Parallel evolution of Indo-European relative clauses

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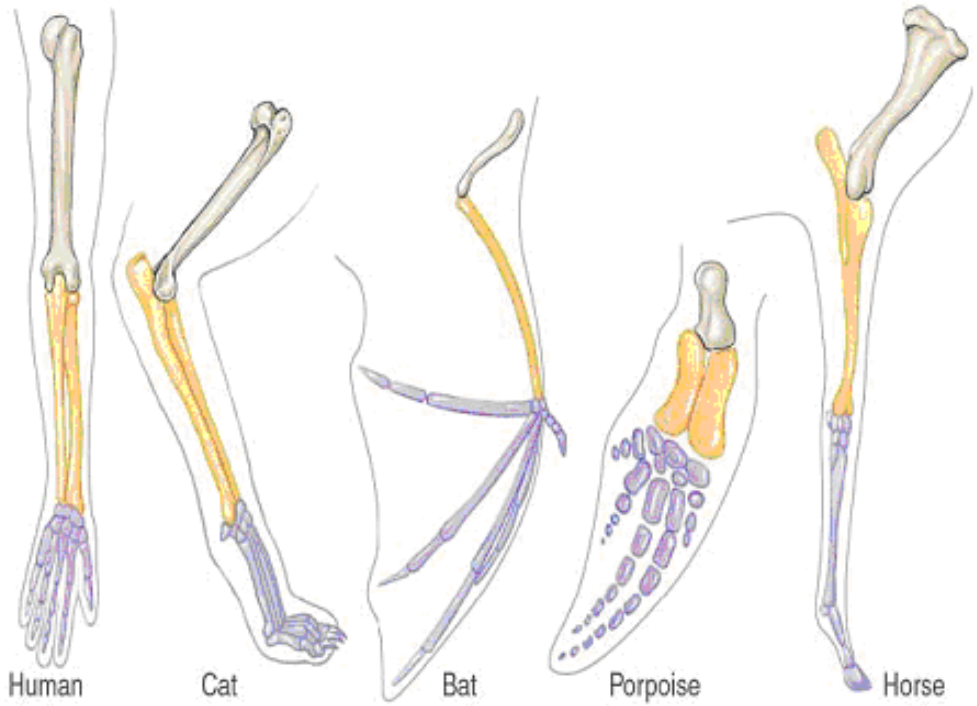
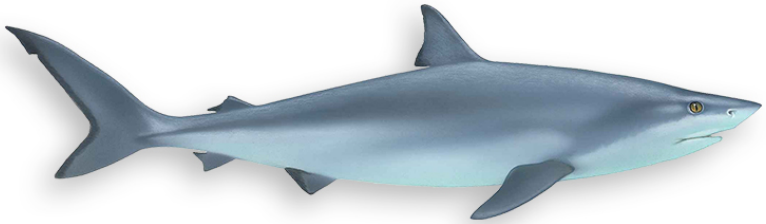
Divergent evolution



English	Latin	Sanskrit	Old Irish
mother	māter	mātár	māthir
father	pater	pitár	athir
brother	frāter	bhrátar	brāth(a)ir

Convergent evolution



Shark (fish)

Dolphin (mammal)

Ichthyosaur (reptile)

	head	**reflexive**
Fulfulde (Niger-Congo)	hōre	hōre māko
Hausa (Chadic)	kaì	kânsù
Basque (isolate)	buru	bere burua

(Heine & Kuteva 2002)

Parallel evolution

- Daughter languages contain cognate forms.
- The same new function is found repeatedly in the daughter languages.
- There is no obvious reason for this new function to develop repeatedly.
- The form–function relation is less common in genetically unrelated languages.
- (See Blevins 2004 for a quite different discussion of parallel linguistic evolution).

This talk (part 1)

An example of parallel syntactic evolution

1. Syntax: Basic varieties of relative clauses.
2. Typology: Headed relatives are crosslinguistically quite common, but syntactic structures like English headed *wh*-relatives (call them headed relative specifiers) are largely confined to Indo-European.
3. Diachrony: Proto-Indo-European did not have headed relative specifiers, so modern IE languages did not inherit their headed relative specifiers directly from their common ancestor.
4. Conclusion: Headed relative specifiers are an example of parallel evolution.

