
Syntax

Most questionable pronouns: Variation between *das-* vs. *was-*relatives in German

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Abstract

The article investigates the conditions under which the w-relativizer *was* appears instead of the d-relativizer *das* in German relative clauses. Building on Wiese 2013, we argue that *was* constitutes the elsewhere case that applies when identification with the antecedent cannot be established by syntactic means via upward agreement with respect to phi-features. Corpuslinguistic results point to the conclusion that this is the case whenever there is no lexical nominal in the antecedent that, following Geach 1962 and Baker 2003, supplies a criterion of identity needed to establish sameness of reference between the antecedent and the relativizer.

1 Introduction

In German, relative clauses that modify a nominal element are typically 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 An alternative albeit less frequent and stylistically marked option consists in using inflected forms of the w-pronoun *welche* 'which' to introduce relative clauses (typically confined to the written language, cf. Duden 2009: 1031).

	sing. masc.	sing. fem.	sing. neut.	plural
Nominative	<i>der</i>	<i>die</i>	<i>das</i>	<i>die</i>
Accusative	<i>den</i>	<i>die</i>	<i>das</i>	<i>die</i>
Dative	<i>dem</i>	<i>der</i>	<i>dem</i>	<i>denen</i>
Genitive ²	<i>dessen</i>	<i>deren, derer</i>	<i>dessen</i>	<i>deren, derer</i>

Table 1: Relative d-pronouns in German

- (1)
- | | | | | | |
|----|--------------------------|---------|-----------------|-----|--|
| a. | der Mann, der | | schläft | | |
| | the man that.MASC.NOM | | sleeps | | |
| b. | der Mann, den | | Peter getroffen | hat | |
| | the man that.MASC.ACC | | Peter met | has | |
| c. | der Mann, dem | | Peter vertraut | | |
| | the man that.MASC.DAT | | Peter trusts | | |
| d. | die Frau, die | | schläft | | |
| | the woman that.FEM.NOM | | sleeps | | |
| e. | die Frau, die | | Peter getroffen | hat | |
| | the woman that.FEM.ACC | | Peter met | has | |
| f. | das Auto, das | | Peter fährt | | |
| | the car that.NEUT.ACC | | Peter drives | | |
| g. | die Männer/Frauen/Autos, | die | Peter gesehen | hat | |
| | the men/women/cars | that.PL | Peter seen | has | |

However, under certain circumstances, the position of the d-pronoun can be taken by w-pronouns (cf. e.g. Duden 2009: 1030ff.; see Curme 1922: 198ff. for a more comprehensive survey).³ The use of w-pronouns is the rule in relative clauses that lack a (overt) nominal head such as free relatives as in (2)⁴ and so-

² According to the Duden grammar (2009: 283), both *deren* and *derer* are possible in the contexts genitive plural and genitive fem.sg, with the qualification that *derer* cannot be used attributively:

- (i) die große Linguistin, deren/derer wir uns gerne erinnern
 the great linguist-FEM that.FEM.GEN we us with pleasure remember
 'the great linguist, who we remember with pleasure'
- (ii) die große Linguistin, deren/*derer Mutter wir uns gerne erinnern
 the great linguist-FEM that.FEM.GEN mother we us with pleasure remember
 'the great linguist, whose mother we remember with pleasure'

³ The notion "position" is used pretheoretically for now, referring just to the surface position in the string; cf. section 4 below for some discussion of possible syntactic differences between d- vs. w-relative clauses.

⁴ In addition, there is a somewhat archaic alternative construction type where an apparent free relative is introduced by a d-pronoun as in (i).

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

called continuative relative clauses (“weiterführende Relativsätze”), which typically refer to a matrix event or proposition, cf. (3). In the latter type, only the neuter form *was* can be used.⁵

- (2) a. [Wer wagt], gewinnt.
who.NOM dares wins
- b. [Wen das Abenteuer lockt], sollte einen Abstecher
who.ACC the adventure lures should a side-trip
in die Wüste wagen.
into the desert dare
(N00/DEZ.59381 Salzburger Nachrichten, 21.12.2000, Ressort: Kultur; Petra – geheimnisvolle Felsenstadt)
- c. [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;)
- d. [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)
- (3) Wie bei allen anderen Mannschaftssportarten nahmen die
as with all other team sports took the
Starken Rücksicht auf die Schwächeren [was den Spass für
strong regards for the weak what the fun for
alle garantierte].
all guaranteed
(A09/OKT.06424 St. Galler Tagblatt, 23.10.2009, S. 52; Goldener Herbst im Simmental)

Note that the paradigm of *w*-forms is poorer than that associated with *d*-pronouns. In particular, there are no *w*-forms for the feminine gender nor for the plural, as shown in table 2, and to many speakers the neuter dative as well as genitive forms have an odd feel to them (cf. Duden 2009: 306f., and section 3 below for more discussion).

Fuß & Grewendorf (to appear) argue that *d*-free relatives exhibit a number of special properties that set them apart from *w*-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).

⁵ More generally, *w*-pronouns that clearly signal case and gender (*wer*, *wem* etc. with the possible exception of *wessen*) can only be used in headless (i.e., free) relative clauses. See below for discussion.

	sing. masc.	sing. neut.
Nominative	<i>wer</i>	<i>was</i>
Accusative	<i>wen</i>	<i>was</i>
Dative	<i>wem</i>	? <i>was</i>
Genitive	<i>wessen</i>	? <i>wessen</i>

Table 2: w-forms corresponding to d-pronouns in German

In addition, *was* is used as a relative pronoun with a certain set of nominal antecedents (cf. Citko 2004 on ‘light-headed relatives’ in Polish). According to the Duden grammar (2009:1031f.), *das* is replaced by the corresponding w-form *was* when the relative clause is headed by certain neuter pronouns, namely indefinites/quantifiers (including expressions like *ein bisschen* or *weniges* (‘a little’)) and demonstratives, as well as (neuter) nominalized adjectives (superlatives, in particular), cf. (4) and the examples in (5).⁶

- (4) a. indefinites/quantifiers: *alles* ‘everything’, *eines* ‘one thing’, *etwas* ‘something’, ...
 b. demonstratives: *das* ‘that’, *dasjenige* ‘that thing’, *dem* ‘that.DAT’, ...
 c. nominalized adjectives (superlatives, in particular)
- (5) 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“)

⁶ Note that not all neuter pronominal forms select *was* as a relative pronoun. Notable exceptions include the quantifiers *jedes* ‘each’ and *keines* ‘none’ (see below for discussion):

- (i) Was ist mit den Autos? Otto hat jedes/keines, das/*was ihm gefallen hat,
 what is with the cars Otto has each/none that/what him pleased has
 fotografiert.
 photographed
 ‘What about the cars? Otto made a picture of each/none that pleased him.’

- c. Das Beste, was Microsoft heute tun kann, ist, Yahoo
 the best what Microsoft today do can is Yahoo
 zu kaufen.
 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)

Note that the use of w-pronouns in attributive relative clauses is confined to the neuter form *was*. Forms that clearly signal case or gender are ruled out in present-day German:⁷

- (6) a. *Jeder, wer das sagt, ist ein Lügner.
 everyone who.NOM that says is a liar
 b. *Maria lobt jeden, wen sie kennt.
 Maria praises everyone who.ACC she knows
 c. *Maria hilft jedem, wem sie vertraut.
 Maria helps everyone who.DAT she trusts

In present-day (descriptive) work on German, the contexts in (4) are usually treated as quirky exceptions to the general case, i.e., the use of d-pronouns as relativizers. However, there are reasons to believe that the use of w-pronouns as relativizers is more regular and widespread than has been generally appreciated (cf. e.g. Curme 1922: 198, who gives a more comprehensive list of cases and links pronoun choice to semantic factors such as definiteness, and the mass/count distinction). Moreover, a closer inspection of the *das/was* alternation is of potential theoretical interest, as it bears on questions concerning the licensing, function and meaning of d/w-morphology, and the workings of the interfaces between syntax, morphology, and semantics.

The goals of this paper are twofold. First, we want to clarify a number of empirical issues relating to the *das/was* alternation in relative clauses. In particular, we want to present a more complete picture of the circumstances under which *was* is admissible in attributive relative clauses, including a quantitative

⁷ In earlier stages of German (at least up to the 19th century), we find occasional examples of unambiguously case-marked w-pronouns in restrictive uses (cf. e.g. Curme 1922: 198ff.).

- (i) Jeder, wer heiratet, ist wie der Doge, der sich mit dem
 everybody who marries is like the Doge (Duke.of.Venice) who REFL with the
 Adriatischen Meere vermählt – er weiss nicht, was drin, was er heiratet:
 Adriatic sea is.wedded he knows not what in.it what he marries
 Schätze, Perlen, Ungetüme, unbekannte Stürme
 treasures pearls monsters unknown storms
 (Heinrich Heine, *Gedanken und Einfälle*, chap. 5)
- (ii) Es handelt sich, Helmuth, nicht um das, wessen du bedarfst, sondern
 It is REFL, Helmuth, not about that what.GEN you need but
 es handelt sich um das, wessen die Kinder bedürfen.
 it is REFL about that what.GEN the kids need
 (Theodor Fontane, *Unwiederbringlich*, chap. 4)

study of the ratio of *das* vs. *was* in selected contexts. Second, we aim (i) at identifying the factors that drive the *das/was* alternation and (ii) at providing a unified structural definition of the circumstances that lead to the selection of *das* or *was* as relative pronouns in German.⁸

The paper is organized as follows. In section 2, we review earlier work on the distribution of d- and w-relativizers and formulate descriptive generalizations a theoretical approach should capture. Section 3 presents and discusses empirical findings resulting from a corpus study on the distribution and relative frequency of *das* and *was* as relativizers in present-day Standard German. Section 4 presents our own theoretical proposal, which is based on the intuition that in contrast to standard assumptions, relative *was* is not an exception, but rather the default choice, which shows up in contexts where *der/die/das* fails to be licensed (since no appropriate nominal antecedent can be detected). Section 5 wraps up and outlines possible directions for future work.

