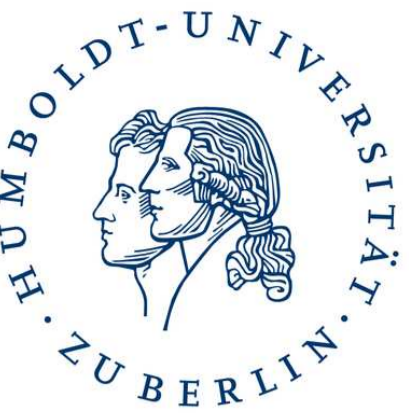


# On wh-questions, wh-relatives, and their kin

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GLOW 41 • Budapest • April 11–13, 2018



## TYPOLOGICAL GENERALIZATIONS: WHAT THERE IS TO EXPLAIN

There are a number of robust typological generalizations that have gone almost unnoticed:

- G1 Ban on wh-in-situ in relatives** de Vries 05, Comrie 06, Demirok 17a, etc.
  - a. There are no wh-in-situ free or restrictive headed relatives.
  - b. No wh-in-situ language has wh-based free or restrictive headed relatives.
- G2 Wh-in-situ correlatives** Liu 16, Demirok 17b, a.o.

Wh-in-situ correlatives (incl. unconditionals, wh-conditionals) exist (e.g.: Chinese, Hindi, Turkish).
- G3 Generalized Caponigro's generalization** Caponigro 03, Chierchia & Caponigro 13, etc.

The set of interrogative wh-words is always a superset of the set of non-interrogative wh-words.
- G4 Wh-morphology**
  - a. Interrogative wh-words can be the morphological base for relative wh-words; not conversely.
  - b. Correlatives typically use relative wh-morphology, but interrogative wh-morphology is not completely ruled out (e.g.: Hungarian).
- G5 Availability of wh-based constructions** (tentative, under investigation)
  - a. If a language has wh-based headed relatives, it has wh-based free relatives.
  - b. If a language has wh-based relatives, it has wh-based correlatives/unconditionals.
  - c. (All languages have constituent questions  $\approx$  wh-based interrogatives.)

Morphosyntactic and paradigmatic properties clearly point to the **primacy of wh-questions** and the **derived nature of wh-relatives** (with wh-correlatives being ambivalent between the two)  $\rightarrow$  *this should be reflected in the semantics, too.*

	WH-QUESTION basic	WH-CORRELATIVES intermediate	WH-RELATIVES derived
<b>syntax</b>	wh-in-situ / wh-ex-situ	wh-in-situ / wh-ex-situ	wh-ex-situ
<b>morphology</b>	interrogative	interrogative / relative	relative
<b>paradigm</b>	all wh-words	limited	limited
<b>semantics</b>	proposition	proposition / property	property

## TOWARDS A SEMANTIC PROPOSAL

**Leading idea:** No unified analysis of wh-clauses

- Wh-questions  $\approx$  (sets of) propositions vs. Wh-relatives  $\approx$  properties.
- Wh-relatives should be *derived from* wh-questions and should necessarily involve wh-movement.

### Option 1 Extrapolation of Berman 91

Question	wh-word $\rightsquigarrow$ free variable	Berman 91 by function application
	question $\rightsquigarrow$ open proposition	
Relative	wh-word $\rightsquigarrow$ lambda	Heim & Kratzer 98 by lambda-abstraction: <b>ex situ</b>
	relative $\rightsquigarrow$ property	

(1) a. **Question** by variable assignment + function application  
[[what<sub>t<sub>1</sub></sub> happened]]<sup>g</sup> = INANIM(g(1))  $\wedge$  HAPPENED(g(1))

b. **Relative** by lambda-abstraction  
[[what<sub>t<sub>1</sub></sub> t<sub>1</sub> happened]]<sup>g</sup> =  $\lambda x$ [INANIM(x)  $\wedge$  HAPPENED(x)]

- + Transparent relation between wh-questions (index in situ) and wh-relatives (index ex situ).
- Non-compositional treatment of ex situ wh-words.

