

Wh-relatives in German: historical and current developments

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1. Introduction

- In German, headed relative clauses are introduced by a so-called d-pronoun that inflects for case (assigned in the relative clause) and agrees in gender and number with the head of the relative clause (cf. e.g. Duden 2009: 302):¹

- (1) a. der Mann, **der/dem** Peter hilft.
the man that.MASC.NOM/that.MASC.DAT Peter helps
'the man that helps Peter/Peter helps.'
- d. die Frau, **die** Peter getroffen hat
the woman that.FEM.ACC Peter met has
- c. das Auto, **das** Peter fährt
the car that.NEUT.ACC Peter drives
- d. die Männer/Frauen/Autos, **die** Peter gesehen hat
the men/women/cars that.PL Peter seen has

- With a certain set of neuter antecedents, the d-pronoun is replaced by the wh-pronoun *was* (cf. e.g. Duden 2009:1031f.; see Citko 2004 and Boef 2012, Broekhuis & Keizer 2012 for related phenomena in Polish and Dutch, respectively):

- (2) a. **indefinites/quantifiers**: *alles* 'everything', *vieles* 'many things',
etwas 'something', ...
- b. **demonstratives**: *das* 'that', *dasjenige* 'that thing', *dem* 'that.DAT', ...
- c. **deadjectival nouns**: *das Gute* 'the good (thing)', *das Beste* 'the best' etc.
- (3) a. **Alles**, **was** die Zuschauer dort sehen, ist Lug und Trug.
everything what the spectators there see is lies and deception
'Everything that the spectators see there is lies and deception.'
(NON13/JAN.07012 Niederösterreichische Nachrichten, 17.01.2013, NÖN Großformat,
Ressort: Meinungen; PRO & KONTRA)
- b. **Das, was** wir machen, ist **das, was** uns gefällt.
that what we make is that what us pleases
'What we do is what we like.'
(BRZ07/JUN.06447 Braunschweiger Zeitung, 04.06.2007; *Das, was wir machen, ist das, was uns gefällt*;

¹ An alternative albeit less frequent and stylistically marked option consists in using inflected forms of the wh-pronoun *welche* 'which' to introduce relative clauses. *Welch-* has a similar distribution as d-forms and is typically confined to the written language.

c. **Das Beste, was** Microsoft heute tun kann, ist, Yahoo zu kaufen.
 the best what Microsoft today do can is Yahoo to buy
 'The best that Microsoft can do today is to buy Yahoo.'
 (HAZ08/NOV.01608 Hannoversche Allgemeine, 08.11.2008, S. 15; Microsoft lässt Yahoo
 abblitzen)

- The use of *was* in headed relative clauses is an (early German) innovation (cf. Paul 1920: 206ff., see below for details); previously, all kinds of (headed) relative clauses were introduced by d-pronouns.
- This development is confined to the neuter form; personal wh-pronouns such as *wer* 'who' cannot be used to introduce headed relative clauses:²

(4) *Jeder, [wer teilnimmt], gewinnt.
 each person who participates wins

Questions:

- ❖ How can we account for the distribution of relative *was*?
- ❖ How and why did *was* replace *das* in the relevant contexts in the history of German?
- ❖ Why didn't personal forms such as *wer* 'who' develop into relative pronouns introducing headed relatives (in contrast to e.g. English)?

This paper:

- ❖ theoretical analysis of the distribution of relative *was* in present-day German
- ❖ overview of the development of (headed) wh-relatives in the history of German
- ❖ discussion of how the diachronic facts relate to the analysis of present-day *das/was*

² Additional wh-forms can be used to introduce relative clauses where the gap corresponds to an adverbial. Adverbial wh-forms often involve the locative *wo* 'where', typically in connection with an adpositional element, giving rise to so-called 'prepositional adverbs' (*womit* 'where+with', *wofür* 'where+for', *worüber* 'where+about' etc.). A wider range of grammatical options is found in dialects, which also exhibit relative particles/complementizers such as *wo*, which do not inflect and can be doubled by relative pronouns (especially in southern German varieties), cf. e.g. Weise (1916), Fleischer (2005).

2. Wh-relatives in present-day German

- Observation (Brandt & Fuß 2014): The absence/presence of a lexical-nominal antecedent is the most important factor governing pronoun choice in relative clauses (*das* vs. *was*).
- Corpus studies: Choice of *das* vs. *was* (as relativizers) and presence vs. absence of a lexical head noun:³
 - Aggregate numbers;
 - Selected elements that require relativization by means of *was*:
determiner/demonstrative: *das* 'the, that'; indefinites/quantifiers: *alles* 'all, everything', *vieles* 'many, much', *nichts* 'nothing'; deadjectival noun: *das einzige* 'the only thing':

	<i>das</i>	<i>was</i>
Antecedent without N	678	17006
Antecedent with N	36796	152

Table 1: Distribution of *das/was* dependent on the presence of a lexical head noun (aggregate numbers)

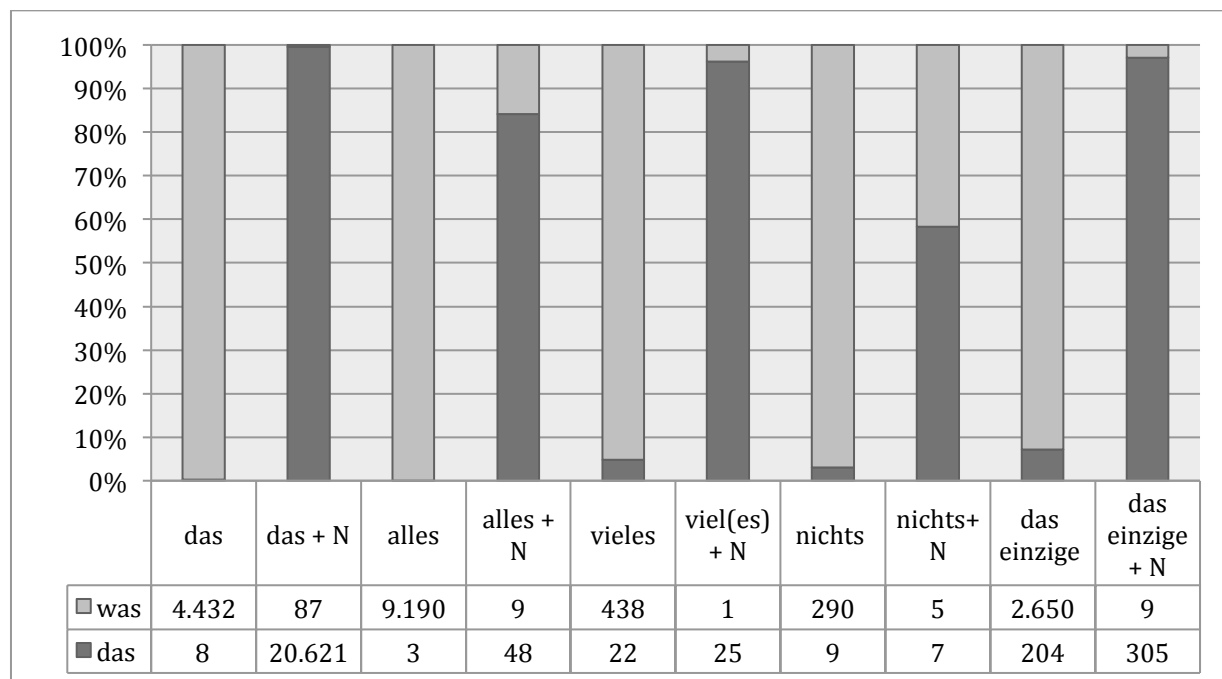


Figure 1: Impact of the presence/absence of N with elements that require the relativizer *was* (DeReKo, Connexor-Teilarchiv, June 2014)^{4,5}

³ Using the COSMAS web-interface to the *Deutsches Referenzkorpus* (DeReKo, around 20 billion words) at the IDS Mannheim (<http://www.ids-mannheim.de/cosmas2/>).