2 Earlier generalizations and analyses

As already briefly mentioned above, present-day grammars of German typically describe the use of w-forms as relative pronouns in terms of a list of exceptions. In the work of earlier grammarians such as Paul, Behaghel, and Curme, however, attempts are made to provide a more principled description of the circumstances that determine pronoun choice in relative clauses and to relate the use of *was* in attributive relative clauses to the use of w-morphology in other types of relative clauses, most notably, free relatives (as well as, to some extent, continuative relative clauses). A common idea of these early works is that *was* replaces *das* in contexts that share certain interpretative properties, such as indefiniteness or genericity, in particular where reference is to matter with mass-like properties.

Other lines of reasoning in neo-grammarian work link the distribution of *was* as a relativizer to its historical development and to historical connections between the different construction types that license w-morphology. For example, it has been observed that relative uses of w-pronouns represent an innovation, which probably goes back to the rise of w-morphology in (generic/universal) free relatives.⁹ According to Paul (1920:206f.), interpretative similarities be-

⁸ We follow the tradition in calling the w-forms under discussion pronouns although it will turn out that they function as ‘pro non-nominals’ rather, which term has the disadvantage of being hardly pronounceable. Cf. section 3 below.

⁹ According to Paul (1920: 199) (referring to earlier work by Otto Behaghel), the use of w-morphology in free relatives is also an innovation that goes back to a construction where a w-pronoun is used as an indefinite form which is modified by an adverbial element *sô* and a corresponding relative clause as in (i) (see also Jespersen 1954 on Old English):

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

As early as 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 w-pronoun (giving rise to Middle High German forms such as *swer* ‘who(ever)’) and eventually disappeared altogether.

tween free relatives and relatives modifying indefinite pronouns such as *alles* 'everything', or *etwas* 'something' blurred the differences between the two construction types and facilitated the use of w-pronouns in the latter, a development which was probably furthered by contexts where a free relative could be construed as modifying an element in the matrix clause. Paul proposes that this change first led to variation between *das* and *was* up to a point where the latter won out over the former in contexts with indefinite and/or general meanings:

In der jetzigen Sprache ist *das* durch *was* ersetzt bei Rückbeziehung auf *etwas*, *nichts*, *alles*, *das(jenige)* (soweit nicht dabei ein Subst. zu ergänzen ist), und auf ein substantivisches Adj., soweit dasselbe auf etwas Allgemeines bezogen wird. Bis in das 18. Jahrh. überwiegt noch *das*, und kommt sogar noch im 19. vor, [...]"(Paul 1920: 207)

'In the present-day language, *das* is replaced by *was* when it refers back to *something*, *nothing*, *all*, *that (thing)* (as long as there is no noun to add), and with a nominalized adjective, as long as it refers to something general. Up to the 18th century, *das* still prevails, and still occurs even in the 19th century, [...]'

Thus, it becomes apparent that the notion of (in)definiteness is conceded an important role in determining pronoun choice in relatives, both from a synchronic and diachronic perspective. A more comprehensive description of the synchronic circumstances where *was* replaces *das* in relative clauses is given in Curme (1922), cf. the following quote:

[*was* is employed] If the antecedent is a word of general or indefinite meaning, or expresses a collective idea, such as **das**, **einiges**, **eins**, **das einzige**, **etwas** (or **was**), **solches**, **ein anderes**, **nichts**, **mehreres**, **manches**, **viel(es)**, **allerhand**, **allerlei**, **das bißchen**, **wenig**, **genug**, an ordinal, as **das Erste**, **das Zweite**, with especial frequency **alles**, also a neuter abstract noun or adjective-substantive (**das Schöne** *the beautiful*, &c., especially a superlative, **das Beste** *that which is best*), also a neuter noun denoting a material or a collective idea, provided the reference is to an indefinite mass or amount: [...]" (Curme 1922: 198)

Curme's description of the contexts that license *was* surpasses not only the brief remarks by Paul but also what is usually found in present-day grammars. In particular, he notices the possibility that *was* may also be used with certain lexical nouns, as in the following example:

- (7) a. Er verzweifelt überhaupt an allem Heil, was der he despairs generally of all salvation what the Menschheit durch die Gesellschaft zuteil werden kann. mankind through the society bestowed be can 'He despairs of all salvation that the society can bestow on mankind.'

(Albert Geiger in *Die Nation*, 10th March, 1900; Curme 1922: 198)

These changes left the w-pronoun as the only element at the left edge of free relatives, which inherited their generic/universal reading from the indefinite construction in (i).

- b. [...] das **Mysterium**, **was** sich damals vollzog.
 the mystery what REFL back then took place
 ‘the mystery that took place back then’
 (Gerhart Hauptmann, *Michael Kramer*, Act 3; Curme 1922: 198)
- c. Alles **Weh**, **was** er mir bereitet hat.
 all woes what he me caused has
 ‘all woes that he caused for me’
 (Theodor Fontane, *Schach von Wuthenow*, ch. xxi; Curme 1922: 198f.)
- d. Um ihn her war alles **Getier** lebendig, **was** auf
 around him about was all creatures alive what on
 der Heide die Junischwüle auszubrüten pflegt.
 the heath the June-stuffiness to-breed uses
 ‘Around him, all creatures, that the stuffiness of June uses to breed
 on the heath, were alive.’
 (Theodor Storm, *Ein grünes Blatt*; Curme 1922: 199)

The above examples illustrate Curme’s qualification that a *was*-relative may modify a neuter noun “provided the reference is to an indefinite mass or amount”. In (7a, c–d), the neuter noun is modified by the quantifying element *alles* ‘all’, which can be taken to satisfy this condition (note that, in addition, *Heil* and *Weh* may be analyzed as nominalized adjectives). (7b) seems to suggest that a neuter abstract noun such as *Mysterium* ‘mystery’ can be directly modified by a *was*-relative even in the absence of an additional quantifying element. However, upon closer inspection, it appears that the relevant *w*-clause might also be analyzed as an embedded interrogative in the sense of ‘the question what happened back then’. Thus, (7b) does not present conclusive evidence that *was*-relatives can relate to lexical nouns that lack a quantifying element. Curme’s observations are summarized by the generalization in (8) (cf. section 3 below for critical discussion).

(8) *Curme’s generalization*

A *was*-relative can modify a neuter lexical noun “provided the reference is to an indefinite mass or amount” (usually requiring the presence of an additional quantifying element/determiner).

Curme offers a positive definition of the contexts where attributive *was*-relatives are licensed by linking the use of *was* to certain semantic properties such as reference to indefinite masses or amounts. An alternative perspective is taken in the work of Otto Behaghel, who defines the circumstances under which *das* is replaced by *was* in a negative fashion. More precisely, Behaghel suggests that *was* is used when the relative clause lacks a proper nominal antecedent:

Die Relativsätze, denen im Hauptsatz kein stützendes Glied entspricht oder deren stützendes Glied durch eine nicht individuelle Größe gebildet wird, werden im allgemeinen durch *was* eingeleitet, nachdem einmal dieses als Relativ aufgetreten ist. Zu den nicht individuellen

Größen gehören es, das, dasjenige, dasselbe, dieses, solches, sowie die indefiniten Pronomina, ferner die substantivierten Adjektiva: [...] (Behaghel 1928: 725f.)

‘Those relative clauses that lack a corresponding supporting member in the main clause or those the supporting member of which is not instantiated by an individual measurement are usually introduced by *was*, once this element has become available as relativizer. Among the non-individual measurements are *es* ‘it’, *das* ‘that’, *dasjenige* ‘that thing’, *dasselbe* ‘the same’, *dieses* ‘this’, *solches* ‘such’, as well as the indefinite pronouns, and also nominalized adjectives [...]’

Behaghel’s characterization of the circumstances where *was* can occur paves the way for a unified treatment of attributive *was*-relatives together with other types of relative clauses such as free relatives and continuative relative clauses, which all have in common that they lack an appropriate (overt) nominal antecedent.

We are now in a position to reassess the relationship between *was* and *das*. If we are ready to take free relatives and continuative relative clauses as modifiers as well, albeit of modifiers of something that has no single representative expression, then we are led to acknowledge that *was* is the default or elsewhere choice, while d-relativizers are really the special case, defined as ‘sentential modifiers with a proper nominal antecedent’.

(9) *Behaghel’s generalization*

Was replaces *das* in relative clauses that lack a proper nominal antecedent.

An important step towards systematizing Behaghel’s observations is taken by Wiese (2013), who similarly builds on the idea that w-pronouns appear as relativizers if there is no proper nominal antecedent available in the structure. Wiese distinguishes three subtypes of relatives where this is the case:

- relatives with reference to sentences and predicates
- relatives with reference to antecedents that have a quantificational or ordering function (indefinite pronouns, ordinals, superlatives)
- relatives with reference to nominalized adjectives in neuter gender (under certain readings)

Wiese’s central idea is that the form of a relative pronoun as varying along the dimensions of gender and number is determined syntactically via some form of agreement with its antecedent. In particular, the d-pronouns *der/die/das* are always syntactically determined in this way, picking up the features of the nominals that they modify. In contrast, the choice of the w-pronouns *wer* vs. *was* is not syntactically, but semantically determined: The absence of an antecedent with specified gender and number features frees up these forms to code a semantic (as opposed to grammatical gender) difference, namely, the difference between persons, associated with the form *wer*, and non-persons, associated with the form *was*, just as in the interrogative case. (10) illustrates the ‘syntactic’ case of agreement with gender- and number-determining antecedents as leading

to d-relativizers, (11) illustrates the antecedentless interrogative case with semantic gender determination that Wiese claims to be operative as well in the case of the form-identical w-relativizers. In Wiese's own words (2013: 10f.):

[...] da hier keine genusbestimmenden Antezedentien vorliegen, kann das Genus des Relativums (ebenso wie im freien Relativsatz) nicht durch Kongruenz mit dem Antezedens bestimmt werden; andererseits kann im Deutschen das Relativum nicht ohne bestimmtes Genus belassen werden. [...] Im Deutschen steht das Relativum in derartigen Fällen im Neutrum. Diese Regelung ist semantisch begründet. [...] **Nun besitzt aber nur das Relativum *wer/was* eine Neutrum-Form, die auf non-personalen Bezug festgelegt ist** [our emphasis, PB & EF] (also eine Form der Kategorie *non-person*). Dementsprechend tritt in Fällen wie den angeführten im Regelfall die Form *was* auf.