Why this is interesting

- Regular cognates could just show that linguistic evolution is conservative.
- Recognizable cognates would arise if the form of lexical items can be modified any which way, but change is sufficiently slow and time depths are sufficiently shallow.
- Parallel linguistic evolution shows that change is not random at the population level (see also grammaticalization, Heine & Kuteva 2002; cyclical change, van Gelderen 2011).
- Change in the same direction occurs repeatedly, and not always with obvious functional motivation.

So what drives parallel syntactic evolution?

- Syntactic change is largely driven by reanalysis during language acquisition.
- If the same syntactic change happens repeatedly without functional motivation, it suggests that learners are biased towards analysing potentially ambiguous inputs in particular ways.
- Parallel evolution is therefore a new source of information about acquisition biases.

This talk (part 2)

A case study, and what we can learn from it

5. Case study: The development of Middle English headed *wh*-relatives from Old English free *wh*-relatives.
6. Prospects for explanation: Relating the case study to testable claims about biased acquisition.

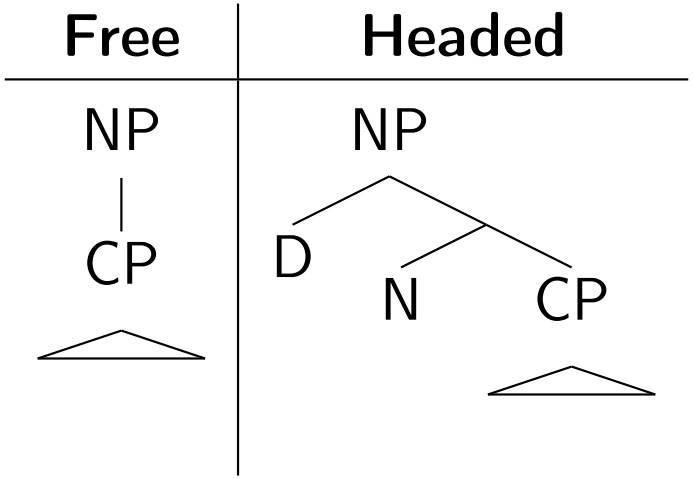
Section 1

Syntax

Free vs. headed relatives

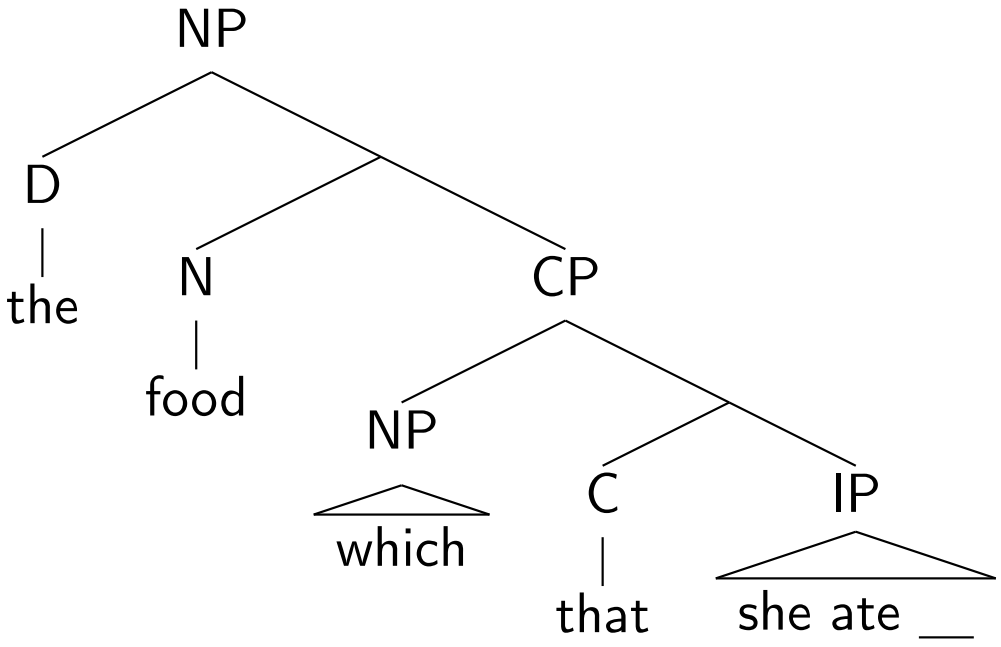
(1) a. Free relative: I'll have [what she's having]
b. Headed relative: I'll have [the thing [that she's having]]