⁴ The rare examples of the type *nichts+N* all involve deadjectival nouns (*nichts Gutes/Schönes* 'nothing good/beautiful' etc.), which allow relativization by means of *was* (see below).

⁵ The distinction between restrictive and non-restrictive relative clauses does not seem to influence

(5) Generalization: Relativization by means of *das*N_[neuter singular] → *das*The presence/absence of a lexical head noun determines the choice between *das* vs. *was* in relative clauses (cf. already Behaghel (1928: 725f.)).⁶**2.1 *was* as a default relativizer (Brandt & Fuß 2014)**

- Basic proposal: The choice between d- and wh-morphology is determined in the course of the syntactic derivation, depending on whether the relativizer enters into an agreement relation with a lexical head noun (see also Boef 2012 on Dutch, Wiese 2013 on German).
- Core assumptions:
 - (i) (Inherent) gender is the defining characteristic of lexical nouns.⁷
 - (ii) The more specified exponent *das* is used in cases where the relativizer picks up a gender feature via agreement with a lexical nominal antecedent.
 - (iii) Elsewhere, *was* is inserted (as a default relativizer).
- I adopt the idea (cf. e.g. Lowenstamm 2007) that lexical gender features are hosted by the category defining head *n*; in other words, the presence of *n* is the defining characteristic of lexical nominals.⁸

the choice between *das* and *was* (in contrast to Dutch, cf. Broekhuis & Keizer 2012).

⁶ Another corpus study showed that lexical-semantic properties of nouns (i.e., the distinction between mass and count nouns) do not seem to have an impact on the choice between *das* and *was* (pace e.g. Curme 1922), that is, mass nouns trigger relativization by means of d-pronouns (similar to other nouns; but see below for some qualifications).

⁷ Note that the present proposal differs from the approach taken by Brandt & Fuß (2014), who follow Baker (2003) and assume that the defining characteristic of lexical nouns consists in the presence of a criterion of identity (a so-called referential index) that sets them apart from other lexical categories:

“The idea in a nutshell is that only common nouns have a component of meaning that makes it legitimate to ask whether some *X* is the same (whatever) as *Y*. This lexical semantic property is the precondition that makes nouns particularly suited to the job of referring.” (Baker 2003: 95f.)

Brandt & Fuß further assume, again following Baker (2003: 137), that relative pronouns contain a slot for a referential index that provides a criterion of identity and is identified with the referential index of the head noun of the RC (under agreement). Under the present proposal, identity between the relative head and the RP is achieved via syntactic agreement in gender features.


⁸ More precisely, I assume that lexical gender on nouns results from the combination of a category defining (functional) head (*n*) with a lexical root ($\sqrt{\quad}$): *n*'s (non-interpretable) gender feature is valued/licensed under Agree with a lexical root. Determiners and quantifiers, which are D-elements, lack *n*. Nominalizations may be derived by adding either D or *n* to another lexical category, cf. e.g. Alexiadou & Iordăchioaia (2014).

2.1.1 Syntax

- Standard assumptions: Relative pronouns (RP) contain a category feature [D], an operator feature [Op], and a set of phi-features (features that await valuation in the course of the syntactic derivation are marked as 'uF'):⁹

(6) RP [D, Op, Person, Number, uCase, uGender]

- The gender feature is determined/valued via agreement with the head noun (case is assigned/valued internal to the RC):¹⁰

(7) head [_{CP} RP_i [_{C'} C [_{TP} ... t_i ...]]]


- Focusing on the *das/was* alternation, there are two possible outcomes of the syntactic derivation, dependent on whether the RP acquires a gender feature from a lexical head noun:¹¹

(8) a. [D, Op, -pl, -obl, -obj/+obj, **Gender: -masc, -fem**]
 b. [D, Op, -pl, -obl, -obj/+obj, **Gender: ___**]

⁹ [person] might be left unspecified if it is assumed that third person expresses the absence of positively specified person features (Benveniste 1950, 1966). Number seems to play a special role: The finite verb of the RC agrees in number with the RP, which suggests that the RP is inherently specified for number. However, the RP also agrees in gender and number with the head noun, which suggests that number must be checked by the relevant agreement operation; thus, agreement not only involves feature valuation, but also matching of already valued features.

¹⁰ See Zeijlstra (2012, 2013) for the idea that agreement involves a relation between a probe and a higher, c-commanding goal. Cf. Heck & Cuartero (2011) for an alternative mechanism based on downward agree that accomplishes agreement between head noun and relative pronoun/relative clause; see also Sternefeld (2008). Additional questions concern e.g. the nature of the feature that renders N active as a goal for upward Agree. One likely candidate is the case feature of N, which is still unvalued at the point where the RC is merged with N (see Heck & Cuartero 2011 for related considerations). Downward agreement between the relative operator can also be assumed if a matching analysis of relative clauses is adopted, in which the relativizer contains an NP which is deleted under identity with the head of the relative clause (Chomsky 1965, Sauerland 1998, 2003).

¹¹ The feature structures in (8) assume decomposition of phi-features, making use of more abstract features (basically following Bierwisch 1967; cf. Blevins 1995 and Wiese 1999 for slightly revised systems), including [± 1 , ± 2] for person (where 3rd person corresponds to the absence of person specifications), [\pm plural] for number, [\pm masculine, \pm feminine] for gender, and the following system of case distinctions based on the features [\pm oblique, \pm object]:

- (i) a. nominative: [-obl, -obj]
 b. accusative: [-obl, +obj]
 c. dative: [+obl, +obj]
 d. genitive: [+obl, -obj]

2.3.3 Spelling out RP

- Background: Realizational model of grammar (morphosyntactic features are supplied with phonological exponents post-syntactically, Halle & Marantz 1993).
- The distribution of *das* vs. *was* is accounted for by different featural specifications of the Vocabulary items that are used to realize relative pronouns/operators:

- (9) a. [D, +Op, -obl, -**masc**, -**fem**] ↔ /das/
 b. [+Op, -obl] ↔ /vas/

- *das* signals [Op], a category feature and neuter gender; in contrast, *was* is a pure focus/scope marker (cf. e.g. Bayer & Brandner 2008, Grewendorf 2012).¹²
- Under the assumption that the insertion of phonological exponents is governed by some form of the Elsewhere Condition (Kiparsky 1973, 1982; Halle 1997), the distribution of *das* and *was* can be correctly described:

- (10) a. das Buch, **das** du liest
 the book that you read
 b. alles, **was** du liest
 all what you read

- (10a): RC is merged with a lexical noun. Both vocabulary items are compatible with the insertion context (RP containing a valued gender feature). According to the Elsewhere Condition, however, the more specified exponent must be used ⇒ **insertion of *das***.
- (10b): RC is merged with a determiner/quantifier (presumably of the category D). The RP does not receive a gender feature in the syntax; as a result, *das* does not match the insertion context since it requires the presence of valued gender features ⇒ **insertion of the pure operator marker *was***, which is underspecified for [gender].

¹² An argument in favor of the existence of a separate series of relative pronouns (specified for Op) comes from the observation that certain attributive genitive forms such as *deren* (genitive plural) are unambiguous relative markers, which cannot be used as demonstratives. Furthermore, both *das* and *was* are taken to be specified for [-obl], the feature shared by nominative and accusative. Note, however, that the situation is more complex, which perhaps suggests that *das* and *was* carry different case specifications. (i) below shows that *was* but not *das* is compatible with contexts where dative case is assigned by a preposition:

- (i) a. ein Ergebnis, mit dem/*das Peter zufrieden war
 a result with that.DAT/that Peter satisfied was
 b. Ich frage mich, mit was Peter zufrieden wäre.
 I ask myself with what Peter satisfied would-be

However, *was* is not compatible with verbal dative (**Was vertraust du?* 'What do you trust?'). Possibly, this can be attributed to a visibility condition on oblique cases which *was* fails to satisfy (in cases such as (ib) one might assume that the visibility condition is fulfilled by the preposition, which can be analyzed as a phonological realization of oblique case, cf. e.g. Caha 2009).