'[...] since there are no gender-determining antecedents here, the gender of the relativizer cannot be determined via agreement with the antecedent, like in free relatives; on the other hand, the relativizer in German cannot be left without a determined gender. [...] In such cases, the relativizer stands in the neuter gender in German. This rule is semantically motivated. [...] **Only the relativizer *wer/was* has a neuter form that is confined to a non-personal use** [our emphasis, PB & EF] (that is, a form of category *non-person*). In cases like the ones cited, accordingly, the form *was* appears as of rule.'

To repeat, the semantic motivation that Wiese talks about lies in the distinction between persons and non-persons, which appears to play no role for the d-relativizers all gender variants of which can pick up persons (cf. (10)), but distinguishes between persons and non-persons in case of the w-relativizers according to Wiese just as the homonymous w-interrogative pronouns do, cf. (11).

- (10) a. Der Mann, der ...
 the man that.MASC.SG
 b. Die Frau, die ...
 the woman that.FEM.SG
 c. Das Kind, das ...
 the child that.NEUT.SG

- (11) Q: Wer klopft?
 who knocks?

A: Der Mann / die Frau /
 the.MASC.SG man the.FEM.SG woman
 das Kind (persons)
 the.NEUT.SG child

Der Regen / die Aufhängung /
 the.MASC.SG rain the.FEM.SG holder
 das Herz (non-persons)
 the.NEUT.SG heart

- Q: Was klopft?
 What knocks?

A: #	Der	Mann / die	Frau /	
	the.MASC.SG	man	the.FEM.SG	woman
	das	Kind		(persons)
	the.NEUT.SG	child		
	Der	Regen / die	Aufhängung /	
	the.MASC.SG	rain	the.FEM.SG	holder
	das	Herz		(non-persons)
	the.NEUT.SG	heart		

Wiese denies that (something like) indefiniteness conditions the use of *was*, as seems to be suggested by Behaghel or Curme. Instead, the occurrence of *was* is the elsewhere case that applies if there is no agreement with a syntactic antecedent (in which case one of *der/die/das* is selected) and if reference is not to a person (in which case *wer* is selected).

Approaches that are similar in spirit to Wiese's are Boef (2012) and Hachem (2013), who claim that in Dutch, the relativizer *wat* occurs where the licensing conditions for d-relativizers are not met.

3 More and less frequent patterns

That *was* is negatively defined (or underspecified) as assumed by Wiese or Hachem is suggested by a range of facts. To start, there is the well-known ambiguity between the relative ("thing-oriented") and interrogative ("proposition oriented") use of *was* that is illustrated in (12), cf. Zifonun et al. (1997: 2264ff.).

- (12) Was du sagst, ist unklar.
 what you say is unclear
 a. The things that you say are unclear.
 b. It is unclear what the content of what you say is.

In continuative relative clauses like (13), *was* may seem to pick up the meaning coded in the matrix VP or just that of the matrix direct object, giving rise to a reading according to which Otto did the same kind of thing that Anna did (buy a satnav) as well as a reading according to which Otto bought the same kind of thing (satnav model) as Anna (Holler 2005: 96).

- (13) Anna hat ein Navigationsgerät gekauft, was Otto auch hat.
 Anna has a satnav bought what Otto also has

Staying with continuative relative clauses, *was* may appear to be ambiguous between picking up a proposition or a predicate (14), where the propositional meaning that is associated with *was* seems to be systematically poorer (more inclusive) than that of the original proposition, e.g., missing the modal verb of the antecedent proposition in (14).

- (14) Richard will nach Frankreich fahren, was Anton auch will.
 Richard wants to France go what Anton also wants
 ‘Richard wants to go to France, and Anton wants that Richard goes to
 France, too.’ or
 ‘Richard wants to go to France, and Anton wants to go to France, too.’

Example (15) from Holler (2005: 107) gives rise to the strict and sloppy identity ambiguities typical of predicate (VP) deletion contexts involving a bindable expression in the antecedent (Ross 1967). Accordingly, it may transport that Hans calls his own wife (sloppy reading) or Peter’s wife (strict reading).

- (15) Peter soll seine Frau nicht anrufen, was aber Hans muss.
 Peter should his wife not call what but Hans must
 ‘Peter is not supposed to call his wife but Hans must.’

Such patterns from continuative relative clauses suggest that the meaning that gets to be associated with *was* may be syntactically restricted only in the sense that *was* can only pick up such kinds of meaning that can be (improper) part of the kinds of meaning associated with the richest type of antecedent structure possible, namely, the sentence.¹⁰ Holler argues that continuative clauses relate to sentences syntactically, and that the semantic antecedent of the relativizer is contained in the sentence that they relate to. Extrapolating to the use of *was* as what looks like a relative pronoun (but may possibly be called a pro-non-noun preferably¹¹), the syntactic sentence-orientation seems to open up a route toward explaining the above-noted preference that *was* has for structural case positions (as opposed to lexically-verbally case-marked positions). Sentences occur in such positions without further ado, while verbally dative and genitive case-marked positions cannot host sentences.¹² For prepositional constructions, German has so-called pronominal (or prepositional) adverbs that serve to link sentential meanings to positions governed by prepositions. Incidentally, what looks like relativization of pronominal adverbs employs *w*-morphology without any exceptions apparently.

¹⁰ Or a sequence of sentences, as, sometimes, when concluding phrases like ... *was mich übrigens gefreut hat* (‘...which has been a pleasure for me by the way’) are used.

¹¹ Note that the characterization of *was* as a non-pronominal category is already implicit in Grewendorf (2012), who characterizes *was* as a pure operator element (see also Boef 2012).

¹² In some prepositionally case-marked positions, *was* appears to be gaining ground from the pronominal *w*-adverbials that traditional grammars recommend, cf. (i).

- (i) a. Mit was hast du gerechnet?
 with what have you calculated
 b. Womit hast du gerechnet?
 Where-with have you calculated?
 ‘What did you expect?’

- (16) Ich warte darauf, was/*das du sagst.
I wait for what/*that you say

It would seem worthwhile to investigate further in how far the propositional use of *was* might provide the basis for the use of *was* as what appears to be a relative pronoun across the board. For now, and following Wiese, we assume the basic validity of the generalization in (17).

- (17) w-pronouns occur as relativizers only if reference-identity with an antecedent cannot be established via agreement in phi-features.

It is the nature of phi-features that they are semantically interpreted. In particular, phi-features restrict the reference of the nominals that carry them. It is anything but clear, however, how particular concepts get associated with certain phi-features, nor is it clear what the connection between *prima facie* different phi-features is. It appears evident that gender and number features are not independent of each other in that, e.g., gender distinctions seem to presuppose number distinctions.¹³ Furthermore, properties that underly number distinctions may well be relevant for gender classification, e.g., counting or certain plural forms may be possible only (or dominantly present) in certain genders (cf. Corbett 2000).

Our case of d- vs. w-relativizers appears particularly pertinent to the discussion as it falls exclusively within the neuter gender, which, according to many authors, is really the absence of “positive” gender features, i.e., masculine and feminine respectively in German (cf. for discussion section 4). Furthermore, virtually all scholars bring semantic features that relate to number to bear on the choice of d- vs. w-morphology on relativizers, cf. Paul’s remark that w-morphology is associated with reference to something general, Curme’s position that nouns “denoting a material or a collective idea, provided the reference is to an indefinite mass or amount” go with w-relativizers or Behaghel’s claim that concepts that do not belong to what he calls individual measurements (“individuelle Größen”) lead to the selection of w-morphology.

The empirical question is if and to what extent distinctions beyond (but very possibly related to) the categorization as neuter gender may play a role for the selection of d- vs. w-morphology on the relativizer. To repeat, the basic picture emerging from the literature is that w-relativizers appear in the absence of a nominal antecedent or in special cases where there is a nominal antecedent that has neuter gender as well as certain yet to be defined properties.

We thus try to decide between two alternative hypothesis, namely: A) Any suitable (i.e., neuter gender) nominal antecedent leads to relativization by means of *das*. B) certain features on a (neuter gender) nominal antecedent lead to relativization by means of *was*.

¹³ Cf. Greenberg’s (1963) universal 36: “If a language has the category of gender, it always has the category of number.”

If hypothesis A) were correct, *das* should surface whenever there is a nominal antecedent to start. If hypothesis B) were correct, we would expect to find variation between *das* vs. *was* dependent on additional properties of the antecedent.

Judging from the proposals reviewed in section 2 above, in particular, Curme's generalization in (8), we would expect to find differences in the distribution of d- vs. w-morphology dependent on properties having to do with number; the nearby test ground is constituted by the distinction between count as opposed to mass nouns, known to play a decisive role in the number domain. In particular, mass nouns resist pluralization and counting, which is, presumably, because they do not denote naturally distinguishable units of reference.¹⁴

In order to test the hypotheses in A) and B), we carried out a range of corpus studies, using the COSMAS web-interface to the *Deutsches Referenzkorpus* (DeReKo, 24 billion words) at the IDS Mannheim (<http://www.ids-mannheim.de/cosmas2/>). For one thing, we tested – albeit in a rather preliminary way – whether having a mass noun vs. count noun in the antecedent expression made any difference for the choice of w- over d-relativizers. We did this by probing for specific mass nouns in construction with the respective relativizers at the beginning of sentences:

(18) Fleisch/Gold/Mehl, das...
meat/gold/flour that...