- A free relative is a CP with the external distribution of an NP.
- A headed relative is a CP that modifies a noun.



Relative specifiers vs. relative complementizers

- The relative CP could have a filled [Spec,CP] (a relative specifier), a filled C^0 (a relative complementizer), both or neither.
- This applies equally to headed or free relatives.



The food	∅	which	she ate.
	that	which that	

Properties of relative specifiers

1. Relative specifiers are phrasal:

   (2) a. The kid [whose sister __ threw eggs at you]
   b. The shield [under which you hid __]

2. Relative specifiers often exhibit connectivity (properties of relative specifiers are determined by the location of the gap).

   (3) Ich fürchte den Herrn [der ____ eine Pistole
   I fear the.ACC man.ACC who.NOM a gun
   trägt]
   carries
   "I fear the man who carries a gun" (De Vries 2002:118)

NB: Relative specifiers are a proper subset of the traditional class of relative pronouns: some relative pronouns (in e.g. Arabic) are monomorphemic, and so plausibly not specifiers.

Properties of relative complementizers

1. Relative complementizers are monomorphemic.

(4) a. *The kid [that's sister __ threw eggs at me]
b. (i) The shield [that I hid under __]
(ii) *The shield [under that I hid __]

2. Relative complementizers are often invariant (no connectivity).

(5) a. The shield [that __ saved me]
b. The shield [that I cowered under __]

NB: Relative complementizers are a proper superset of the traditional class of relative particles — see previous slide.

Section 2

Typology

Crosslinguistic distribution of headed relative specifiers

	I-E	Other
Rel spec	27	7
No rel spec	13	125

Table 1 : Headed relative specifiers in 172 languages from meta-analysis of typological literature in De Vries (2002).

- Criteria:
  - Postnominal (headed) relative;
  - Leaves a gap (no resumption);
  - Relativizer meets above definition of relative specifiers.
- Although the distribution is partly areal (concentrated in European languages, Comrie 1998), it is also partly genetic (still found in Indo-Aryan languages).

Section 3

Diachrony

No headed relative specifiers in Proto-Indo-European

Brief summary of Clackson (2007)

- Relative clauses in early Latin, Vedic Sanskrit, and Hittite (and so presumably PIE) were adjoined, not embedded (Kiparsky 1995) — syntactically similar to free relatives.
- One type of early IE relative clause (common in Hittite and Latin) is marked by *k^wi-/k^wo-, typically left-adjoined, and typically restrictive (generalizing?).
- Another (common in Homeric Greek) is marked by *yo-, typically right-adjoined, and typically non-restrictive.
- So although PIE probably had relative specifiers in free relatives, it probably didn't have headed relatives in the modern IE sense.

Free *k^w*i-/k^w*o-relatives

- These will be particularly important later.

(6) [nu tarhzi kuis dan pedass=a kuis]
CONN wins who-NOM second place=and who-NOM
[nu=smas II TUG^{HIA} ERÍN^{MES} [p]ianzi]
CONN=them-OBL 2 uniforms they-give
"Whoever wins and whoever gets second place, to them they give two uniforms" (Hittite)

(7) sa [yo na ujjeṣyati] [tasya idam
CONN who-NOM us-GEN will-win, his this-NOM
bhaviṣyati]
will-be
"Whoever of us will win, this will be his" (Sanskrit, both Clackson 2007:174)

Section 4

Parallel evolution

Headed relative specifiers evolved repeatedly in IE

- Most modern IE languages have headed relative specifiers, but they didn't inherit them directly from PIE.
- They weren't always borrowed (their distribution is partly genetically determined).
- So they evolved in parallel in multiple IE languages.
  - Documented in Latin, English, Indo-Aryan, colloquial German, . . . , reconstructible in early Germanic.
- The parallel evolution probably isn't functionally driven — otherwise, why would it be largely restricted to a particular family?
- This is therefore a particularly promising area for learning about biases in syntactic acquisition.