- This analysis facilitates a unified treatment of different types of RCs, which all have in common that they lack an appropriate (overt) nominal antecedent (see Appendix I on deadjectival nouns):
 - ❖ headed *was*-relatives without lexical-nominal antecedents
 - ❖ free relatives, as in (11)¹³
 - ❖ continuative relative clauses (“weiterführende Relativsätze”), which modify a matrix event or proposition, as in (12)
 - ❖ relative clauses referring to quote-like expressions (translations, in particular), as in (13)

- (11) a. [**Was** der Mann auch anpackt], funktioniert.
 what the man ever tackles works
 ‘Whatever the man tackles, works.’
 (HAZ09/AUG.02148 Hannoversche Allgemeine, 14.08.2009;)
- b. [**Wem** das nicht passt], kann nach Hause gehen.
 who.DAT that not suits can to home go
 (HMP12/JUN.00623 Hamburger Morgenpost, 07.06.2012, S. 36; Claus “Bubu” Bubke “Hier bin ich das Gesetz” - Ex-Kult-Zeugwart ist jetzt der Herr der Kunstrasenplätze - Er schwärmt von Stani und trauert alten Zeiten nach)
- (12) Wie bei allen anderen Mannschaftssportarten nahmen die Starken
 as with all other team sports took the strong
 Rücksicht auf die Schwächeren, [**was** den Spass für alle garantierte].
 regards for the weak what the fun for all guaranteed
 (St. Galler Tagblatt, 23.10.2009, S. 52; Goldener Herbst im Simmental)
- (13) Von disciplina wird der Begriff discipulus hergeleitet,
 from disciplina is the notion discipulus derived
was soviel wie Lehrling oder Schüler bedeutet.
 what so much as apprentice or pupil means
 (St. Galler Tagblatt, 18.02.2009, S. 36; Geschichte prägt die Disziplin)

¹³ In addition, there is a somewhat archaic alternative construction type where an apparent free relative is introduced by a d-pronoun as in (i) (see also section 3 below).

(i) [**Der** das sagt], muss es wissen.
 that.MASC.NOM that.NEUT says must it know
 ‘He who says so, must know it.’

Fuß & Grewendorf (2014) argue that d-free relatives exhibit a number of special properties that set them apart from wh-free relatives and suggest an analysis where a demonstrative pronoun is modified by a relative clause, leading to deletion of the relative pronoun under identity with the head element (an instance of syntactic haplology).

2.3.4 Some further consequences of the analysis: wh-forms vs. d-forms

- d-forms:
 - (i) The insertion of d-forms is bound to the presence of a syntactic agreement relation between head noun and RP (valuation of [uGender]), which also serves to establish coreference between these two elements.
 - (ii) Grammatical gender (non-interpretable, resulting from agreement)

- wh-forms:
 - (i) *was* (and wh-forms more generally) is not dependent on a syntactic agreement relation with an antecedent (RP's content is not affected by feature valuation in the syntax).¹⁴
 - (ii) Gender distinction has a semantic effect: The absence of an antecedent with specified gender (and number) features frees up wh-forms to code a semantic (as opposed to grammatical gender) difference, namely, the difference between persons (*wer*) and non-persons (*was*), just as in interrogatives (cf. Wiese 2013).

- Absence of valued [gender] at the interfaces – repair via insertion of default values:
 - (a) At the interface to the morphological component, the absence of [gender] is interpreted as [neuter] (cf. e.g. Harley & Ritter 2002 for related considerations).
 - (b) At the interface to the semantic component, the absence of [gender] is interpreted as [–animate/human].

- Personal forms such as *wer* ‘who’ cannot introduce headed relative clauses: wh-relativizers are only possible in contexts that lack a lexical antecedent. The absence of a nominal antecedent implies the absence of specified gender features (leading to neuter gender by default), which necessarily leads to a clash with the positive gender specification of personal wh-forms: They simply do not fit the environment where wh-relativizers are licensed (see Appendix II for details).¹⁵

¹⁴ Further evidence suggesting that the connection between relative *was* and its antecedent is less tight than between a d-form and its antecedent: *was* apparently can be construed with different kinds of antecedents, leading to systematic ambiguities (see also Holler 2005: 96):

- (i) Adrian hat alles gekauft, was Anton auch hat.
Adrian has everything bought what Anton also has
a. ‘Anton has bought everything, too.’ (reference to the matrix predicate/VP)
b. ‘Adrian has bought everything that Anton already owns.’ (reference to *alles*)
- (ii) Adrian will in die Bretagne fahren, was Anton auch will.
Adrian wants to the Brittany go what Anton also wants
a. ‘Adrian wants to go to Brittany, and Anton also wants that Adrian goes to Brittany’ (reference to the matrix proposition/IP)
b. ‘Adrian wants to go to Brittany, and Anton wants to go to Brittany, too.’ (reference to the matrix predicate/VP)

¹⁵ No such clash occurs in free relatives, which lack a nominal antecedent. Accordingly, wh-pronouns

3. The rise of *wh*-relatives in the history of German

- Traditional idea: The use of *wh*-pronouns in relative clauses goes back to a reanalysis of a construction where a *wh*-indefinite is modified by an adverbial element *sô* and a corresponding relative clause as in (14) (cf. Paul 1920: 199, referring to earlier work by Otto Behaghel; see also Jespersen 1954 on Old English):

(14) [_{DP} *sô hwer* [_{CP} *sô ...*]] ‘such one as ...’

- In (late) Old High German, the second *sô* (introducing the relative clause) could be dropped. Later on, due to morpho-phonological erosion, the adverbial element cliticized onto the *wh*-pronoun (giving rise to Middle High German forms such as *swer* ‘who(ever)’) and eventually disappeared altogether.
- Relative *wh*-pronouns were initially confined to free relatives with indefinite/generalizing readings (while the use of *d*-pronouns came to be associated with definite, individualizing/particularizing readings, see below).
- Later on, the *wh*-forms spread to headed relative clauses.
- In what follows, I will review the development of *wh*-relatives in the history of German drawing on data from the Old German Reference Corpus, the Middle High German Reference Corpus and the Bonn Early New High German Corpus.

3.1 Old High German

- Source: Old German Reference Corpus (c. 650.000 tokens).
- Both free and headed relatives are generally introduced by *d*-pronouns (3.959 cases in the Old German Reference Corpus); as illustrated in (16), *d*-forms are also used in connection with indefinites, demonstratives and nominalized adjectives that require (or allow) relativization by means of *was* in present-day German.¹⁶

- (15) a. *thaz si uns beran scolti* [**ther** unsih giheiltil]
 that she us bear should that.MASC.NOM us heals
 (Otfrid, Gospel Harmony, 1.3.38)
- b. *tho liefun sar, so thu weist,*
 then came running at once as you know
 [**thie** inan minnotun meist]
 that.PL him loved most
 (Otfrid, Gospel Harmony, 5.5.3)

that carry a gender specification (such as *wer*) can be freely used to introduce free relatives. Note furthermore that in free relatives, the *wh*-pronouns keep on signaling the [+/-personal] distinction typical of interrogative (and indefinite) pronouns (which is not signaled by relative pronouns in German, in contrast to English).

¹⁶ In what follows, the relative pronoun is set in bold face, and the antecedent is marked by underlining.

- (16) a. dhazs fona dhemu almahtigin fater dhurah inan ist al uuordan,
that from the.DAT almighty father through him is all become
[**dhazs** chiscaffanes ist]
that created is
'that everything that was created came to be from the Almighty Father
through him'
(lt. quando a patre per illum cuncta creata esse noscuntur; Isidor 99)
- b. uuaz ist thaz [**thaz** her quidit]
what is that that he says
(Tatian 174.2)
- c. thar ist ínne manag gúat [**thaz** géistlichó uns io
there is therein much good that-REL spiritually us always
wóla duat]
good does
'It is much good therein that does us good spiritually.'
(O_Otfr.Ev.3.7 (edition 279 - 306))

- As already mentioned, wh-pronouns are used in generalizing *so-wh-so* constructions:

- (17) inti **so uuaz so** ir bitit in minemo naman thaz duon ih
and so what so you.PL ask in my name that do I
'And whatever you ask in My name, that I will do'
(Tatian 164,1)

	<i>so-wh-so</i>	<i>so-wh</i>	total
<i>huuaz</i> 'what'	9	13	22
<i>huuer</i> 'who.MASC.NOM'	10	5	15
<i>huuem</i> 'who.MASC.DAT'		1	1
<i>uuelih-</i> 'which'	4	3	7
<i>swa</i> (<i>so+uuar</i>) 'where'		1	1
<i>uuara</i> 'where to'	1		1

Table 2: Generalizing free relatives (*so-wh(-so)*) in OHG (47 ex. in the Old German Reference Corpus)¹⁷

- In addition, relative clauses may be introduced by 'pure' wh-pronouns, as shown in Table 3.