(19) Fleisch/Gold/Mehl, was...
meat/gold/flour what

The results were not supportive of an effect of mass nominals occurring in the antecedent; we found 1.232 occurrences of *das* as opposed to only 6 occurrences of *was*. In addition and independently, we construed mass-specific predicates by means of the use of adverbs such as *massenweise* 'en masse', *massenhaft* 'plentiful', or *zuhauf* 'in droves', the idea being that if w-relativizers coded something like a mass interpretation, then they should surface with these predicates. Concretely, we checked whether the pattern in (20) was more frequent than (21).

(20) ..., was massenweise/massenhaft/zuhauf ...
what en.masse/plentiful/in.droves ...

¹⁴ Chierchia (1998:54) writes concerning the distinction between count and mass nouns: "A singular count noun is usually taken to denote a class of objects and its plural counterpart a class of groups or sets of such objects; so, while a singular count noun has singular individuals in its extension (e.g. "coin" is true of single coins), a plural one has plural individuals or groups in its extension (e.g. "coins" is true of pluralities of coins). A mass noun is instead generally interpreted either as a mereological whole of some kind; or else its extension is drawn from a domain of substances whose minimal components are somehow more elusive than ordinary individuals. For example, the denotation of 'change' can be taken to be some kind of substance whose minimal parts don't have the same identification criteria as coins. On this view, the minimal parts of mass noun extensions are surrounded by mystery and this is why we cannot count them."

- (21) ..., das massenweise/massenhaft/zuhauf ...
that en.masse/plentiful/in.droves ...

The result was that although there were altogether few hits, also with “mass predicates” d-morphology was overwhelmingly (in fact, infinitely) more frequent. (22) was the only example featuring w-morphology, and this is unsurprising given that here, the antecedent is a nominalized adjective, more precisely, a superlative (cf. above section 2 and section 4 below for discussion):

- (22) Geschenkideen sind das einzige, was es hier massenweise gibt.
present.ideas are the only what it here en.masse gives
'Ideas for presents are the only thing that you get here en masse.'
(NUZ09/DEZ.01494 Nürnberger Zeitung, 14.12.2009, S. 1; Der Geschenkemarkt
„Winterkiosk“ war ein Erfolg — Liedermacher und Langohren lockten)

The other seven or so examples that we found all featured d-relativizers, in face of the fact that the nouns that were modified were mostly mass nouns themselves. (23) is a typical example.

- (23) In den ehemaligen Kellergewölben lagerte das zur Kühlung des Bieres benötigte Eis, das im Winter massenweise aus dem Herthasee – damals noch als „Wackerhans-Teich“ bekannt – oder aus Thorns Weiher „geerntet“ wurde.
'In the former cellars was stored the ice needed to cool the beer that was harvested en masse from the Herthasee – still known as the “Wackerhans-Teich” back then – or from Thorn's pond.'
(RHZ06/AUG.11069 Rhein-Zeitung, 12.08.2006; Gebäude mit einer großen Geschichte)

In sum, our results do not support the importance of the count vs. mass distinction for the choice of d- vs. w-relativizers.¹⁵ Broadening the focus so as to include other possibly relevant if not yet clearly defined properties, we tested the frequencies of d- vs. w-relativizers in construction schemata that we had abstracted from the lists given in the literature, i.e., we searched for d- vs. w-relativizers in construction with terms that would seem to denote “individual measurements” (in Behaghel's terms), or just not do so. Part of the results is given in the following table.

¹⁵ Interestingly, and anticipating the property that underlies our analysis in section 4, Baker (2003: 106) holds that mass nouns do not fundamentally differ from count nouns as concerns having “criteria of identity”: “Water, for example, cannot be counted, but it can be measured. Like counting, measuring depends on a criterion of identity: one must not measure the same water twice; therefore, one must be able to recognize when X is the same water as Y.”

Antecedent	<i>das</i>	<i>was</i>	Ratio	Raw data	
				<i>das</i>	<i>was</i>
<i>jedes</i> 'each'	9	1	9:1	9	12
<i>jedes</i> N 'each N'	1.700	16	106:1	2.048	50
<i>das</i> 'that'	111	50.241	1:450	301	50.493
<i>das</i> N 'that/the N'	65.385	657	99:1	83.828	1.879
<i>alles</i> 'everything'	42	34.211	1:814	265	34.211
<i>alles</i> N 'everything N'	231	29	8:1	272	524
<i>nichts</i> 'nothing'	307	3.241	1:10	903	3.241
<i>nichts</i> N 'nothing N'	9	5	2:1	27	13
<i>keines</i> 'none'	117	4	29:1	127	7
<i>kein</i> N 'no N'	1.845	60	30:1	3.549	229
<i>das einzige</i> 'the only thing'	621	4.412	1:7	621	4.412
<i>das einzige</i> N 'the only N'	2.048	50	41:1	2.048	51

Table 3: Relative frequencies of *das* vs. *was* in different contexts

The first column gives the antecedent expression, the second and third columns give the absolute frequencies of *das* and *was* respectively. The fourth column gives the ratio between *das* and *was* and the fifth and sixth columns the absolute frequencies of *das* and *was* before manual examination of the data.¹⁶ Something we can extract immediately from the results is that there was more “data garbage”, i.e., cases that had to be manually filtered out in the case of *was* than in the case of *das*; it is often hard (if at all possible), e.g., to distinguish between relative clauses and indirect questions in the case of embedded sentences introduced by *was*. This conforms to the assumption that *was* is less specified than *das*.

The presence or absence of a lexical noun in the antecedent expression cites an overall quite massive, and after some consideration very considerable effect. On average, there are about 200 occurrences of *was* as opposed to one occurrence of *das* in the cases where no lexical N is obviously expressed in the antecedent. If one abstracts from the cases pertaining to *jedes* and *keines*, on which more below, the ratio would be about 300:1. Conversely, there are on average about 50 occurrences of *das* as opposed to 1 occurrence of *was* in the cases where there is a lexical N expressed in the antecedent. While it must be clear that these numbers are to be handled with care, this indicates that the presence or absence of a lexical N is the most important factor regulating the choice between *das* and *was* in relative clauses. In addition, there are relatively fewer occurrences of *das* in contexts where *was* dominates, while there are relatively more occurrences of *was* in contexts where *das* dominates. If we were to trust the frequencies, we would be led to conclude that “wrongly used *das*” is more severely punished than “wrongly used *was*”. Again this corroborates the as-

¹⁶ We checked the results delivered by the COSMAS system manually in order to rule out hits that were not pertinent. In case the numbers were higher than 500, we checked the first 200 hits and extrapolated the result to the total number of cases.

sumption that *das* is more demanding, i.e., more specified than *was*, the use of which may not be excluded in an absolute sense but restricted only indirectly by the existence of elements (to note, the element *das*) that are to be preferred in certain contexts, much as a very successful explanation of Principles A and B of the Binding Theory by Tanya Reinhart would have it (cf. sections 4 and 5 below).

The cases of *jedes* and *keines* which lower the ratio of *was* in the superficially N-less environments considerably may suggest that distributability, i.e., the possibility of dividing the denotation of what the quantifiers talk about into distinguishable parts, may play a role as well. The ratios of *jedes* and *keines* are quite the opposite of the ratios of their non-distributive counterparts *alles* and *nichts*, which behave as they should in the absence of a lexical noun. We cannot go into the issue here in any satisfactory depth; we would like to point out though that while *jedes* clearly selects for (lexical) nouns, *alles* selects for (possibly nominalized) adjectives rather, cf.

- (24) a. Jedes Mädchen/?*Gute ist schön.
 every girl/ good is beautiful
 b. Alles Gute/*Mädchen ist schön.
 all good/ girl is beautiful

As distributivity seems to presuppose the right kind of thing to distribute over, we would want to argue presumably that quantifiers like *jedes* or *keines* do in fact govern lexical nouns which may remain silent. It is indeed a hotly debated issue where the restrictions that are badly needed semantically in the case of in particular universal quantifiers come from. Some authors (Marti 2003) have argued that they stem from syntactically present but unpronounced nominals (as opposed to the context of utterance or other sources). There may be an interesting source of empirical evidence in front of us first inquiry into which seems to support the view that quantifiers get systematically restricted by silent lexical nominal elements in the syntax (as this would seem to even the overall distribution of *das* or *was* with respect to particular, testable properties that can be isolated on antecedent expressions).

The cases of *eines* (1.500 times *das*, 50 times *was*, i.e., 30:1) and *ein* N (70.000 times *das*, 300 times *was*, i.e. 233:1) deserve more attention as well as the case of *etwas* (raw numbers: 5.473 *das* vs. 4.167 *was*) than we can afford here for now.¹⁷ Regarding *eines*, we can observe that it does not follow the general trend in that it has too many *das* to be N-less. It is tempting to speculate that the inflectional element *-es* plays the role of N here, and try this against *keines* as well, cf. the pattern in (25).

- (25) a. jedes – jedes Mädchen
 every – every girl

¹⁷ The Duden grammar (2009: 1031) mentions correctly: “Nach *etwas* kann *das* oder *was* verwendet werden [...]”

- b. eines – ein(*es) Mädchen
 one – one girl
- c. keines – kein(*es) Mädchen
 none – no girl

Suffice it to say regarding *etwas* that it appears to be ambiguous between at least a nominal (cf. *das gewisse Etwas* ‘that certain something’) and a specialized mass noun quantifier use (*etwas Oregano* ‘some oregano’), which should be clearly separated among maybe others before further steps can be taken.