The project

- We want to establish a series of diachronic accounts of the emergence of headed relative specifiers.
- We want those accounts to help explain their uneven typological distribution.
- Ideally, we will reduce the typological distribution to just two ingredients:
  1. Syntactic properties of early IE;
  2. A plausible model of the role of language acquisition in language change.
- Today: A case study (the emergence of English headed *wh*-relatives) and a few preliminary remarks about how to explain the case study.

Section 5

Case study

Old English headed relatives

- OE could form headed relatives in $2 \times 2 = 4$ ways:
  - With or without a relative complementizer *ðe*
  - With or without an inflected demonstrative phrase as relative specifier (e.g. Allen 1980).

(8) a. he is ure lif [on þam we lybbað & styriað __]
he is our life in DEM we live and move
"He is our life, in whom we live and move"

b. ic [ðe __ to eow sprece]
I that to you speak
"I, that speaks to you" (both Ælfric homilies)

Wh-phrases in Old English

- OE *hw*-phrases (descended from PIE $k^w i$-/$k^w o$-) had three uses:
  1. Indefinites (NPIs?)

     (9) 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"
  2. Interrogative forms

     (10) Saga me on hwilcne dæig he gesingode
     Say me on which day he sang
     "Tell me which day he sang on"
  3. In free relatives

     (11) [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"

OE precursors of headed *wh*-relatives

- Often assumed that headed *wh*-relatives developed from embedded interrogatives.
- I'll argue that free *wh*-relatives are a more likely source.
- Just like PIE *k^wi-/k^wo-*, OE free *wh*-relatives typically occur clause-initially, in correlative constructions with a generalizing interpretation.

Initial	Medial	Final
55%	6%	39%

Table 2 : Position of *wh*-relatives in the clause, YCOE/PPCME to 1350AD

- We're going to be more interested in the 39% of clause-final cases, because this is where headed *wh*-relatives initially appear.