¹⁷ In addition, the Old German Reference Corpus contains 18 cases of *so-wh-so* from Old Saxon (6x 'what', 4x 'who.NOM', 4x 'whom', 2x 'which', 1x 'who.ACC', 1x 'when', 1x 'whether').

	free RCs	headed RCs	total
<i>huuaz</i> 'what'	50 ¹⁸	4	54
<i>huuer</i> 'who.MASC.NOM'	2		2
<i>huuem(u)</i> 'who.MASC.DAT'	4	1	5
<i>huuen</i> 'who.MASC.ACC'	2		2
<i>huues</i> 'who.MASC.GEN'	2		2
<i>(mit) uuiu/uueo</i> 'how'	66 ¹⁹		66
<i>war/uuara</i> 'where, whereto'	7	3	10
<i>wanne/uuanda</i> 'when'	2	1	3
<i>uuanan</i> '(because) of <u>what, why</u> '	11		11
<i>uuelihch</i> +NP 'which+NP'	9		9
<i>uuelihch-(eru/ales)</i> 'which.NOM'	13		13
<i>huuelihes</i> 'which.MASC.GEN'	3		3
<i>uueliu</i> 'what kind of'	1		1
<i>wialih</i> 'however'	1		1

Table 3: Relative clauses introduced by pure wh-pronouns in the Old German Reference Corpus (182 cases)

- The majority of these examples is attested in later (11th century) OHG (Notker).
- The (vast) majority of these pure wh-relatives are (tagged as) free relatives. More or less clear-cut cases include examples such as (19):

¹⁸ I excluded 7 examples where a pure wh-word clearly introduces an indirect question (complements to verbs like 'ask' and clausal wh-attributes like 'the definition/precept/command, wh...'), but included 9 instances where *uuazs* is tagged as a relative pronoun and introduces the clausal complement of verba dicendi such as *quedan* 'say'. As a number of other cases (see below for discussion), the relevant clauses are potentially ambiguous between an indirect question and a free relative (although an analysis as indirect question seems to be more likely here).

¹⁹ Including a number of cases that are presumably indirect questions.

- (18) a. Uuáz álle únde uuáz îogelîche lîute állero dêto . tágeliches
 what all and what everybody of-all nations every day
 îlen getûon . dáz skînet ál ûzer démo spîegule
 hasten to do that appears all out-of that mirror
 ‘What all people of all nations hasten to do each day can all be seen in that
 mirror.’
 (N_Mart_Cap.I.60-63 (edition 198-223))
- b. inti suohenti untar in uuer iz uuari fon in uuer
 and searched among them who it was of them who.REL
 sulih tati
 such-a-thing did
 ‘And they began to enquire among themselves, which of them it was that
 should do this thing.’
 (Tatian 158)

- Ambiguous cases where an indirect question could also be interpreted as a free relative (substituting a DP complement) are probably the historical source for the use of *wh*-forms as relativizers (cf. e.g. Pittner 1995 on OHG; Hogg & Denison 2006 on OE).

- (19) a. uuanda si ne-uuizzen [**uuaz** sî tuônt]
 since they not-know what they do
 (N_Ps_Glossen_18_56-59 (edition 75 - 95))
- b. Hiêr uuêrden uuir gemánot . daz uuír fernémen .
 here are we reminded that we realize
 [**uues** uuír poenitentiam tuôn súli]
 what.GEN we atonement do should
 ‘Here we are reminded that we realize for what we should atone.’
 (N_Ps_31_96 (edition 4 - 24))

- The following examples suggest that this ambiguity is real: In (20a) the verb ‘know’ takes a *wh* complement clause, followed by a DP in apposition; in (20b), the fronted *wh*-clause is taken up by a resumptive pronoun in a lower position; in (20c), the *wh*-clause is the combined argument of two verbs, but only of them (‘know’) licenses a propositional complement.

- (20) a. Wéist thu [**weih** thir rédinon] [thaz selba lób theist thaz lón]
 know you what-I you-DAT tell that same praise that-is the reward
 giwisso wízist thu thaz ...
 certainly know you that
 ‘You know what I tell you, that same praise, that is the reward. Surely you
 know that ...’
 (Otfrid, Gospel Harmony II 21, 13)

- b. Áber íh erchám míh tō dés. [uuér dáz uuîb uuâre
 but I feared myself then that-gen who that woman was
 sô geuuáltîgo uárentíu] íh nemáhta **sia** bechénnen
 so powerful acting I not-can her recognize
 ‘But I was scared for the following reason: Who this woman was who
 acted so powerfully, I couldn’t recognize’
 (N_DeCon_I_8-12 (edition 990 - 1010))
- c. Tû neuuést nóh mág geskéhen. [uuáz ih ságen uuíle]
 you not-know neither can happen what I say want
 ‘You don’t know nor can it happen what I want to say.’
 (N_DeCon_II_102-108 (edition 1102 - 1122))

- In addition, there are few cases in OHG where headed relative clauses are introduced by pure *wh*-forms. The majority of these involve antecedents that also command the use of *wh*-relatives in present-day in German (indefinites, *d*-forms, nominalized adjectives).
- The antecedent is an indefinite element:

(21) dhazs sie ni eigun eouuihd [**huuazs** sie dhar uuidar setzan].
 that they not own anything, what.REL they there against set
 ‘that they do not possess anything that they set against it’
 (lt. dum non habeant quod proponant, Isidor_DeFide_5 (edition 513 - 538))

(22) Indi suahhanti truhtin in managii liuteo, [**huuemu** deisu haret], uuerachman
 sinan auur qhuidit
 ‘And the Lord, seeking his own workman in the multitude of the people to
 whom he thus cries out, says again: [...]’
 (Rule of St. Benedict 554-574, early 9th c.)

- The antecedent is a free relative clause introduced by a *wh*-form:

(23) inti suohenti untar in uuer iz uuari fon in [**uuer**
 and searched among them who it was of them who.REL
 sulih tati]
 such-a-thing did
 ‘And they began to enquire among themselves, which of them it was that
 should do this thing.’
 (Tatian 158.7)

- The antecedent is a Demonstrative (i.e., a *d*-pronoun):

(24) Sar so tház irscínit, [**waz** mih fon thír rinit]
 As soon as that appears what me from you touches
 'as soon as that appears that touches me from you'
 (Otfrid, Gospel Harmony II 8, 202-222)

(25) Knâde mir danne. [**uuanda** nu dîne strâla in mir stecchent]
 have-mercy me then when now your arrows in me stick
 (N_Ps_37_125 (edition 81 - 101))

- The antecedent is a nominalized adjective:

(26) erzélist thu ouh thia gúati, [**waz** íagilicher dáti]
 tell you also the good what each did
 (Otfrid, Gospel Harmony II 9, 24 (195-215))

- The antecedent is a noun:

(27) quaemet inti gisehet thia stat [**uuar** trohtin gilegit uuas]
 come and see the place where the Lord laid-to-grave was
 T_Tat217 (edition 91 - 104)

(28) uuîo míchel diu érda sí. [**uuâr úfe** si stánde]. [**uuáz** sía inthábee]
 how big the earth is where-on they stand, what they occupy
 (N_DeCon_II_83-89 (edition 1636 - 1657))

- What we can conclude so far:

