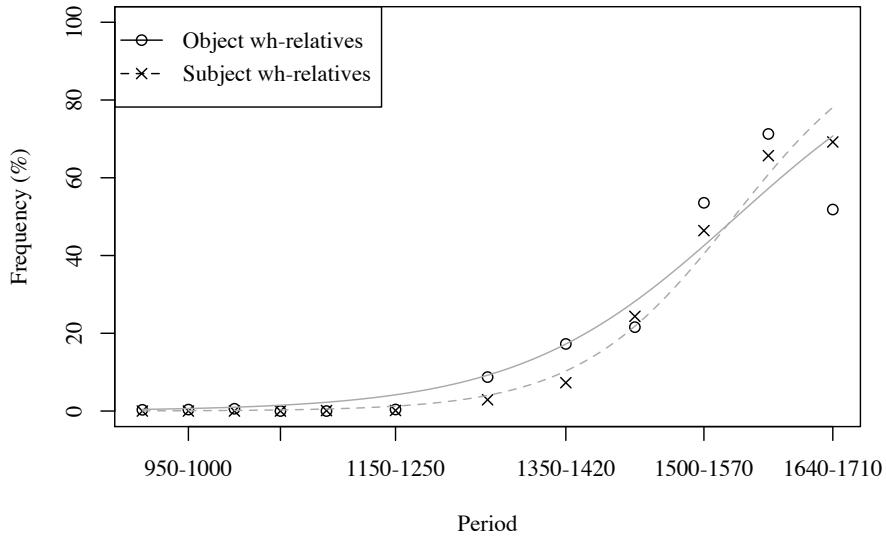


Figure 3: Frequencies of *wh*-relatives with subject and object gaps, as a proportion of all relatives with subject and object gaps, over time

Although there is a slight gap between the two curves around 1250–1420, this should not be taken as indicating that object-gap *wh*-relatives emerged before subject-gap *wh*-relatives. All 17 texts in this period which contain object-gap *wh*-relatives also contain subject-gap *wh*-relatives. The available data therefore suggest that the two constructions emerged simultaneously.⁹

⁹As with much research into Early Middle English, the force of these conclusions is weakened by the lack of corpus data for the period 1250–1350. PPCME contains only three texts from this period: the late

The gradual spread of dependent *wh*-relatives proceeds instead from *wh*-form to *wh*-form. The few very early possible tokens, scattered through OE, are headed by *when* or *where*, like (24).

- (24) & bit [ðære tide, [hwonne he ðæs wierðe sie ðæt he hine
and asked the time when he that.GEN worthy be.SBJ that he him
besuican mote]].
deceive may.SBJ
“and asked when he would be fit to deceive him”(cocura,CP:33.227.10.1487)

In Early ME, dependent *wh*-relatives encompass a range of new prepositional and oblique forms, with a few possessive forms also in evidence. Most texts, for example the Katherine group, use forms such as *þurh hwam* “through which” with a range of prepositions (25), although some texts use forms such as *hwer þurch* “wherethrough”.

- (25) þer nis buten [an godd [þurh hwam witerliche ha alle weren
there NEG.is but one god through which truly they all were
iwrahte]]
created
“There is only one god, through whom, truly, they were all created”
(cmkathe,22.56)

Around the middle of the 14th century, relatives headed by (*the*) *which* emerge. This looks like a gradual case of lexical diffusion. From an accessibility perspective, though, it is quite a dramatic leap, as dependent *wh*-relatives, previously confined to low-accessibility functions, abruptly become available throughout the hierarchy.

- (26) a. our Lord, [þe which makeþ sauf þe ryȝtful of heret]
our lord, the which makes saved the pious of heart
“our lord, who saves the pious of heart” (cmealps,7.241)
b. þe folk þat shal ben borne, [which our Lord made]
the people that shall be born which our lord made
“the people that shall be born, which our Lord made”(cmealps,25.1031)

However, as has frequently been observed, not all argument relativizers emerged at the same time. *Whom*-relatives with object gaps (27) are first attested around 50 years after *which*-relatives, particularly in the Wycliffite Bible. Last to emerge were subject-gap relatives with *who*, first attested in the late 15th century (28).

- (27) [he [whom God hath sent]], spekith the wordis of God (cmntest,III,20.234)
(28) seke euery man vpon his feblest and wekest / [who otherwyse wylle now
haunte and vse the world] (cmreynar,61.687)

13th-century *Kentish Sermons*, and the early–mid 14th century *Ayenbite of Inwyt* and *Earliest English Prose Psalter*. The former contains no *wh*-relatives of either variety; both constructions are found in the latter, and in almost all later texts. Strictly speaking, then, the corpus data only show that any delay in the introduction of subject-gap dependent *wh*-relatives in comparison to object-gap dependent *wh*-relatives is very short, on the order of a few decades.