Clausal position of headed *wh*-relatives

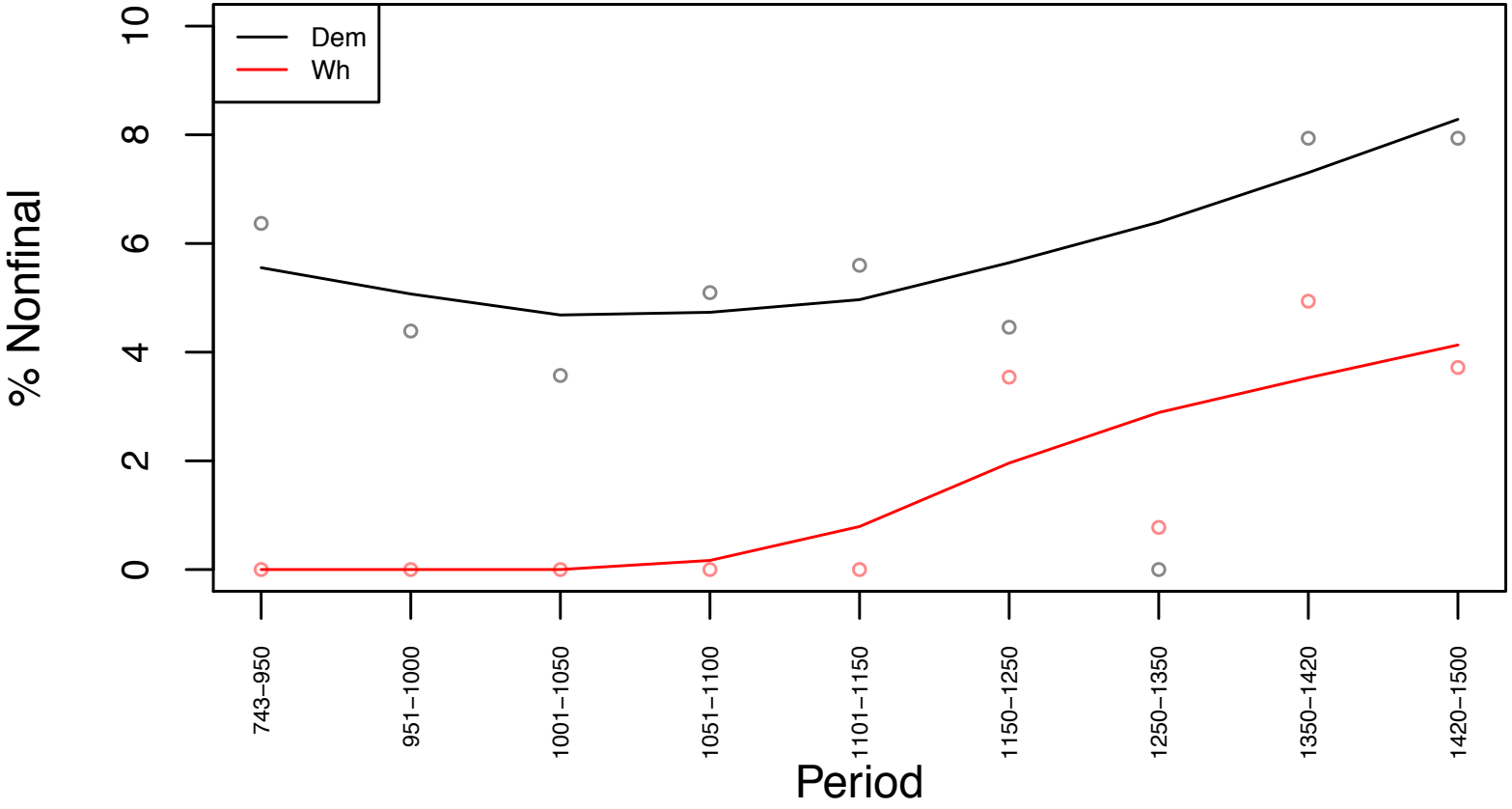


Figure 1 : Nonfinal postnominal relatives by period

More on clause-final free *wh*-relatives

- In fact, the preference for initial position only holds of argumental free *wh*-relatives.
- Adverbial free *wh*-relatives are equally likely to occur clause-finally.

	Nonfinal	Final
Argument	68%	32%
Adverbial	47%	53%

Table 3 : Clause-final free *wh*-relatives and the argument–adjunct distinction, YCOE/PPCME to 1350AD

- This is significant because early headed *wh*-relatives almost exclusively had adverbial or oblique gaps (Romaine 1982).
- Headed *wh*-relatives with argumental gaps only followed > 100 years later.