- (i) It is not clear whether the use of pure wh-forms in OHG can be attributed to the loss of *so ... so*, since there are almost no traces of this erosion process in OHG (amalgamated forms like *swer* < *so+hwer* only begin to occur in larger numbers in the MHG period).
- (ii) A possible source for the development of headed wh-relatives are cases like (22), (25) and (28), where the relative clause could also be analyzed as an free relative clause in apposition to a main clause DP (cf. Paul 1920: 206f. Truswell & Gisborne 2015, Gisborne & Truswell, to appear, on OE).
- (iii) In contrast to OE (cf. e.g. Truswell & Gisborne 2015, Gisborne & Truswell, to appear; see also Romaine 1980, 1982 on Middle Scots), early uses of wh-forms in headed relative clauses are not confined to cases where the relative pronoun is linked to an adverbial or oblique gap in the relative clause. Rather, the most 'frequent' wh-relativizer is the neuter form 'what'. That is, the newly coined wh-relativizers can also assume syntactic functions that are located higher on Keenan & Comrie's (1977) Accessibility Hierarchy.²⁰

²⁰ This might perhaps be taken to suggest that the development of new wh-forms in OHG was

- (iv) The set of elements that appear as heads of *wh*-relatives bears some similarities with the set of elements that trigger relativization by means of *was* in present-day German (indefinites, *d*-forms, nominalized adjectives).
 - (v) In contrast to English, the rise of *wh*-forms cannot be linked to the loss of case distinctions in the demonstrative paradigm.
- In what follows, I will trace the development of (headed) *wh*-relatives in subsequent historical stages of German, focusing on *was* ‘what’ (with some remarks on *wer* ‘who’).

3.2 Middle High German

- Source: Middle High German Reference Corpus (MiGraKo, c. 1.000.000 tokens)
- In the MHG period, *d*-relatives still dominate (cf. e.g. Paul ²⁴1998: 373).
- However, free relatives (FRs) introduced by contracted forms such as *swaz*, *swer*, *swen*, *swes*, *swanne*, *swâr* (< *so+wh*) have become a frequent pattern (2.066 hits for argumental *wh*-forms, and 1.461 hits for adverbial *wh*-forms):

(29) a. **swer** an rehte güete wendet sin gemüete,
 whoever at right goodness turns his mind
 dem volget sælde und êre
 that.MASC.DAT follows blessing and honor
 (Iwein 1-3; Paul ²⁴1998: 374)

b. Bit unnuzen Worten di man dut firlusit man
 with useless words that.PL one does loses one
swaz man gudes dut
 whatever one good does
 ‘With useless words, one forfeits whatever good things one does.’
 (Idsteiner Sprüche der Väter, 13_1-wmd-PV-X > M114-N1 (tok_dipl 128-139))

- It seems that the rise of *s+wh*-forms made available a functional differentiation of generalizing/indefinite FRs (introduced by *sw*-forms) and individualizing/definite FRs (introduced by *d*-pronouns), compare the following example:

(30) [**Swen** genüeget [**des** er hât]], der ist rîche,
 whoever.ACC suffices that.GEN he has that.NOM is rich
 [**swiez** ergât].
 however-it fares
 ‘He, who is content with what he has, is rich, however things will turn out.’
 (Freidanks Bescheidenheit, 43,10)

influenced by syntactic borrowing from Latin (cf. e.g. Romaine 1980 for the idea that borrowing typically affects highly salient elements, while endogenous change affects less salient/frequent elements).

- *sw*-forms could also be used to introduce headed relative clauses – primarily in connection with an indefinite/generalizing antecedent:

(31) durch den dir al gitan ist [**swaz** giscaffines ist]
 through that.MASC.ACC you all done is what created is
 (Bamberger Glaube u. Beichte, 12th c., M089-G1 (tok_dipl 265 - 275))

- In this context, we can also find relativization by means of the ‘pure’ form *waz*:

(32) a. síe hetten gnuc des alles · [**waz** díe erde truc]
 they had enough of-everything what the earth bears
 (Heinrich von Freiberg: Tristan (F); 14_1-omd-V-G > M311-G1 (tok_dipl 6184-6211))
 b. Inde wísende allíz [**waz** her sprach]·
 and knowing all what he spoke
 (Der Wilde Mann: Dichtungen: 13_2-md-V-X > M243-N1 (tok_dipl 72 - 83))
 c. vnd saite im alliz [**was** im got bewiset hatte]
 and told him all what him God proved had
 (Jenaer Martyrologium Path: 13_2-omd-PV-G > M408-G1 (tok_dipl 15117 - 15138))

- As shown in Table 4, *wh*-forms keep a relatively low profile in headed relatives throughout the MHG period (focusing on contexts (neuter indefinites/demonstratives) that favor the use of *wh*-relatives in present-day German):²¹

	<i>daz</i>	<i>swaz</i>	<i>waz</i>
<i>allez</i> ‘all’	165	6	6
d-pronoun	85 ²²	13	13

Table 4: Relativization strategies with neuter antecedents in MHG (MiGraKo)

(33) umbe daz [**daz** ir mir habet getân]
 about that that.REL you.PL me have done
 (Gottfried von Straßburg: Tristan 13_1-obd-V-G > M342-G1 (tok_dipl 4814 - 4835))

(34) do uersmahte niemen daz . [**swaz** in an geerbet was]
 then rejected nobody that s+what him to bequeathed was
 (Kaiserchronik A (V) Path: 12_2-bair-V_Kchr2-X > M121y2-N (tok_dipl 44285 - 44307))

²¹ In examples like (i) the relative clause can be analyzed as either an appositive free relative or a restrictive headed relative clause. This suggests that contexts such as (i) continued to fuel a reanalysis in which free *wh*-relatives could be reanalyzed as headed *wh*-relatives.

(i) Ir schult daz wizzin [**waz** daz bezeichini]
 you should that know what that signifies
 (Speculum ecclesiae Path: 12_2-bairalem-PV-G > M214-G1 (tok_dipl 8645 - 8667))

²² Including genitival *d*-forms (*des*); the search did not produce any genitival forms of *swaz* or *waz*.

(35) Dô ich gnuoc lange da gesaz . un betrahte daz .
 when I quite long there sat and considered that
 [waz mir ze tuonne wære]
 what me to do be.PAST.SUBJ
 (Hartmann von Aue: Iwein (B) Path: 13_1-obd-V-G > M312-G1 (tok_dipl 4749 - 4771))

- Still, we can observe a difference between neuter and personal wh-forms: While the former slowly become more frequent, the latter continue to be rare. A search in MiGraKo produced only very few (potentially) relevant examples:²³

(36) Ein iegelîcher [swer zuo mir kuomt . unde horit mine rede] [...]
 everybody s-who.MASC to me comes and hears my speech
 (Evangelienbuch des Matthias von Beheim, 14_1-omd-PU-G > M318-G1 (tok_dipl 10429-10455))

- In the course of the MHG period, the wh-pronouns extended by /s-/ are eventually replaced by simple wh-forms (cf. e.g. Paul ²⁴1998: 230).

3.3 Early New High German

- Source: Bonn ENHG Corpus (around 450.000 tokens)
- In the Early New High German period, the morphosyntax of nouns and noun phrases was subject to some major changes (cf. e.g. Ebert et al. 1993, Demske 2001) including
 - ❖ a collapse of inflection classes
 - ❖ the development of new determiners from former adjectives/pronouns
 - ❖ the fixation of word order in the DP
 - ❖ changes concerning the choice between strong/weak adjectival inflection (which used to be governed by semantic properties (definiteness), but turned into a purely morphosyntactic phenomenon).
- Another change concerned the distribution of d- vs. wh-pronouns in headed relative clauses (cf. Ebert et al. 1993: 449). This is shown in what follows for relative clauses in connection with *alles* 'all.NEUT.SG' and *das* 'that.NEUT.SG'
- In early ENHG (14th and early 15th c.), we almost exclusively find d-relatives in connection with *alles*; later on *das* is replaced by *was*. The transition from *das* to *was* takes place quite rapidly (in around 150 years), compare Table 5, Figure 1, and Appendix III.