Other results are as the literature would make expect and as intuitions confirm – to note, what appear to be nominalized adjectives, in particular, superlatives and ordinals, give rise to selection of *was*; the table shows only the case of *das Einzige* ‘the only thing’, but *das Beste* ‘the best’ or *das Erste* ‘the first’, *das Zweite* ‘the second’ etc. behave completely parallel.

To sum up, preliminary corpus results suggest that the choice of *das* vs. *was* depends on the presence of a lexical N that is part of the antecedent expression. No clear support comes for an effect of properties like (in)definiteness (cf. the cases of *das*, as well as the cases of *eines* or *ein N*),¹⁸ or a mass vs. count distinction. At rock bottom, there is reason to believe that well-established syntactic properties, in particular, the distinction between different types of categories, may suffice to account for the distribution of d- vs. w-relativizers. The feature we are looking for does not appear to be present on elements that are commonly analyzed as functional, i.e., quantifier- or determiner-like elements, which constitutes an interesting problem for accounts that would have it that DP is DP for the purposes of grammar, independently of internal makeup.

4 A derivational account of the *das* vs. *was* alternation

Above we have noticed that accessibility of a nominal head seems to be the most important factor governing the alternation between *das* and *was* in (different types of) relative clauses. It appears, then, that a feature that is present on lexical nouns as opposed to other, lexical as well as functional categories, is responsible for the choice of *das* over *was*.¹⁹ There must be, among the ingredi-

¹⁸ It appears unlikely that the virtual non-occurrence of *das*, *was* is due to dissimilation processes affecting the sequence *das*, *das*, cf. the perfectly regular cases of *etwas*, *was* or *der*; *der*. The case of *die* can be impressive in this regard due to underspecification with respect to case, cf. Curme’s (1922: 198) example in (i):

(i) Die, die die, die die Anlagen beschädigen, zur Anzeige bringen,
 those that those that the facilities damage to.the accusation bring
 erhalten 5 Taler Belohnung.
 receive 5 thalers reward

¹⁹ This raises interesting questions concerning the nature of lexical as opposed to functional categories, as the features that have been proposed so far to be responsible for the choice of *das* – to note, features having to do with (in)definiteness or ways of referring more generally – are typically

ents that we need for a formal analysis, something that distinguishes lexical nouns from all other categories. Incidentally, we have at our hands a proposal stemming originally from Geach (1962) that appears to be particularly fitting and that is resurrected in Baker (2003, cf. pages 95f.):

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.

The component of meaning that Baker talks about is called “criterion of identity” by Geach, designed in order to distinguish between what he called “substantial” and “adjectival” expressions; whether or not an expression supplies such a criterion of identity is reflected in the possibility of using it in tandem with certain other expressions, to note, the expression “the same”, as well as certain quantifiers and determiners. To get the idea, consider the following examples (cf. Baker 2003: 101).

- (26) a. Das ist dasselbe Mädchen, wie (das) ich gestern
that is the.same girl as (that) I yesterday
getroffen habe
met have
- b. * Das ist dasselbe Beste, wie (das) ich gestern gegessen
that is the.same best as (that) I yesterday eaten
habe
have
- (27) a. Jedes Mädchen bekommt ein Bonbon.
every girl gets a candy.
- b. Jedes Gute/?Beste bekommt ein Bonbon.
every good/best gets a candy
- (28) a. Ein/das Mädchen kam herein.
one/that girl came in
- b. * Ein Bestes/?Das Beste kam herein.
one best the best came in

We see in (26) that in contrast to bona fide lexical nouns, superlatives do not appear to furnish individuals that can be further modified by means of relativization; (27) illustrates that superlatives are odd as restrictors of the distributive universal quantifier *jedes*. (28) demonstrates that superlatives behave particularly with regard to the use of other quantifier-like elements as well. An intuitively plausible explanation lies in the assumption that these constructions depend on there being lexical content elements that supply criteria of identity; functional elements, including affixes responsible for nominalization, could not

taken to be coded on functional categories. It is often not clear, however, whether it is appropriate to take certain terms used by the neo-grammarians to mean what we are used to taking them to mean nowadays.

supply such criteria of identity quite simply because they have no descriptive content. Our findings suggest exactly that there must be something unique about lexical (as opposed, as well, to derived) nominals. We follow Geach and Baker, then, in assuming that there is a fundamental difference between substantival and adjectival concepts in that only the former furnish criteria of identity. There are independent syntactic reflexes of such a difference between substantival and adjectival concepts that may point to a certain feature-defectiveness of de-adjectival nominals; to note, prenominal modification of originally adjectival categories by means of adjectival categories may in certain cases do without the otherwise obligatory adjectival agreement.

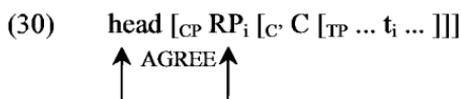
- (29) a. das vermeintlich(?e) Gute/Beste
 the allegedly good/best
 b. das vermeintlich*(e) Mädchen
 the allegedly girl

From the semantics point of view, relativization is eventually about identifying two slots (variables) that could be potentially completely independent of each other, or range over independent domains. For what we have come to accept as the standard case (modification of a nominal by means of a sentence where this nominal has a part as well), it is usually thought of as establishing sameness of reference of two nominal expressions. If adjectival concepts furnish no criteria of identity which are what is needed to speak meaningfully of sameness of reference, then it follows that adjectival concepts could not be relativized in the “usual” (what we are used to thinking of as standard) fashion because we are unable to decide whether the matrix and the embedded concept are indeed the same, that is, correspond to one and the same ordinary individual. As a consequence, whatever operations underlie the interpretation of w-relatives must be fundamentally different from those underlying d-relatives. This said, let us develop a derivational account of the phenomenon of variation between d- vs. w-relativizers that builds on the following intuitions (following Behaghel 1928, Wiese 2013, among others):

- i. The relativizer *das* is licensed by a syntactic agreement relation between the nominal head of the relative clause and the relativizer (at least in restrictive relative clauses). In other words, the spell-out *das* signals the presence of such an agreement mechanism.²⁰
- ii. The relativizer *was* does not depend on a syntactic agreement relation with the relative head. In other words, the spell-out *was* signals the absence of such an agreement relation.

²⁰ According to Sternefeld (2008: 382), this mode of analysis is supported by the suggestion (Heim & Kratzer 1998) that the relative pronoun of restrictive RCs lacks semantic content and therefore cannot be used as an anaphoric pronoun. As a result, its feature content can only be determined by syntactic means (and not via coindexing).

Before we turn to the specifics of our proposal, let us briefly present a set of background assumptions concerning the structure and derivation of (restrictive) relative clauses (RCs). We take it that the relative clause is a CP that modifies a head element, typically a lexical noun. Following Smith (1964), Chomsky (1965) and more recently Platzack (2000), the RC is merged as a sister of the head element. In Standard German, the RC is introduced by a relative pronoun (RP) (a d-pronoun, *welche* ‘which’, or *was*), which occupies SpecCP and is linked to a gap in the relative clause by a (wh-) movement dependency.²¹ In German, the RP agrees with the head noun in gender and number. We assume that at least in restrictive relative clauses, this agreement relation is established by a syntactic operation, and not by a (discourse-related) principle (such as coindexing) that requires pronouns to match potential antecedents in number and gender. For the sake of clarity, suppose that agreement between the head and the relative pronoun is established by an Agree relation (Chomsky 2000 and subsequent work):



The configuration in (30) raises some interesting technical questions, since it is clearly the lower element (i.e., the RP) that carries features that must be licensed/valued under agreement. Following recent work by Zeijlstra (2012, 2013), we would like to propose that (30) represents an instance of upward Agree, where a probe carrying uninterpretable features is c-commanded by a goal with matching interpretable features (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).²²

In what follows we present an analysis of the alternation between *das* and *was* which is based on the assumption that the choice between d- and w-morphology reflects different feature specifications in RP that result from different derivational histories. More precisely, following earlier proposals by Behaghel (1928) and Wiese (2013), we propose that the phonological exponent *das* realizes an RP that enters into an agreement relation with a lexical noun; elsewhere, *was* is inserted. In other words, the more specified exponent *das* is used in cases where a subset of the feature content of RP is valued/identified with a certain subset of the features present in N. Under this perspective, more must be said about the set of features that are shared between the head element and RP as a result of the hypothesized agreement relation.

²¹ Additional construction types are available in non-standard varieties, including the use of a relative complementizer *wo* (similar to *that* in English), which may co-occur with an RP (e.g. in many Southern German dialects), and resumptive pronouns that occur in the position of the gap.

²² 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).

4.1 The feature content of RP and the exponents related to *das* vs. *was*

Under standard assumptions, RP carries an operator feature and a set of phi-features (plus a category feature). The RP serves to establish a connection between the gap in the RC and the head noun. To be able to fulfill this mediating function, the RP agrees with the head noun in gender and number, but also carries a set of features that signal its position in the RC: The RP is assigned case in the RC, and if the RP corresponds to the subject of the RC, it triggers person and number agreement on the finite verb. In addition, we follow Baker (2003) and assume that the lexical specification of pronominal elements includes a slot for a referential index (RI) that provides a criterion of identity (see above) and is identified with the referential index of its antecedent (i.e., the head noun of the RC):

From the semantic point of view, connecting a relative clause to its head involves making an identity claim: [*John gave Mary the flower that he promised to her*], for example, says that what John gave to Mary was *the same flower* as that he promised to her. Since there is a sameness claim, there must be a standard of sameness, which is provided by the head of the relative. Therefore the head must have a criterion of identity, which is equivalent to saying it must be a noun projection [...]. (Baker 2003: 137)

Accordingly, the feature content of RP can be characterized as follows (following common practice, features that await valuation in the course of the syntactic derivation are marked as ‘uF’):

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

D, Op, are obviously inherently specified features of the RP; the same goes for person and number, which trigger agreement on the finite verb in the RC (although person might be left unspecified if it is assumed that third person expresses the absence of positively specified person features, cf. e.g. Benveniste 1950, 1966).²³ Under the assumption that the values of the gender feature and the referential index (RI) are determined via (upward) agreement with the head noun, these can be left unspecified. Case is assigned and valued internal to the RC. Focusing on the contexts that are of interest to us (i.e., neuter, singular, nominative/accusative), there are two possible outcomes of the syntactic derivation, dependent on whether the RP successfully probes a lexical noun from which it receives its RI:²⁴

²³ Note that number seems to play a special role: On the one hand, the finite verb of the RC agrees in number with the RP, which suggest that the RP is inherently specified for number. On the other hand, we know that the RP agrees in gender and number with the head noun, which suggests that number must be checked by the relevant agreement operation. So it seems that agreement does not only involve feature valuation, but also matching of two already valued features, see also fn. 30.