Headed *wh*-relatives and gap position

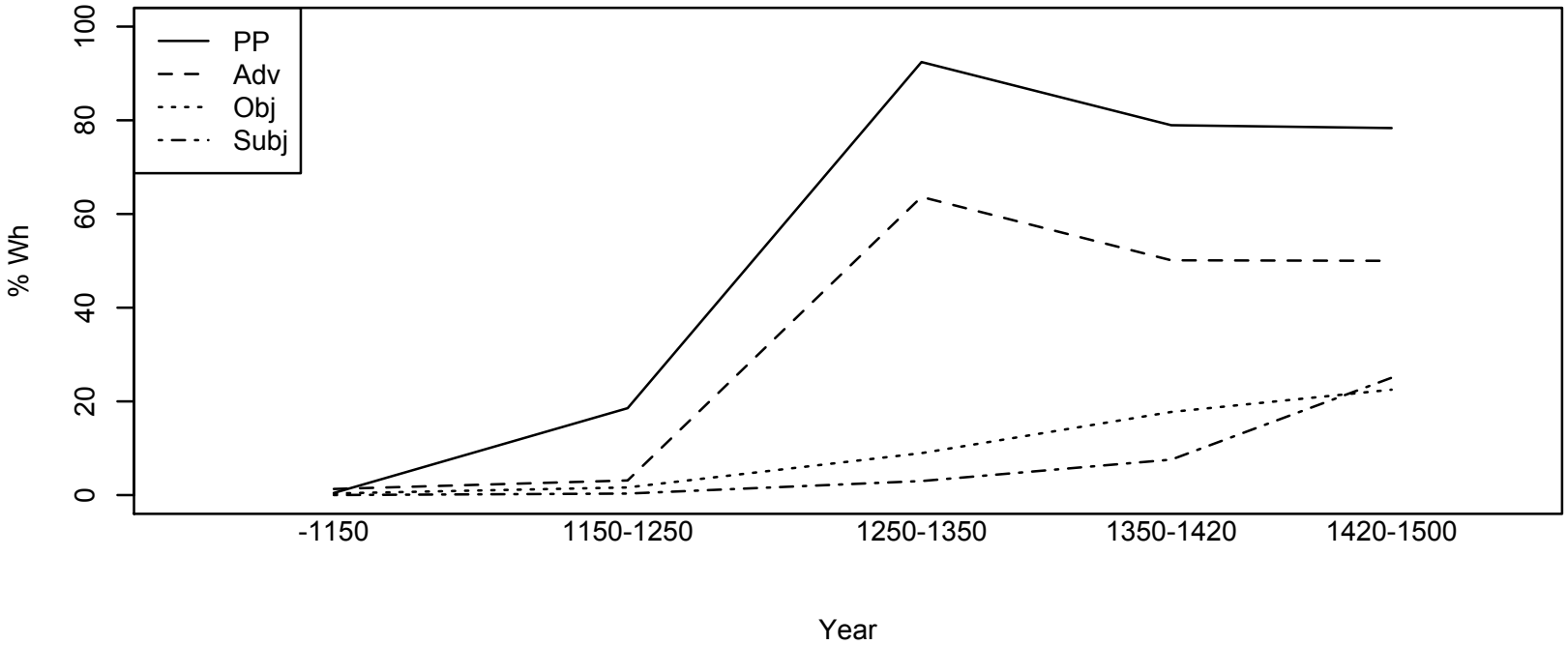


Figure 2 : Frequency of headed *wh*-relatives by grammatical function in Middle English

Typical clause-final adverbial free *wh*-relatives

(12) And seo burhwaru cepte [hwænne he ut come]
and the citizens observed when he out came.SBJ
"And the citizens watched out for when he came out."

(13) and þæt leoht geswutelode [swa hwær swa hi lagon].
and the light showed so where so they lay
"and the light showed where they lay" (both Ælfric, *Lives of Saints*)

Typical early headed *wh*-relatives

(14) þi steuene is me swete & þi wlite
your voice is me.DAT sweet and your appearance
schene. [hwarfore he seið uox tua dulcis. . .]
fair. Wherefore he says
"Your voice is sweet to me, and your appearance fair.
Wherefore he says (+ Latin)" (*Ancrene Riwle*)

(15) Ðis is sunfulla monna leddre [þurh hwam ure drihtan
This is sinful man's ladder through which our Lord
teh to him al moncun].
draws to him all mankind
"This is the sinful man's ladder, through which our Lord
draws all mankind to him." (*Lambeth homilies*)

Interpretation of clause-final adverbial free *wh*-relatives

- (12)–(13) show definite interpretations of free *wh*-relatives ($\neq$ *whenever he came out, wherever they lay*).
- This contrasts with the typically generalizing interpretation of clause-initial free *wh*-relatives, and shows some semantic overlap with headed *wh*-relatives.

(16) Þa cwæð ic to him, æteowe me [þa byrigeles [hwar ic þe leigde]].
Then said I to him show me the tomb where I you laid
"Then I said to him, 'Show me the tomb where I laid you'."