²³ Note that in examples like (i), the FR does not modify 'someone' but is an apposition to it.

(i) Wolde si oug eiman [so we de were]
 Wanted her PRT someone so who that.MASC would-be
 da ane hinderen
 there-on prevent
 'If someone, whoever that would be, wanted to prevent her from doing that'
 (Mittelfränkische Urkunden 13. Jh. , 13_2-mfrk-PU-X > M544-N1 (tok_dipl 18521 - 18548))

(37) alles, [**daz** uns geschehe]
 all that us happens
 'everything that happens to us'
 (East Franconian, late 14th c., Mönch von Heilsbronn, Namen, 17,B2)

(38) Denn durch solchen glauben vergibt Gott alles
 since through such belief forgives God all
 [**was** vnserm gehorsam noch mangelt].
 what our obedience still lacks
 'Since through such belief God forgives everything that our obedience still
 lacks.'
 (East Franconian, 1578, Veit Dietrich, Summaria, 30,3)

	<i>das</i>	<i>was</i>
1350-1400	33	1
1450-1500	18	0
1550-1600	8	11
1650-1700	0	18

Table 5: *alles* 'all' + *das/was* in ENHG (absolute numbers)

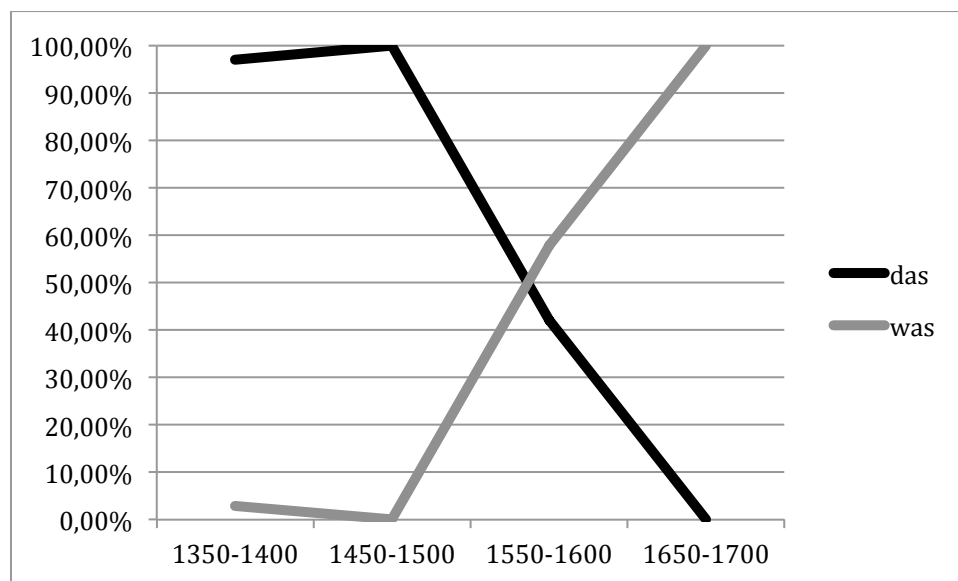


Figure 1: *alles* 'all' + *das/was* in ENHG

- A similar change can be observed in connection with *das* 'that', *dasjenige* 'that one', and nominalized adjectives (Ebert et al. 1993: 449), compare Table 6 for *das+das/was*:

	<i>das</i>	<i>was</i>
1350-1400	11	0
1450-1500	7	0
1550-1600	0	2
1650-1700	1	4

Table 6: *das* ‘that’ + *das/was* in ENHG (absolute numbers)

- Again, there are very few examples where *wer* ‘who’ introduces a headed relative clause (Ebert et al. 1993: 449); similar to earlier (and later) stages of German, this is a minority pattern. In the vast majority of cases, a d-relative is used to refer back to a masculine human/animate antecedent, as in (40).

(39) denn ich will niemand on hulffe lassen/ [**wer** mir trawet].
 since I want nobody without help let who me trusts
 (Text 135: Veit Dietrich, Summaria, Nuremberg (East Franconian) 1578, 23,20)

(40) Es ... aber niemand war, [**der** sie hätte aufnehmen wollen]
 it however nobody was who them had.SUBJ accomodate wanted
 ‘However, there was nobody who would accomodate them.’
 (Hans Michael Moscherosch: „Gesichte, Straßburg 1650“ (Alsatian), 23, 27)

- Furthermore, it is noteworthy that the relative particle *wo*²⁴ is only scarcely attested in the ENHG corpus (Ebert et al. 1993: 447).

3.4 Present-day German

- In some Low German dialects, it has completely ousted *das*; in a subset of these dialects, it seems to have turned into a relative complementizer similar to English *that* (Weise 1917, Fleischer 2005):

(41) a. dat Peerd, [**wat** ik köfft heb]
 the horse.NEUT what I bought have (Wiesenhann 1936: 27)
 b. də mǎn, [**wât** dâʳ we:r]
 dhe man.MASC what there was (Pirk 1928: 26-27)
 c. Alle Mannslüd [**wat** dor sind ...]
 all men what there are (Bock 1933: 104)

- Related developments can be observed in oral/colloquial Standard German varieties, where *was* is used instead of *das* with all kinds of neuter singular antecedents, including lexical nouns:

²⁴ It is standardly assumed that the relative particle *wo* developed from the locative wh-pronoun. Recently, however, Brandtner & Bräuning (2013) have argued that *wo* originated from the equative particle *so*.

- (42) Dann braucht mir Mama bald keine Bücher mehr vorzulesen
 then needs me mum soon no books anymore read-out
 – dann kann ich selbst lesen.

then can I on my own read

Zum Beispiel das Buch, [was Mama mir geschenkt hat].

for example the book what mum me given has

‘for example, the book that mum gave me as a present’

(RHZ98/AUG.12146 Rhein-Zeitung, 25.08.1998; HEUTE: SCHULANFANG)

- (43) Sein Trainer Dieter Hecking haderte mit der spielerischen Leistung:
 his manager Dieter Hecking railed with the gameplay
 „Wir waren zu statisch in der 2. Halbzeit.

we were too static in the 2nd half

Das 0:0 ist ein Ergebnis, [was für uns nicht zufriedenstellend ist].“

the 0:0 is a result what for us not satisfactory is

‘A draw is a result that is not satisfactory for us.’

(dpa, 22.08.2008; Magerkost in Hannover: 96 und Energie Cottbus trennen sich torlos)

- A search conducted in the DeReKo shows that the use of *was* in combination with lexical nouns is linked to direct speech:

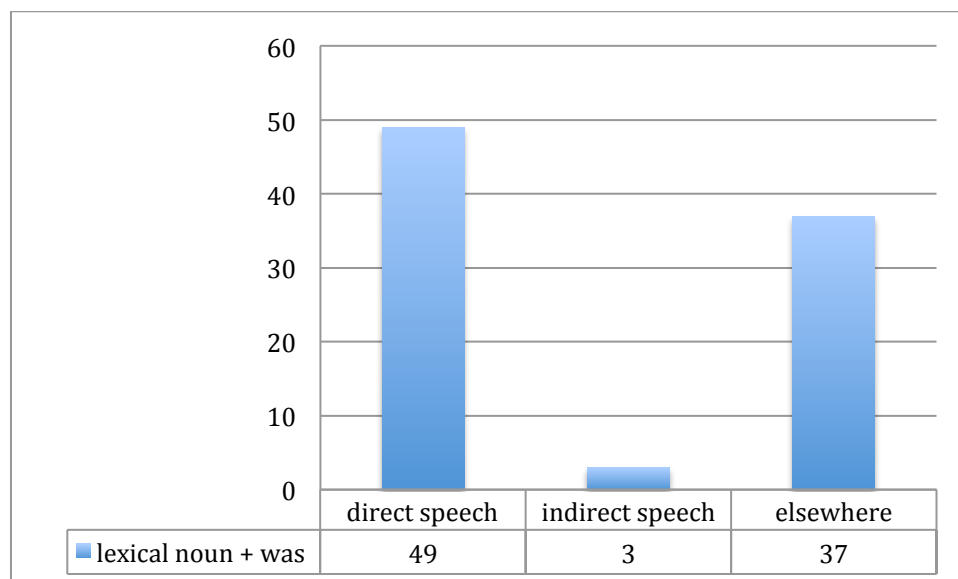


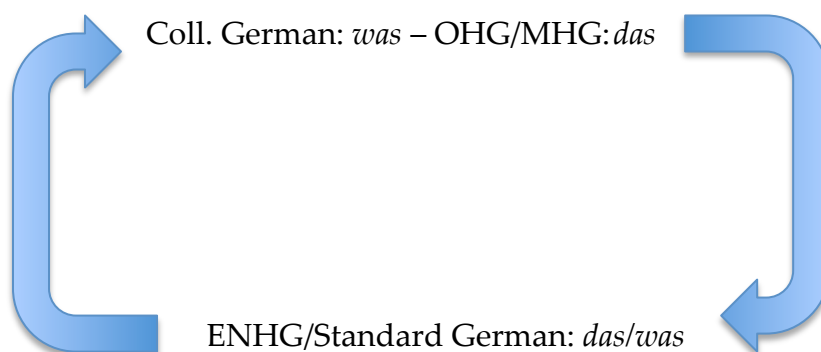
Figure 2: Use of *was* in connection with lexical nouns; results based on a sample of 600 out of 3.319 hits for the search pattern *ein/das N, was* (DeReKo, Connexor Teilarchiv, 02.03.2016)

- In contrast, *wer* 'who' is only very rarely used in headed relatives, compare the following examples from DeReKo:

- (44) Schließlich trägt jeder, [wer bei Schnee und Glatteis
hence carries each who in snow and ice
vor die Tür geht], selbst auch ein gewisses Risiko.
outside the door goes himself too a certain risk
(BRZ10/MAR.00890 Braunschweiger Zeitung, 02.03.2010; Nicht gestreut? Rentnerin rutscht vor
Laden aus und bricht sich Brustwirbel)
- (45) Auch hier muss niemand, [wer Lust auf China-Döner hat],
also here must nobody who appetite for China-Döner has
auf seinen Drehspieß-Imbiss verzichten.
on his rotisserie-takeaway pass
(BRZ06/MAR.16216 Braunschweiger Zeitung, 29.03.2006; Döner Kebab & #8211; rotierendes
Grillfleisch verdrängt Pizza, Bratwurst & Co.)

4. Toward an explanation of the facts: What's gender got to do with it?

- In the history of German, we can observe an ongoing change in which the neuter wh-pronoun *was* replaces the d-form *das* in headed relative clauses.
- OHG and MHG exhibit only occasional examples of headed wh-relatives; the 'real' change takes place in mid/late ENHG. After that, *was* has steadily been gaining a wider distribution. In present-day colloquial varieties, it has almost completely replaced *das* in all (relative) contexts.
- Thus, we deal with a cyclical change: There is an initial stage where *das* is used with all kinds of antecedents in headed relatives (OHG/MHG); subsequently, *was* starts being used in certain contexts (ENHG/Standard German); eventually, *das* is fully replaced by *was* (colloquial German):



- It is likely that the changes affected not only properties of *das/was*, but also properties of the antecedents. Moreover, it is tempting to link the changes in the relativization patterns to independent changes that affected the nominal domain in ENHG.

- Proposal:
 - (i) In ENHG, changes affecting the status of certain nominal elements (from nominalized form/pronoun to determiner) disrupted the context where d-pronouns could be licensed.
 - (ii) The extension of *was* to all neut.sg. contexts can be captured by assuming that the phonological exponent *was* has been extended to all kinds of neut.sg. relative pronouns, basically reinstalling the original system (albeit with a different morpho-phonological form).
 - While (ii) is a surface change concerning the form of exponents, (i) calls for some further explication.
 - Following Ebert et al. (1993: 199), I propose that elements such as *all-* turned from pronouns into determiners in the ENHG period. This grammaticalization process led to the loss of lexical nominal properties (including gender features) when the relevant forms were reanalyzed as exponents of D⁰.
 - Independent evidence for this change in categorial status comes from the observation of changing patterns of adjectival inflection after inflected indefinites (Ebert 1993: 198f., Demske 2001: 84ff.).²⁵
 - At the beginning of the ENHG period, elements such as *all-* trigger strong inflection on following adjectives; later on, the strong endings are replaced by weak endings (the same goes for other indefinites such as *solch-* ‘such’; similar facts hold for demonstratives, cf. e.g. Demske 2001: 77f.):
- (46) a. die gegenwurtichait aller pozz-er geist
 the presence all.GEN.PL evil-GEN.PL.ST ghosts
 (Middle Bavarian, 1384: Wilhelm Durandus: Rationale Wien, 32,30)
- b. die funffte Essents aller Mechanisch-en Kunsten
 the fifth essence all.GEN.PL mechanical-GEN.PL.WK arts
 (Swabian, 1660, Christoph Schorer, Chronik Memmingen, Ulm, 20,28)
- This is expected under the assumption that *all-* turned into a determiner, which is the primary exponent of inflectional features in the DP and commands weak inflection on the adjective.
 - In somewhat more technical terms, we might assume that as a result of the above-mentioned grammaticalization process, former pronominal/nominalized elements lost the *n*-shell (where lexical gender features are hosted) and with it the ability to trigger relativization by means of *das*.²⁶

²⁵ Furthermore, note that as a result of this development, neuter elements such *alles* and *nichts* ‘nothing’ began to obligatorily carry the *-s* marker characteristic of neut.sg. determiners (nom/acc).

²⁶ Alternatively, one might speculate that the loss of nominal inflections (in particular with neuter forms) disrupted the licensing conditions for silent nouns (which formerly triggered d-relatives) after neuter determiner-like elements, which ultimately led to the replacement of d-relatives with wh-relatives in the relevant contexts. I leave that possibility for future research.

- Factors that block the use of *wer* ‘who’ as a relative pronoun:
 - (i) The presence of (masc.) gender on personal wh-forms leads to a clash: wh-relatives are only licensed in the absence of a lexical head noun and thus confined to contexts where the absence of [gender] on D is interpreted by default as [neuter]. Accordingly, the presence of [gender] on personal wh-forms gives rise to a mismatch between relative head and relative pronoun.
 - (ii) In addition, the transition from personal (interrogative) wh-pronouns to relative pronouns is probably inhibited by the fact that in German, relative pronouns signal grammatical gender while interrogatives signal semantic gender (i.e., the distinction [+/-human/animate])

5. Concluding Summary

- The alternation between the relativizers *das* and *was* reflects categorial properties of the antecedent of the relative clause (Brandt & Fuß 2014, to appear):
 - ❖ *das* is inserted in the presence of a lexical head noun (characterized by specified gender features on *n*)
 - ❖ *was* is the underspecified elsewhere case
- Development of (headed) wh-relatives in the history of German:
 - ❖ In contrast to English, it seems that the majority of early cases of headed wh-relatives involve the non-personal form *was* ‘what’.
 - ❖ wh-forms keep a low profile up to the mid ENHG period (quasi-non-existing in OHG, and still rare in MHG/early ENHG).
 - ❖ In the 16th century, *das* is rapidly replaced by *was* eventually leading to the distribution still found in present-day (standard) German.
 - ❖ *was* continues to gain a wider distribution in present-day German, moving on from indefinite antecedents to all kinds of neuter nouns.
- The introduction of wh-forms in free relatives led to a distinction between individualizing/‘definite’ free relatives (introduced by d-forms) and generalizing free relatives (introduced by wh-pronouns).
- It is likely that this distinction provided the model for the development of headed wh-relatives in connection with indefinite antecedents (which fit the generalizing force of wh-pronouns, e.g. ‘all’, ‘each’, ‘everything’, ‘nothing’).
- However, *was* could only begin to replace *das* when indefinite pronouns were reanalyzed as D-Elements (which lack lexical gender features), disrupting the licensing environment for d-relatives.
- Thus, the change from *was* to *das* is linked to a larger change, in which German developed a new set of determiners.
- Personal wh-pronouns could not turn into relative pronouns (in headed RCs), since they carry a gender feature, which gives rise to a feature mismatch in the contexts where headed wh-relatives are licensed in German.