²⁴ We assume decomposition of the traditional phi-features, person, number, gender, and case, making use of a binary system 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 (where singular corresponds to the absence of number specifications), [\pm masculine, \pm feminine] for gender (where

- (32) a. RP [D, Op, -pl, -obl, -obj/+obj, +RI]
 b. RP [D, Op, -pl, -obl, -obj/+obj, -RI]

[−RI] stands for a referential index that hasn't been specified in the course of the syntactic derivation. Crucially, we assume that the absence of an RI does not lead to a crashing derivation. Rather, the RI must be identified with a discourse referent in the semantic/pragmatic component, which can be analyzed in terms of a post-hoc repair operation (cf. Brandt & Fuß 2013).

Suppose that bundles of abstract morpho-syntactic features are supplied with phonological exponents post-syntactically (by the operation of Vocabulary Insertion, Halle & Marantz 1993).²⁵ The distribution of *das* vs. *was* can then be linked to different featural specifications of the Vocabulary items that are used to realize the feature bundle linked to the RPs in (32) above.

- (33) a. [D, +op, +RI] ↔ /das/
 b. [+op] ↔ /was/

Note that both elements are heavily underspecified with regard to phi-feature values.²⁶ The d-pronoun *das* signals the presence of the category feature D, and of a RI that has been valued in the course of the syntactic derivation. In contrast, the lexical entry in (33b) captures the character of *was* as a pure focus/scope marker (cf. e.g. its use in partial wh-movement constructions; see also Bayer & Brandner 2008, Grewendorf 2012, and Boef 2012) that lacks both phi- and category specifications. Under the standard assumption that Vocabulary Insertion is governed by some form of the Elsewhere Condition (e.g., Halle's 1997 Subset Principle), the distribution of *das* and *was* can be correctly described: *was* is inserted as a default operator element in RCs where the referential index of the RP has not been determined (due to the absence of a lexical head noun) and

neuter corresponds to the absence of gender specifications, see below for discussion), and the following system of case distinctions based on the features [±oblique, ±object]:

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

²⁵ It is commonly assumed that the insertion of phonological exponents is governed by a set of conditions that make sure that the most specified exponent that is compatible with the insertion contexts is used, cf. *The Subset Principle* of Halle (1997: 428):

"The phonological exponent of a Vocabulary item is inserted into a morpheme in the terminal string if the item matches all of a subset of the grammatical features specified in the terminal morpheme. Insertion does not take place if the Vocabulary item contains features not present in the morpheme. Where several Vocabulary items meet the conditions for insertion, the item matching the greatest number of features specified in the terminal morpheme must be chosen."

²⁶ The logic of underspecification dictates that the availability of more specified candidates blocks the use of less specified markers like *das* in other contexts: Other d-pronouns such as *der*, *den*, *denen*, *dem*, *dessen*, *deren/derer* are clearly specified for case and/or number and therefore outrank *das* according to the Elsewhere/Subset Principle (the same goes for the set of w-pronouns). However, a detailed account of the exact feature specification of individual pronominal elements is clearly beyond the scope of this paper.

which therefore do not provide a possible insertion context for d-pronouns.²⁷ Conversely, while *was* is in principle compatible with contexts where the RI has been identified in the syntax, its use is generally blocked by the presence of a more specified exponent (namely *das*), which signals a larger subset of the features contained in the RP.

4.2 A model derivation

In what follows, we will illustrate with a model derivation how the distribution of *das* vs. *was* can be captured under the above assumptions. Consider the pair of examples in (34):

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

Recall that we assume that the derivation of (34a) and (34b) is very similar. Specifically, we take it that the respective RCs start from the same numeration containing the same set of lexical elements. The difference between *das* and *was* is derived in the course of derivation depending on the choice of element with which the RP enters into an (upward) agreement relation. If the RI of RP receives a value at this point of derivation, the RP is phonologically realized as *das*. Elsewhere, *was* is inserted.

- (35) a. *RP* merged as object of *liest*, followed by merge of little *v* and the subj. *du*
 [_{vP} *du* [_{v'} *v* [_{vP} *RP liest*]]]
- b. *v* probes *RP*, case assignment (acc), *RP* moves to the left edge of *vP*, completion of *vP* cycle:
 [_{vP} *RP* [_{v'} *du* [_{v'} *v* [_{vP} *RP liest*]]]]]
- c. Merge of *T*; *T* probes *du* (nom assignment, agreement), which moves to SpecTP (EPP):
 [_{TP} *du* [_{T'} *T* [_{vP} *RP* [_{v'} *du* [_{v'} *v* [_{vP} *RP liest*]]]]]]]
- d. Merge of *C_{relb}*, which seeks a relative operator, finding *RP*; *RP* moves to SpecCP:
 [_{CP} *RP* [_{C'} *C* [_{TP} *du* [_{T'} *T* [_{vP} *RP* [_{v'} *du* [_{v'} *v* [_{vP} *RP liest*]]]]]]]]]]]

²⁷ Note that in (33), it is assumed that *das* is specified for an operator feature, which turns it into a relative pronoun that happens to be homophonous with other instances of *das* (e.g., the demonstrative). An argument in favor of the existence of a separate series of relative pronouns comes from the observation that certain attributive genitive forms such as *deren* (genitive plural) are unambiguous relative markers, which cannot be used as demonstratives.

- e. Merge of the relative clause with its head, either a noun or a D-element (here: *Buch*, with the RI [i], or the determiner/quantifier *alles*):

[_{DP} *alles* [_{CP}RP [_C C [_{TP} *du* [_T T [_{VP} RP [_v *du* [_v V [_{VP} RP *liest*]]]]]]]]]]]]]
 [_{NP} *Buch*_[i] [_{CP}RP [_C C [_{TP} *du* [_T T [_{VP} RP [_v *du* [_v V [_{VP} RP *liest*]]]]]]]]]]]]]

When the RC is merged with a lexical noun, the unvalued features of RP (gender and RI) are identified with the values of the noun's RI and its (interpretable) gender feature via upward Agree. Recall that we assume that 3rd person and neuter are default interpretations that result from the absence of positive specifications for person and gender. In the case of (34a), this gives rise to the following feature bundle for RP:

(36) [[D], [op], [-obl, +obj], [_{RI} i]]

The feature set in (36) is compatible with both *das* and *was*. According to the Subset Principle, however, the most specified exponent must be used, leading to insertion of *das*, which requires the presence of a positively specified RI in the insertion context. In cases where the RC is not merged with a lexical noun, but rather with a neuter determiner or quantifier (both presumably of the category D), the RP cannot receive an RI in the syntax and lacks a relevant value at the point of Vocabulary Insertion, giving rise to a feature bundle that minimally differs from (36):²⁸

(37) [[D], [op], [-obl, +obj], [_{RI} ___]]

Das does not match the insertion context in (37) since it requires the presence of a valued RI. The only form that can be used is the pure operator marker *was*, which lacks a specification for an RI.

4.3 The restriction to *was*

As has been pointed out above, the use of w-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 w-forms (which signal case distinctions more clearly) are generally absent in restrictive RCs, even in cases that seem to lack a lexical head noun, cf. (38).

(38) a. *jeder/keiner*, *der/*wer* *das* *liest*
 each.MASC/none.MASC that.MASC.NOM/who.NOM that reads

²⁸ As already discussed above, it appears that nominalized adjectives cannot provide an RI either. This can be accounted for if we assume that the nominalizing head is a functional category that lacks descriptive semantic content. The hypothesis that the nominalizing head is 'too weak' and supplies only minimal nominal content is supported by the observation (see above) that the relevant nominalized adjectives exhibit a number of special properties, including lack of agreement with certain modifiers (e.g., *vermeintlich* 'alleged(ly)') and a restriction to neuter gender, which can be analyzed in terms of the absence of gender features (see below).

b.	jeder/keiner, each.MASC/none.MASC	den/*wen that.MASC.ACC/who.ACC	du kennst you know
c.	jeder/keiner, each.MASC/none.MASC	dcm/*wcm that.MASC.DAT/who.DAT	du vertraust you trust
d.	jede/keine, each.FEM/none.FEM	die/*wer that.FEM.NOM/who.NOM	das liest that reads

In (38), the RP agrees in gender with a non-neuter quantifier that acts as head of the relative clause. Despite the apparent lack of a lexical head noun, the RC can only be introduced by a d-pronoun. This state of affairs is captured by the following generalization:

- (39) Distribution of w-pronouns in (restrictive) RCs
 In restrictive RCs, w-pronouns are confined to neuter contexts that lack a lexical head noun.

At first sight, the restriction to neuter gender comes as a surprise – note that non-neuter w-pronouns are perfectly fine in another type of relative clause that lacks a lexical head noun, namely free relatives, cf.:

- (40) a. [Wer wagt], gewinnt.
 who.NOM dares wins
 b. Er lädt ein, [wen er mag].
 he invites who.ACC he likes
 c. [Wem das zuviel ist], bleibt lieber zuhause.
 who.DAT that too much is stays preferably at home

Moreover, if we treat the *der/wer* alternation on a par with *das* vs. *was*, we would expect that the w-variant is preferred over the d-pronoun in contexts where no overt lexical head noun is present and the referential index of the RP cannot be determined in the syntax. As shown in (38) above, this expectation is not borne out by the facts.