### Option 2 Chierchia & Caponigro's 13 attempt

Question	wh-word $\rightsquigarrow$ $\exists$ -quantifier	Karttunen 77, a.o. by specialized Q-operator
	question $\rightsquigarrow$ set of propositions	
Relative	wh-word $\rightsquigarrow$ $\exists$ -quantifier	by specialized TP-operator: <b>in situ ok (!)</b>
	(free) relative $\rightsquigarrow$ (topical) property	

(2) a. **Question** by quantifier raising + Q-operator  
[[Q what  $\lambda_1$  t<sub>1</sub> happened]] =  $\lambda p \exists x$ [INANIM<sub>@</sub>(x)  $\wedge$  p =  $\lambda w$ [HAPPENED<sub>w</sub>(x)]]

b. **(Free) Relative** by quantifier raising + Q + TP  
[[TP<sub>[CP Q what  $\lambda_1$  t<sub>1</sub> happened]]]] =  $\lambda w \lambda x$ [x =  $\iota y$  INANIM<sub>@</sub>(y)  $\wedge$  HAPPENED<sub>w</sub>(y)]</sub>

- Problematic on a general level (Liu 18, Zimmermann 85).
- Only for free relatives.
- **Fails to derive the in situ vs. ex situ asymmetry between wh-questions and wh-relatives.**

### Option 3 Exploratory

Question	wh-word $\rightsquigarrow$ set of individuals	Hamblin 73, Kratzer & Shimoyama 02, a.o. by pointwise function application
	question $\rightsquigarrow$ set of propositions	
Relative	wh-word $\rightsquigarrow$ property	by set $\rightarrow$ characteristic function by predicate modification: <b>ex situ</b>
	relative $\rightsquigarrow$ property	

(3) a. **Question** by pointwise function application (in situ ok)  
[[what]] = {x : INANIM(x) | x  $\in$  D<sub>c</sub>} (**a set**)  
[[what happened]] = {INANIM(x)  $\wedge$  HAPPENED(x) | x  $\in$  D<sub>c</sub>}

b. **Relative** by set  $\rightarrow$  function + movement (only ex situ)  
[[what<sup>f</sup>]] =  $\lambda x$ [INANIM(x)  $\wedge$  x  $\in$  D<sub>c</sub>] (**characteristic function of the set above**)  
[[what<sup>f</sup>  $\lambda_1$  t<sub>1</sub> happened]] =  $\lambda x$ [INANIM(x)  $\wedge$  x  $\in$  D<sub>c</sub>  $\wedge$  HAPPENED(x)]

- + Derives ex situ nature of wh-relatives (properties cannot be interpreted in situ).
- Unorthodox (but intuitive) treatment of wh  $\rightarrow$  wh<sup>f</sup>.

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I've received plenty of valuable feedback on many issues contained in this poster. I'm esp. grateful to Rajesh Bhatt, Éva Dékány, Ömer Demirok, Sabine Iatridou, Roland Meyer, Andreas Pankau, Adam Pospíšil, Louisa Sadler, Guido Vanden Wyngaerd, but also many others. All errors are mine.

## SELECTED EVIDENCE RELATED TO THE GENERALIZATIONS

### G1 Ban on wh-in-situ in relatives

The generalization is based on the 32-language sample of de Vries 02/05, 28 -language sample of Caponigro 03 (with significant overlap) and, in addition, the existing literature on individual languages (Cable 05 on Tlingit and Haida; Caponigro et al. 13 on Mixtec; Wilbur 14 on Pite Saami; Sadler & Camilleri 17 on Maltese; Kotek & Erlewine 18 on Mayan; É. Dékány, p.c., on Udmurt and Khanty). Convincing counterexamples are yet to be found, cf.:

- **Claim:** Hindi allows wh-in-situ in postnominal relatives (Lehmann 84, Mahajan 00, de Vries 05); (4). **Caveats:** 1. This is only possible with appositive relatives (Lehmann 84, R. Bhatt, p.c.), (5), and appositive relatives could well be propositions (Del Gobbo 07). 2. It remains to be explored if the wh below is genuinely in situ (R. Bhatt, p.c.).

(4) mujhe vo aadmii [Siitaa-ko jo acc<sup>h</sup>aa lagtaa ] hε pasand nahī hε  
I:DAT DEM man Sita -DEM REL nice seem:IMP be:PRES like not be  
'I don't like the man who Sitea likes.'

(5) #ek-bhii kitaab [Ram-ne jis-kii taariif kii thii ] Mina-ne mujhe nahiiN dikhaayii  
one-even book Ram-ERG REL-GEN praise do be Mina-ERG me.DAT NEG show  
'Mina showed me the book that Ram had praised.'

- **Claim:** Tsez allows wh-in-situ in free relatives (Polinsky 15), (6). **Potential caveats:** 1. Obligatory preverbal position of wh-phrases (as opposed to non-wh)  $\rightarrow$  movement after all (cf. Finno-Ugric)? 2. Presence of an interrogative suffix. (Cf. Polinsky, who has a lot of arguments for distinguishing free relative from correlatives in Tsez.)