Appendix I: Deadjectival nouns

- At first sight, neuter deadjectival nouns allow both *was*- and *das*-relatives (cf. e.g. Duden 2009: 1032):

(47) «Denn nicht **das Gute, das** ich will, tue ich, sondern
 since not the good that I want do I but rather
das Böse, das ich nicht will, das führe ich aus.» [...]
 the evil that I not want that carry I out
 Wenn wir ehrlich sind uns gegenüber, wissen wir alle,
 if we honest are us against know we all
 dass dieser Konflikt immer wieder in uns ist. Und dass es Kraft
 that this conflict always again in us is and that it strength
 braucht, Mut, trotz diesem Widerstreit all **das Gute, was** wir
 requires courage despite this conflict all the good what we
 zustande bringen, zu achten, zu verstärken.
 accomplish to heed to strengthen
 (Die Südstschweiz, 18.02.2006; «Gutmensch» - ein Unwort)

- Thus, deadjectival nouns apparently differ from both lexical nouns (⇒ *das*) and determiners/quantifiers (⇒ *was*).
- Upon closer inspection, it turns out that the situation is actually more complex. Three cases must be distinguished (cf. Fuß 2017; see already Cutting 1902):

(48) Distribution of *das/was* with deadjectival nouns (neuter singular):

- Elliptical readings ⇒ *das*
 - (non-elliptical) nominalized positives (*das Gute* 'the good (one)') ⇒ *das & was*, as illustrated in (47).
 - (non-elliptical) nominalized superlatives (*das Beste* 'the best'): ⇒ *was*
- Elliptical readings (involving an elided noun):

(49) Das bisher bestehende Kraftwerk ist bekanntlich völlig überaltet [...]
 the yet existing power plant is as-is-known completely outdated
Das neue, das Ende 1994 fertiggestellt sein soll,
 the new [one] that at the end-of 1994 completed be should
 wird nach dem neuesten Stand der Technik errichtet [...]
 will-be according to the latest state of technique built
 (Salzburger Nachrichten, 05.03.1993; Heizkraftwerk Nord 88 Mill. S teurer)

- nominalized superlatives:

(50) Abschließend gibt Angela Merkel ihrer Überzeugung Ausdruck,
 as a last point expresses Angela Merkel her conviction
 „dass der Blick von oben auf die Erde **das Schönste** ist,
 that the view from above of the earth the most-beautiful is
was es gibt“.
 what there exists
 (Berliner Zeitung, 21.07.2006, Ressort: Blickpunkt; „Wie klappt's mit dem Schlafen?“)

- With nominalized positives, the alternation between *das/was* is linked to subtle pragmatic/semantic differences. In particular, it seems that the use of *das* has an individualizing/particularizing effect on the interpretation of the nominalized adjective (see Fuß 2017, Brandt & Fuß 2017; see also Sanders 1879:279f., Cutting 1902, Curme 1922).
- Analysis: The different behavior of positives and superlatives w.r.t. relativization follows from structural differences in the internal make-up of the relevant nominalization structures (for details see Fuß 2017, Brandt & Fuß 2017, to appear):
 - ❖ Nominalized positives: two sources for neuter gender on *n*_{conversion}:
 - pre-syntactic insertion of gender features ⇒ *das*
 - post-syntactic insertion of gender features ⇒ *was*
 - Nominalized superlatives: The relative clause provides a lexical restriction for universal quantifier linked to the category SUPERLATIVE ('more than all (others)') – the relativization facts in superlatives can be reduced to the behavior of *alles* 'every, all', which obligatorily triggers relativization by means of *was*.

Appendix II: The restriction to *was*

- The use of wh-pronouns in RCs is subject to a curious restriction: Only the neuter form *was* can be used as a substitute for d-type relative pronouns, while non-neuter wh-forms (which signal case distinctions more clearly) are generally absent in restrictive RCs, even in cases that seem to lack a lexical head noun:

(51)	a.	der/jeder/keiner, the one/each.MASC/none.MASC	der/*wer that.MASC.NOM/who.NOM	das liest that reads
	b.	der/jeder/keiner, the one/each.MASC/none.MASC	den/*wen that.MASC.ACC/who.ACC	du kennst you know
	c.	der/jeder/keiner, the one/each.MASC/none.MASC	dem/*wem that.MASC.DAT/who.DAT	du vertraust you trust
	d.	die/jede/keine, the one/each.FEM/none.FEM	die/*wer that.FEM.NOM/who.NOM	das liest that reads

- This restriction is at first sight unexpected.
- Possible solution: silent nouns
- There are good reasons to believe that in cases like (51) there is in fact a nominal head available that enters into an agreement relation with the relative pronoun.
- In support, note that quantifiers, similar to determiners and adjectives, agree in gender and number with their head noun:

(52)	a.	jeder	Mann
		every-MASC.SG	man.MASC.SG
	b.	jede	Frau
		every-FEM.SG	woman.FEM.SG
	c.	jedes	Pferd
		every-NEUT.SG	horse.NEUT.SG

- These facts suggest that quantifiers, again similar to determiners and adjectives, do not possess any gender and number features of their own, but always receive relevant phi-specifications as a result of DP-internal concord with a lexical noun.

The presence of non-neuter inflectional features on a quantifier always implies the presence of a (possibly silent) lexical noun that acts as the actual head of the RC:

(53) [DP *der (Einzig)e/jeder/keiner* [NP $\mathbf{N}_{[+MASC, -PL]}$ [CPreI [DP DP_{Rel} [+MASC, -PL]]_i ... t_i ...]]]

- As a result, the gender feature of the RP can always be identified with the gender feature of the (silent) head noun, leading to the insertion of d-type relative pronouns.

- A related question: What is the source of neuter gender in quantifiers such as *alles*, which require *was*-relatives?
- Recall: In these cases, the RC merges directly with the D-element (leading to *wh*-morphology since the RP cannot pick up a gender feature):

(54) [DP *alles* [C_{Rel} [DP DP_{Rel}]_i ... t_i ...]]]

- When a determiner fails to acquire gender features from a lexical noun as in (54), the resulting absence of gender specifications is automatically interpreted as neuter at the interfaces to the post-syntactic computation.²⁷

Correlation between neuter gender and the availability of *wh*-pronouns: *wh*-pronouns are only possible in cases where the RC is directly merged with a head lacking inherent gender features. Due to the lack of a lexical head noun, the gender features of the D-element and the relative pronoun are identified with neuter gender by default (a postsyntactic repair operation).

²⁷ However, note that *wh*-pronouns introducing a free relative lack a nominal antecedent and thus cannot receive any phi-values from the immediate syntactic context. This suggests that (at least) personal *wh*-pronouns enter the derivation with a fully specified phi-set (with the exception of case), similar to *wh*-interrogative pronouns.

Appendix III: *Alles*, *das/was* in the Bonn ENHG corpus

	Middlebav.		Swabian		East Franconian		Upper Saxon		Riparian		East High Alemannic		East Swabian		Alsatian		Hessian		Thuring.	
	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>	<i>das</i>	<i>was</i>
1350-	4	0	2	1	4	0	0	0	0	0	0	0	12 ²⁸	0	9	0	2 ²⁹	0	0	0
1400																				
1450-	0	0	3	0	2	0	9 ³⁰	0	0	0	1	0	3	0	0	0	0	0	0	0
1500																				
1550-	0	0	(1x <i>welches</i>)	0	0	4	1	0	1	2	2	0	2	3	2	1	0	1	0	1
1600																				
1650-	0	0	0	2	0	4	0	0	0	6	0	2	0	2	0	2	0	0	0	1
1700																				

Table 7: *Alles*, *das/was* in the Bonn ENHG Corpus

²⁸ plus 2x *des*
²⁹ plus 1x *des*³⁰ plus 1x *des*

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