In what follows, we will present a solution to this puzzle that attributes the curious restriction to *was* to the hidden syntax of quantified elements that act as heads of relative clauses. Above in section 3, we saw that there are good reasons to believe that in cases like (38) there is in fact a nominal head available that can be accessed by upward Agree. In support, note that quantifiers, similar to determiners and adjectives, agree in gender and number with their head noun:²⁹

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

²⁹ Together with the fact that quantifiers are typically in complementary distribution with other determiners, these facts suggest that quantifiers are elements of the category D.

- (42)
- | | | |
|----|---------|--------|
| a. | kein | Mann |
| | no.MASC | man |
| b. | keine | Frau |
| | no-FEM | woman |
| c. | kein | Pferd |
| | no.NEUT | horse |
| d. | keine | Männer |
| | no-PL | men |

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 the lexical noun. Now, let's go back to the problematic examples in (38), repeated here for convenience:

- (43)
- | | | | | |
|----|---------------------|-----------------------|------|-----------|
| a. | jeder/keiner, | der/*wer | das | liest |
| | each.MASC/none.MASC | that.MASC.NOM/who.NOM | that | reads |
| b. | jeder/keiner, | den/*wen | du | kennst |
| | each.MASC/none.MASC | that.MASC.ACC/who.ACC | you | know |
| c. | jeder/keiner, | dem/*wem | du | vertraust |
| | each.MASC/none.MASC | that.MASC.DAT/who.DAT | you | trust |
| d. | jede/keine, | die/*wer | das | liest |
| | each.FEM/none.FEM | that.FEM.NOM/who.NOM | that | reads |

Under the plausible assumption that quantifiers lack inherent specifications for gender and number, the question arises of how we can account for the fact that the elements *jeder/keiner* are marked for masculine/feminine in (43). An obvious answer is to assume the following structure where the RC is not directly merged with the quantifier (presumably of category D), but rather with a phonetically empty lexical head that supplies the quantifier with phi-features under agreement/concord:

- (44) [_{DP} jeder/keiner [_{NP} N CPrel]]

In other words, it appears that the presence of non-neuter inflectional features on a quantifier always implies the presence of a (empty) lexical noun that acts as the actual head of the RC. As a result, the referential index of the RP can always be identified with the relevant index of the head noun, leading to the insertion of d-type relative pronouns. A final question we have to address concerns the source of neuter gender in quantifiers such as *alles*, which require *was-*relatives. We have assumed that in these cases, the RC merges directly with the D-element (leading to w-morphology since the RP cannot detect a RI):

- (45) [_{DP} alles CPrel]

A solution for the question of how *alles* receives its neuter gender feature can be provided by the special role of neuter gender in the system of gender features. Recall that we have adopted the assumption that neuter is actually no particular

gender feature, but rather corresponds to the absence of positive specifications for the features [masculine] and [feminine]. In cases where a determiner fails to acquire gender features from a lexical noun as in (45), the resulting absence of gender specifications is automatically interpreted as neuter at the interfaces to the post-syntactic computation; another consequence is that the RP cannot acquire gender features in the course of the syntactic derivation, which also leads to a realization as default gender, i.e. neuter.³⁰ Essentially the same considerations hold for singular, which corresponds to the absence of number specifications. These considerations capture the observed correlation between neuter gender and the availability of w-pronouns in RCs: w-pronouns are only possible in cases where the RC is directly merged with a D-element. Due to the lack of a head noun, the quantifier/determiner is assigned neuter by default, and the RP cannot acquire a RI. In contrast, the presence of positive gender or number specifications on the quantifier always implies the presence of a lexical head noun, which triggers the use of d-type relative pronouns.³¹

5 On the way to one system?

To the extent that the analysis presented here is on the right track, quite fundamental differences disclose behind the tiny surface distinction between *das*- and *was*-relativizers, raising the question of how the system could have developed. We believe that it is helpful in this regard to look at the phenomenon through the eyes of implicature theory, comparing the relation between *das* and *was* to the relation between anaphors and pronouns as they present themselves under a Reinhartian approach. In particular, principle B – the requirement that pronominals must be locally free – has been argued to be the outcome of the grammaticalization of implicature and may provide a model of explanation for our cases as well. Reinhart formulated the strategies given in (46) to rule the distribution of anaphors (here: “R-pronouns”) versus pronouns (here: “non-R-pronouns”), cf. Reinhart (1983:167):³²

³⁰ This approach to the phi-specification of relative pronouns raises a question for the analysis of free relatives, though. Obviously, the w-pronoun introducing a free relative lacks a nominal antecedent and thus cannot receive any phi-values from the immediate syntactic context. This suggests that the w-pronoun enters the derivation with a fully specified phi-set (with the exception of case), similar to w-interrogative pronouns. This seems to suggest that (relative) w-pronouns differ generally from d-pronouns in that only the former carry an inherent gender specification. Alternatively, we may assume that both types of pronoun carry a gender specification, leading to a slight revision of our above analysis in that gender is now treated on par with number (i.e., phi-agreement between the head noun and RP does not value gender and number features, but rather checks whether the respective values are compatible). We leave this issue open for future research.

³¹ Recall that the behavior of neuter quantifiers such as *jedes/keines* ‘each.NEUT/none.NEUT’, which trigger d-morphology on the RP, can be linked to the special interpretation of these elements. Above, we have suggested that these neuter quantifiers always imply the presence of an elided lexical restriction (i.e., an empty noun that has an antecedent in the discourse context).

³² Cf. Levinson (1987) et seq. for further development of a pragmatic explanation for the binding principles. According to (neo-)Gricean reasoning, the use of a more general (semantically

- (46) *Speaker's strategy*: Where a syntactic structure you are using allows bound-anaphora interpretation, then use it if you intend your expressions to corefer, unless you have some reasons to avoid bound anaphora.

Hearer's strategy: If the speaker avoids bound anaphora options provided by the structure he is using, then, unless he has reasons to avoid bound anaphora, he did not intend his expressions to corefer.

To note, Reinhart's approach claims that where possible, the more specific form should be used. Besides explaining an empirically attested delay of principle B in language acquisition, it leaves room as well for languages not making the same choices or invent the same apparatus for the same domains or purposes. E.g., Loniu has been reported to be a language that does without reflexive-anaphoric expressions (Hamel 1994: 54).

Principle B says that a pronoun must not be bound by an antecedent in the local domain because there are anaphors (more generally: reflexive markers), which must be used if a reflexive meaning is intended, as they more specifically express this meaning than pronouns, which express this meaning as well, but serve as well to express many meanings that are not reflexive.³³ Accordingly, in the process, the originally all-purpose meaning of pronouns gets limited (strengthened, more exclusive) through the availability of a form with the reflexive-anaphoric meaning. Consider in this light the example in (47), which brings out a difference in meaning resulting from using *das* vs. *was* relativizers.

- (47) Das ist ein schönes Fahrrad im Vergleich zu dem,
 that is a nice bicycle in.the comparison to the-DAT
 das/was du hast.
 that/what you have

The point is that use of the d-relativizer appears to force interpretation of the relative clause as talking about bicycles, i.e., what is denoted by the nominal in the first conjunct. In contrast, use of the w-relativizer seems to suggest that the subject matter of the second conjunct is not the same as that talked about in the

weaker or more inclusive) form implies the non-applicability of a more special (semantically stronger or more exclusive) form, as in the case of quantity implicature (*some* implicates *not all* although logically, it is compatible with (or even entailed by) *all*). In the process, the meaning of the weaker form (*some*) gets strengthened by adding to the proposition it is part of the negation of that proposition modulo substitution of the weaker form by the stronger form. This exploitation of Gricean Maxims (informativity in particular) works only with elements between which logical entailment relations hold, i.e., which can be compared regarding their strength or live on the same scale (aka "Horn scale", cf. Horn 1972).

³³ The meaning of any two-place predicate will be a subset of all the possible pairs of individuals in the domain (the "Cartesian product"). The meaning of a reflexivized two-place predicate will be a subset of all the reflexive pairs (i.e., pairs featuring the same variable in first and second position) of the domain. Regarding meaning relations that remain constant across domains, then, the meaning of a reflexive predicate is stronger (i.e., more exclusive) than the meaning of a two-place predicate (that has not been otherwise manipulated or contextualized yet).

matrix. Reminiscent of the strict vs. sloppy identity effects in connection with continuative relative clauses mentioned in section 3, use of *das* forces interpretation in terms of (features of) an elided N (sloppy, anaphoric),³⁴ while use of *was* allows as well a construal in terms of whatever the context may dictate (strict, pronominal). If this is the meaning that is intended, there is no other way but that of using *was*. At the same time, many a reader will share the intuition that the relative clause in (48) may well talk about bicycles.

- (48) Mein Fahrrad ist schneller als was du hast.
 my bicycle is faster than what you have

What factors are involved that seem to be “pushing” *was* to the disadvantage of *das* in (very) modern German, whether this spreads and where (not), and what it may *ceteris paribus* lead to are questions that we are addressing in ongoing work. To note, *was* appears to be gaining ground from *das* in actual, situation-based everyday speech (as opposed to written text), where establishing reference by non-anaphoric means is typically easy. Deciding for arbitrary cases whether expected but missing *das* is a matter of abdication or homonymy (or maybe something else) is not.³⁵

Acknowledgments: Apart from hinting at the grammatical status of the relativizer *was*, which is the subject matter of this paper, the title also pays tribute to one of Günther’s favorite predicates (*fragwürdig* ‘questionable’), which he regularly uses when he wants to express his attitude towards the vicissitudes of (academic) life, typically in the formula *Das ist alles sehr fragwürdig* ‘That’s all very questionable.’ We would like to use this occasion to thank Günther for his healthy skepticism towards certain undesirable (and indeed questionable) traits of day-to-day business at the university, and life in general. Additional thanks go to Hardarik Blühdorn, Erich Groat, Fabian Heck, Marek Konopka, Anna Volodina, Bernd Wiese, and Angelika Wöllstein for helpful comments and suggestions, and to Nagehan Cetin for assisting us with combing through large

³⁴ Cf. the Duden grammar (2009:1031) for the observation that *das* as a relativizer may give rise to interpretations in terms of an elided noun.