Se Hælend me þa beo þære rihthand genam and me
The Saviour me then by the right hand took and me
ut lædde [hwar ic hine byrede]
out led where I him buried
"The Saviour then took me by the right hand and led me out to where I buried him" (*Gospel of Nicodemus*)

Summary

- Free *wh*-relatives overlap distributionally with headed *wh*-relatives in clause-final position.
  - The syntactic similarity is even greater in occasional appositive uses of free relatives, not covered here.
  - Early headed *wh*-relatives were plausibly syntactically distinct from modern *wh*-relatives: they were typically clause-final, which means they may not have formed a syntactic unit with their antecedents.
- They also overlap semantically with headed *wh*-relatives, and that overlap is clearest in clause-final position (see also Gisborne & Truswell 2013).
- Adverbial free relatives are particularly common in clause-final position; adverbial headed *wh*-relatives were the first to appear.
- Surely this is where headed *wh*-relatives came from.

Section 6

Prospects for explanation

Virtues of the present approach

- This analysis connects ME headed *wh*-relatives directly to PIE $*k^w i$-/$k^w o$-forms.
- It suggests that headed relatives can develop from descendents of $*k^w i$-/$k^w o$-forms through only small syntactic and semantic changes.
- So this case study of English relatives is compatible with an analysis meeting our desiderata: a plausible theory of PIE syntax + plausible grammatical changes can yield a plausible account of the genesis of English headed *wh*-relatives.

Next steps

Generality of the analysis

- Core ingredients of the ME analysis:
  - PIE *k^w*i-/k^w*o-forms → OE *hw*-forms.
  - Distribution and interpretation of OE free *wh*-relatives.
  - Distribution and interpretation of ME headed *wh*-relatives
- Interrogative forms like *wh-* are one major source of headed relative specifiers (Hendery 2012 — demonstratives are the other).
- Can the analysis of ME be transferred to other languages where the equivalent of *wh-* is used in headed relative specifiers (e.g. Classical Latin, Georgian)?
- Can it cast any light on why other languages with the equivalent of *wh-* in free relatives *don't* subsequently develop headed *wh*-relatives (e.g. Standard German, Mandarin)?
- What is the parallel story for demonstrative relative specifiers (see e.g. Hock 1991)?

Why *these* next steps?

- In its own right, this analysis is "just" diachronic syntax.
- Small, random reanalyses could drive change in the English relative system alone.
- But the repeated development of *k^wi-/k^wo-* into headed relative specifiers forces us to adopt a more universal perspective.
- A fairly concrete analysis of the English change is a good source of fairly concrete hypotheses about the parallel evolution of headed *wh*-relatives in IE. For example:
  - Headed *wh*-relatives typically emerge low on the Accessibility Hierarchy, then spread upwards (Hendery 2012).
  - Are free relatives typically a more plausible source than interrogatives?
  - Do headed *wh*-relatives typically emerge in clause-final position?
  - Are clause-final headed free relatives more likely to be adverbial?

Parallel evolution and the acquisition of syntax

- Because of the typological perspective, it is unhelpful to treat the reanalyses taking us from PIE to OE to ME as *sui generis* random mutations.
- If reflexes of PIE *k^wi-/k^wo-* develop repeatedly into headed relatives, and if there is no clear functional motivation for the change, then learners must be biased towards such reanalyses.
- The final goal of this project is to recast crosslinguistically robust descriptions of the genesis of headed relative specifiers, in terms of acquisition biases.
- Two candidates:
  1. Mutual exclusivity/principle of contrast (e.g. Markman & Wachtel 1988): don't associate *wh-* with the same function as *that*.
  2. Simplicity/uniformity: prefer grammars where headed *wh*-relatives are generally possible over grammars where they are idiosyncratically restricted to *wherefore*, *by whom*, etc.

Conclusion

- Parallel evolution cannot be a thing, except in a superficial way.
- How a form develops next can only depend directly on its synchronic properties, not on its lineage.
- Apparent cases of parallel evolution must therefore reduce to:
  - Biased acquisition...
  - ... driving nonrandom change...
  - ... in an environment partly characterized by conserved features of ancestral languages.

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