The spread from *whom* to *who* follows the Accessibility Hierarchy, of course, but only at a time when dependent *wh*-relatives with other relativizers had already generalized across the hierarchy.

In other words, although every development we observe is compatible with established accessibility-based generalizations, those generalizations do not yield a complete account of the spread. The diffusion of dependent *wh*-relatives from lexeme to lexeme is gradual, while the spread up the hierarchy is quite abrupt. Moreover, the one clear example of a gradual spread up the hierarchy (the fact that object-gap *whom* precedes subject-gap *who* by over a century) occurs at a time when *wh*-relatives are already available throughout the hierarchy. To account for it in Maxwell's (1982) terms, we would need to define *who(m)* as a distinct relativization strategy from (*the*) *which*. This would approximate a lexeme-by-lexeme account of the spread.

4.2 Transmission and the reanalysis context

Further evidence for the lexeme-by-lexeme nature of the spread comes from the position of the relative in the host clause. We discuss this below, but with some reservations due to the scarcity of corpus data from the crucial time periods.

We begin by giving a working definition of *final*. Many early English sentences come in two loosely related parts, with left-peripheral material such as clauses, NPs, or PPs prosodically isolated from the following host clause, as in (29).

- (29) [þe stille nicht [hwenne me ne seið nawicht þt lette þe bone]]. þe
the silent night when man NEG sees nothing that hinders the prayer the
heorte is ofte se schir
heart is often so bright
“On a silent night when one sees nothing that hinders prayer, the heart often
shines so brightly”
(cmancrw-1,II.115.1446)

We consider a constituent to be final if it is string-final within either the left-peripheral material or the host, or if it is followed within either constituent by any combination of adverbials, parentheticals, conjuncts, and extraposed constituents. According to this characterization, the relative in (29) is final, because it is final within the left-peripheral material.

The most obvious, but not the only, place where nonfinal material can be found is in any preverbal argument, or between such an argument and the verb. The relative in (30) is nonfinal, for example.

- (30) [þe eareste Pilunge [hwer of al þis uuel is]] nis buten of prude.
the first stripping where of all this evil is NEG.is but of pride
“The first stripping, from where all this evil comes, is nothing but pride”
(cmancrw-1,II.119.1506)

The few dependent *wh*-relatives in English texts up to the *Peterborough Chronicle* are final, in this sense. This is expected, as the context of reanalysis identified above gives final position a special status. The four earliest nonfinal examples in the corpus, including (30), come from the early 13th century, roughly a century later.

This pattern repeats itself with argument-gap *wh*-relatives. The earliest texts with any number of argument-gap *wh*-relatives are the mid-14th century *Earliest English Prose Psalter* and *Ayenbite of Inwyd*, which have over 50 tokens between them. All but one are clause-final, and nonfinal argument-gap relatives only occur with any regularity in the Wycliffite Bible, a generation later.

If this is accurate, it suggests that argument-gap *wh*-relatives enter English through a reanalysis parallel to that which introduced adverb-gap dependent *wh*-relatives. Again, this would suggest that a description of the change in terms of spread up the Accessibility Hierarchy would be incomplete — after all, why would argument-gap *wh*-relatives be confined to final positions if they are just an extension of adverb-gap dependent *wh*-relatives, which at that time were no longer confined in that way?

However, we stress that this conclusion remains fragile until confronted with further data. PPCME contains little material from the 12th and 13th century, and often there are substantial temporal and dialectal discontinuities between texts. More data is required to strengthen this argument.

5 Conclusion

We have argued for quite a subtle take on the Accessibility Hierarchy. Every change discussed here is compatible with the diachronic work on the hierarchy from Maxwell (1982) to Kirby (1996). Romaine’s (1982) initial glimpse of an accessibility-based account of the development of dependent *wh*-relatives is confirmed when confronted with an expanded dataset and a broader empirical context. This is particularly striking because the changes are counterfunctional in places: there is a global noncomplementarity in the distribution of the two series of relativizers, in that demonstrative relatives disappear last where *wh*-relatives appear first, and *vice versa*. This noncomplementarity arises from local functional considerations: demonstrative and interrogative forms are both [+case], and [+case] strategies are confined to the bottom of the hierarchy for functional reasons. To our knowledge, competition between two [+case] strategies has not previously been examined in detail. The fact that independently established generalizations predict such a counterintuitive pattern is a triumph for the above work.

At the same time, the explanations grounded in the Accessibility Hierarchy are incomplete. In particular, they have nothing to say about actuation, and they do not capture the fact that the spread of dependent *wh*-relatives proceeds from lexeme to lexeme. These are not accidental gaps: previous diachronic work on the Accessibility Hierarchy has focused to a very large extent on the dynamic interactions of multiple strategies, and has blurred or obliterated internal differences among exemplars of those strategies, except insofar as those differences reflect different positions on the hierarchy.