(6) [huʃ babi-y-ä šebi žek'-ä(-si) ] ik'i-s.  
yesterday father-OS-ERG who/what.ABS hit-PST.WIT.INTERR-ATTR I.go-PST.WIT  
'Whoever father beat yesterday left.'

### G2 Wh-in-situ correlatives

Recent literature brought evidence to the effect that correlatives (esp. with unconditional semantics) can appear in wh-in-situ form/languages. Under the present perspective, this boils down to saying that correlatives/unconditionals can be propositional / question-based, as argued by Rawlins 13.

- An example from Turkish (7) (Demirok 17b) and Chinese (8) (Luo & Crain 11).

(7) [John partiye kimi çağır -sa ] pro / o gelir.  
John party who invite -SA pro DEM.NOM comes  
'Whoever John invites to the party (, he) will come.'

(8) Shei xian lai, shei xian chi.  
who first come who first eat  
'Who(ever) comes first, eats first.'

- Interestingly, in some wh-movement languages, these constructions can be either ex situ (correlatives) or in situ (unconditionals), (9) (Czech), arguably using both the property-based and the proposition-based strategy.

(9) a. **Koho** pozveš, tomu zavolám.  
who.ACC invite.2SG that.DAT call.1SG  
b. Ať už pozveš **kohokoliv**, zavolám mu.  
let already invite.2SG who.EVER call.1SG him.DAT  
'Whoever you'll invite, I'll call him.'

### G4 Wh-morphology

Morphological differences between interrogative and relative wh-words:

	BULGARIAN	GREEK	HUNGARIAN	MACEDONIAN	SLOVENIAN
what <sub>Q</sub>	kakvo	tí	mi	kakvo	kaj
what <sub>R</sub>	kakvoto	oti	ami	kakvošto	kar

- It is tempting to analyze the relative morphemes on a par with definite articles (e.g. Giannakidou & Cheng 06), but the distribution is too general to support this (relative wh-words appear even in relatives headed by non-specific NPs).
- It is also not correct to say that the relative morpheme semantically derives the relative wh-word (e.g. property under Option 3). As evidenced by MECs, wh-movement is sufficient (and necessary; Šimík 11):

(10) Dhen exo (\*o)ti na foreso sto parti  
NEG have.1SG REL what SBJV wear at.the party  
'I have nothing to wear at the party.'

- Analysis most likely to be correct: Relative morphemes are (syntactically high) complementizers (as argued e.g. by Rudin for the case of Bulgarian and Macedonian).

### G5 Availability of wh-based relatives (and hypothesized diachrony)

**Evidence for G5a**, i.e. primacy of wh-based free relatives, as opposed to wh-based headed relatives:

- Languages with wh-based free relatives, but no wh-based headed relatives: Haida (Cable 05), Tsez (Polinsky 15), probably some Arabic vernaculars.
- Languages with wh-based free relatives, but restricted wh-based headed relatives, typically to adverbial or PP wh-phrases: Mayan (Kotek & Erlewine 18), Maltese (Sadler & Camilleri 17) and probably other Arabic vernaculars.

**Hypothesized diachrony, reflected in typology** (for step 3 in Indo-European, see Lehmann 77):

1. **Correlatives in situ  $\approx$  proposition-based semantics**  
[<sub>{(s,t)}</sub>] appeared what(ever)<sub>2</sub>] [I stay / I dislike it<sub>2</sub>]
2. **Correlatives ex situ  $\approx$  reanalysis to property-based semantics possible**  
[<sub>{(s,et)}</sub>] what(ever)<sub>2</sub> appeared t<sub>2</sub>] [I stay / I dislike it(D) GP<sub>3</sub>]
3. **Correlatives  $\rightarrow$  Free relatives (definite, just as correlatives)**  
I dislike D<sub>def</sub> [<sub>{(s,et)}</sub>] what(ever)<sub>2</sub> appeared t<sub>2</sub>]]
4. **Free relative  $\rightarrow$  Light-headed relative (different determiners than just definite)**  
I dislike DET<sub>{(set),(set,st)}</sub> [<sub>{(s,et)}</sub>] what(ever)<sub>2</sub> appeared t<sub>2</sub>]]
5. **Light-headed relative (DET-restrictor)  $\rightarrow$  Headed relative (attribute)**  
I dislike NP<sub>{(s,et)}</sub> [<sub>{(s,et)}</sub>] what(ever)<sub>2</sub> appeared t<sub>2</sub>]]