³⁵ *Was* has gained a wider distribution as a relativizer in dialectal (cf. Weise 1917, Fleischer 2005) and colloquial varieties of German (possibly spreading to more formal registers), cf. the following examples extracted from the DeReKo:

- (i) 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)
- (ii) [...] **das Buch, was** man schon in dreifacher Ausführung
 the book what one already in threefold copy
 im Regal stehen hat
 in-the shelf stand has
 ‘the book of which one already has three copies on the shelf’
 (RHZ06/JAN.00295 Rhein-Zeitung, 02.01.2006; Keine Geschenk-Umtauschelle in
 Mayen)

amounts of recalcitrant data. Obviously, all remaining errors and obscurities are our responsibility.

The research reported here grew out of the larger project “Korpusgrammatik – grammatische Variation im standardsprachlichen und standardnahen Deutsch” (‘Corpus grammar – grammatical variation in (near) standard German’) carried out at the Institut für Deutsche Sprache (IDS) in Mannheim.

References

- Baker, Mark (2003): *Lexical Categories*. Cambridge: Cambridge University Press.
- Bayer, Josef & Eleonore Brandner (2008): On wh-head-movement and the doubly-filled-comp filter. In: Charles B. Chang & Hannah J. Haynie (eds.), *Proceedings of the 26th West Coast Conference on Formal Linguistics*. Somerville: Cascadia Proceedings Project, 87–95.
- Behaghel, Otto (1928): *Deutsche Syntax. Eine geschichtliche Darstellung. Vol. 3: Die Satzgebilde*. Heidelberg: C. Winter.
- Benveniste, Emile (1950): La phrase nominale. In: *Bulletin de la Société Linguistique de Paris* 46, 19–36.
- Benveniste, Emile (1966): *Problèmes de linguistique générale*. Paris: Editions Gallimard.
- Bierwisch, Manfred (1967): Syntactic features in morphology: general problems of so-called nominal inflection in German. In: *To Honor Roman Jakobson: Essays on the Occasion of His Seventieth Birthday*. The Hague: Mouton, 239–270.
- Blevins, James P. (1995): Syncretism and Paradigmatic Opposition. In: *Linguistics and Philosophy* 18, 113–152.
- Boef, Eefje (2012): *Doubling in Relative Clauses. Aspects of Morphosyntactic Variation in Dutch*. Utrecht: LOT.
- Brandt, Patrick & Eric Fuß (eds.) (2013): *Repairs. The Added Value of Being Wrong*. Berlin: Walter de Gruyter.
- Bresnan, Joan & Jane Grimshaw (1978): The syntax of free relatives in English. In: *Linguistic Inquiry* 9, 331–391.
- Chierchia, Gennaro (1998): Plurality of mass nouns and the notion of “semantic parameter.” In: Susan Rothstein (ed.), *Events and Grammar*. Dordrecht: Kluwer, 53–103.
- Chomsky, Noam (1965): *Aspects of the Theory of Syntax*. Cambridge, Mass.: The MIT Press.
- Chomsky, Noam (2000): Minimalist inquiries: the framework. In: Roger Martin, David Michaels & Juan Uriagereka (eds.), *Step by Step: Essays on Minimalist Syntax in Honor of Howard Lasnik*. Cambridge, Mass.: MIT Press, 89–155.
- Citko, Barbara (2004): On headed, headless, and light-headed relatives. *Natural Language and Linguistic Theory* 22, 95–126.
- Corbett, Greville (2000): *Number*. Cambridge: Cambridge University Press.
- Curme, George O. (1922): *A Grammar of the German Language. Second revised edition*. [Ninth printing 1964]. New York: Ungar.
- Dudenredaktion (ed.). (2009): *Duden: Die Grammatik*. 8. Auflage. Mannheim/Leipzig/Wien/Zürich: Dudenverlag.
- Fleischer, Jürg (2005): Relativsätze in den Dialekten des Deutschen: Vergleich und Typologie. *Linguistik Online* 24, 171–186.
- Fuß, Eric & Günther Grewendorf: To appear. Freie Relativsätze mit d-Pronomen. In: *Zeitschrift für Sprachwissenschaft*.
- Geach, Peter (1962): *Reference and Generality*. Ithaca, NY: Cornell University Press.

- Greenberg, Joseph (1963): Some universals of grammar with particular reference to the order of meaningful elements. In: J. Greenberg (ed.), *Universals of Grammar*. Cambridge, Mass.: The MIT Press, 73–113.
- Grewendorf, Günther (2012): Wh-movement as topic movement. In: Laura Brugé, Anna Cardinaletti, Giuliana Giusti, Nicola Munaro & Cecilia Poletto (eds.), *Functional Heads: The Cartography of Syntactic Structures*, Vol. 7. Oxford: Oxford University Press, 55–68.
- Grice, Herbert Paul (1975): Logic and conversation. In: Peter Cole & Jerry L. Morgan (eds.), *Syntax and Semantics*, Vol. 3. New York: Academic Press, 41–58.
- Hachem, Mirjam (2013): D- and w-pronouns in the left periphery of German and Dutch relative clauses. Paper presented at the *Relative Clause Workshop*. Konstanz University. 26.04.2013.
- Halle, Morris (1997): Distributed Morphology: Impoverishment and Fission. In: B. Bruening, Y. Kang, and M. McGinnis (eds.), *MIT Working Papers in Linguistics 30: PF: Papers At the Interface*. Cambridge, Mass.: Department of Linguistics and Philosophy, MIT, 425–450.
- Halle, Morris & Alec Marantz (1993): Distributed Morphology and the pieces of inflection. In: Kenneth Hale & Samuel J. Keyser (eds.), *The View from Building 20*. Cambridge: The MIT Press, 111–176.
- Hamel, Patricia J. (1994): *A Grammar and Lexicon of Loniu, Papua New Guinea*. Pacific Linguistics C-103. Canberra: The Australian National University.
- Heck, Fabian & Juan Cuartero (2011): Long distance agreement in relative clauses. In: Artemis Alexiadou, Tibor Kiss & Gereon Müller (eds.), *Local Modelling of Non-Local Dependencies in Syntax*. Berlin: de Gruyter, 49–83.
- Heim, Irene & Angelika Kratzer (1998): *Semantics in Generative Grammar*. Malden, Mass.: Blackwell.
- Holler, Anke (2005): *Weiterführende Relativsätze. Empirische und theoretische Aspekte*. Berlin: Akademie Verlag.
- Holler, Anke (2013): *d-* und *w-*Relativsätze. In: Jörg Meibauer, Markus Steinbach & Hans Altmann (eds.), *Satztypen des Deutschen*. Berlin: de Gruyter, 266–300.
- Horn, Laurence R. (1972): *On the Semantic Properties of Logical Operators in English*. PhD Dissertation, University of California at Los Angeles.
- Jespersen, Otto (1954): *A Modern English Grammar on Historical Principles*, Vol. III. London: Allen & Unwin.
- Kayne, Richard (1994): *The Antisymmetry of Syntax*. Cambridge, Mass.: MIT Press.
- Levinson, Stephen C. (1987): Pragmatics and the theory of anaphora: A partial pragmatic reduction of Binding and Control phenomena, *Journal of Linguistics* 23.2, 379–434.
- Marti, Luisa (2003): *Contextual Variables*. PhD Dissertation, University of Connecticut.
- Paul, Hermann (1920): *Deutsche Grammatik, Band IV: Syntax*. Halle: Max Niemeyer.
- Platzack, Christer (2000): A complement-of-N account of restrictive and non-restrictive relatives: The case of Swedish. In: Artemis Alexiadou, Paul Law, André Meinunger & Chris Wilder (eds.), *The Syntax of Relative Clauses*. Amsterdam: John Benjamins, 265–308.
- Reinhart, Tanya (1983): *Anaphora and Semantic Interpretation*. London: Croom Helm.
- Ross, John Robert (1967): *Constraints on Variables in Syntax*. PhD Dissertation, Massachusetts Institute of Technology, Cambridge.
- Smith, Carlotta (1964): Determiners and relative clauses in a generative grammar of English. In: *Language* 40, 37–52.
- Sternefeld, Wolfgang (2008): *Syntax. Eine morphologisch motivierte generative Beschreibung des Deutschen, Band 1*. Tübingen: Stauffenberg.
- Weise, Oskar (1917): Die Relativpronomina in den deutschen Mundarten. In: *Zeitschrift für deutsche Mundarten*, 64–71.

- Wiese, Bernd (1999): Unterspezifizierte Paradigmen. Form und Funktion in der pronominalen Deklination. In: *Linguistik Online* 4 (http://www.linguistik-online.de/3_99).
- Wiese, Bernd. (2013): Relativpronomina: Flexion und Wortfelder. Ms., IDS Mannheim.
- Zeijlstra, Hedde (2012): There is only one way to agree. In: *The Linguistic Review* 29, 491–539.
- Zeijlstra, Hedde (2013): Upward Agree is superior. Ms., University of Amsterdam.
- Zifonun, Gisela, Ludger Hoffmann, Bruno Strecker et al. (1997): *Grammatik der deutschen Sprache*. Berlin/New York: de Gruyter.

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