However, we believe that we can discern the outlines of an analysis that preserves the best of the accessibility-based research, within an integrative lexicalist approach. The key lies in a very simple answer to the titular question of this chapter, “Where do relative specifiers come from?”. The answer is that the forms were there all along, being used in other ways. The genesis of dependent *wh*-relatives is not just the association of an established function (relativization) with a new set of forms; it is also the association of an established set of forms with a new function. Much the same is

true from a more fine-grained perspective: the genesis of dependent *which*-relatives involves associating an established form with a function which it did not previously have.¹⁰

A learner who has figured out that his target language contains a form such as *where* has arguably done the easy bit. Next, he must associate the form with some specification of how it figures compositionally in syntactic and semantic structures. Clearly, a form may be specified in such a way that it can appear in interrogatives, restricted indefinites, and free relatives, as with most OE *wh*-forms. Equally, a form may be specified in such a way that it can appear in all of the above, and also in dependent relatives. These two potential specifications of the syntactic and semantic behaviour of a form are in competition as the learner induces his grammar. The competition is orthogonal to the competition generally taken to explain gradual grammatical change (Kroch 1989, 1994), in that it concerns competing specifications of a given form, rather than competing realizations of a given function. As emphasized above, though, these are two complementary ways of construing the same opposition.

Any single instance of spread of dependent *wh*-relatives can be conceptualized in these terms: the learner chooses a less restrictive specification of the environments in which the form in question can occur. However, this leaves a further question: why do these individual changes occur in an order specified by the Accessibility Hierarchy?

Our proposal relies again on competition, and on certain biases affecting the outcome of competition. Keenan and Comrie (1977) state that every language has a primary relativization strategy that relativizes functions high on the accessibility hierarchy. In Early Middle English, this strategy used the complementizer *þe*, with an NP gap. This primary strategy then acts as a brake on the emergence of other strategies for relativizing high-accessibility positions, because of the preference for a 1-to-1 association between forms and functions (Slobin 1985, Clark 1988, Markman and Wachtel 1988). In Early Middle English, after demonstrative relatives have mainly disappeared, there is no other widely attested strategy, and so no comparable brake on strategies for relativizing low-accessibility positions. This means that there is no hindrance to re-analysis of clause-final free relatives as dependent relatives in these cases.

Once dependent *wh*-relatives with nonargument gaps are established, they may spread with the help of whichever biases underpin analogical extension, a topic which has been investigated in some depth with respect to phonological and morphological acquisition (Hare and Elman 1995, Gildea and Jurafsky 1996, Albright and Hayes 2003, Albright 2009), but should be equally relevant to syntax as conceived of here. The intuition is as follows: initially, certain *wh*-forms can appear in dependent relatives, but *wh*-forms are conceived of as a natural class because they tend to behave in similar ways. An expectation that *wh*-forms behave in similar ways could facilitate the spread of dependent relatives to new *wh*-forms.

An account along these lines may have a hope of explaining the typological distribution of dependent relative specifiers. As noted above, the use of interrogative forms in dependent relatives is a largely Indo-European phenomenon. This makes little sense in purely accessibility-based terms: all languages have interrogative forms, so why do

¹⁰Sometimes, the form, the function, or both can be absolutely new to the language. When *hwer þurch* was first used as a relativizer in Early Middle English, the form was previously unattested and there was no established way of constructing such relatives. We hope to return to this in future research.

only IE languages use them in this way? One possibility is as follows: the early English use of *wh*-forms in clause-final free relatives creates an ambiguous context which allows dependent *wh*-relatives to emerge through reanalysis. Cognates of the *wh*-forms (descended from PIE **kʷi-/kʷo-*) are widespread among IE languages, with similar distributions, so it would be unsurprising if such an ambiguous context were to recur across IE. More broadly, if there is something distinctive about **kʷi-/kʷo-* which tends to be conserved in daughter languages, we can hope to build an account of the distribution of dependent relatives with interrogative specifiers on that distinctive property. Such an account would surely once again be phrased in terms of competition among possible analyses of the forms in question, as it is the forms, not the functions, that are distinctively Indo-European.

There is a lot to do, then: diachronic typological work to establish how well the story sketched for English generalizes, modelling work to determine whether the biases identified above really do interact as described here, and regular diachronic linguistic work to fill in the gaps in the chronology and in the formal syntactic account thereof. We hope to address at least some of this in future research. This chapter has offered a starting point: it has emphasized the need for a lexicalist theory of syntactic change to complement the functionalist concerns underpinning most work on the Accessibility Hierarchy, and sketched a way in which patterns compatible with work on the hierarchy can emerge from a lexicalist approach to syntactic change.

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