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

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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) 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 Peter getroffen hat
the woman that.FEM.ACC Peter met has
e. das Auto, das Peter fährt
the car that.NEUT.ACC Peter drives
f. die Männer/Frauen/Autos, die Peter gesehen hat
the men/women/cars that.PL Peter seen has

- However, with a certain set of neuter antecedents, the position of the d-pronoun can be taken by wh-pronouns (cf. e.g. Duden 2009:1031f.; see Paul 1920, Curme 1922, Behaghel 1928 for a more comprehensive survey):

(2) 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)

(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“)
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)

[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 (typically confined to the written language).

- Standard view in descriptive works on German (cf. e.g. Duden 2009): The contexts in (2) are quirky exceptions to the general case, i.e., the use of d-pronouns as relativizers.
- This talk: The use of wh-pronouns as relativizers is more regular (and widespread) than has been generally appreciated:

(4) a. In contrast to the common view, *was* is used as a default/elsewhere relativizer in cases where the more specific licensing requirements of *das* cannot be met;
b. More precisely, *was* is used as a relativizer in cases where there is no appropriate nominal lexical antecedent present (cf. already Behaghel 1928);[2]
c. Cases where *das* appears despite the apparent absence of a lexical head noun suggest that there are silent (elided or abstract/empty) nouns in the syntax.

- The paper is organized as follows:
  i. Sections 2 reviews selected earlier proposals;
  ii. Section 3 presents the results of a corpus study on the distribution of *das* vs. *was* that support (4);
  iii. Section 4 develops a theoretical account that fleshes out the proposals in (4);
  iv. Section 5 wraps up and outlines possible directions for future work.

2. Earlier proposals

- Early (neo-) grammarians (Paul, Behaghel, and Curme): attempts to provide a principled description of the circumstances that determine pronoun choice in relative clauses.
- Proposals include:
  i. The use of *was* is linked to interpretative properties, such as indefiniteness or genericity, in particular where reference is to matter with mass-like properties (Paul 1920, and in particular Curme 1922).

> "[*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: [our emphasis, PB & EF]" (Curme 1922:198)

(5) a. Er verzweifelt überhaupt an allem **Heil**, **was** der Menschheit
he despairs generally of all salvation what the mankind
durch die Gesellschaft zuteil werden kann.
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)

[2] An additional source of variation involves choice of register: In oral/colloquial varieties of German, *was* has gained a wider distribution, replacing *das* with all kinds of neuter antecedents, cf.
(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)

b. Um ihn her war alles **Getier** lebendig, **was** auf der Heide die
around him about was all creatures alive what on the heath the
Junischwüle auszubrüten pflegt.
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)

(6) *Curme's generalization*
A *was*-relative can modify a neuter lexical noun "provided the reference is to an indefinite mass or amount".

Under this perspective, *was* is triggered by special semantic properties of certain (neuter) antecedents.

ii. *was* is used when the relative clause lacks a proper nominal antecedent (Behaghel 1928):

"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 [...]'

- This perspective facilitates a unified treatment of different types of RCs, which all have in common that they that lack an appropriate (overt) nominal antecedent:
  - ❖ attributive *was*-relatives
  - ❖ free relatives[3]
  - ❖ continuative relative clauses ("weiterführende Relativsätze"), which modify a matrix event or proposition:

(7) a. [Wer wagt], gewinnt.
who.NOM dares wins

[3] 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.'
Fuß & Grewendorf (to appear) 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).

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)

(8) 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
(A09/OKT.06424 St. Galler Tagblatt, 23.10.2009, S. 52; Goldener Herbst im Simmental)

(9) *Behaghel's generalization*
Was introduces relative clauses that lack a proper nominal antecedent.

- This insight is further systematized by Wiese (2013), who argues that the form of relativizers is determined syntactically via agreement with their antecedent (see also Hachem 2013):
  i. The content of d-pronouns is always syntactically determined (i.e., d-pronouns pick up the features of the nominals that they modify);
  ii. In contrast, wh-pronouns are used if there is no syntactic agreement with an antecedent;
  iii. The choice between *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 (*wer*) and non-persons (*was*), just as in interrogatives.

Under this perspective, *was* is a default relativizer that is not licensed under agreement with a nominal antecedent.[4]

[4] Further support for this view comes from the observation that the use of *was* leads to systematic ambiguities, which can be attributed to its ability to attach to different kinds of antecedents: In (i) the *was*-clause can be construed as modifier of the matrix VP/proposition or the direct object (Holler 2005:96); in (ii), *was* can refer either to the matrix proposition or the matrix predicate.

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

(ii) 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.'

3. More and less frequent patterns: *das* is triggered by (silent) head nouns

- As suggested in the neo-grammarian literature, distinctions beyond (but very possibly related to) the categorization as neuter gender might play a role for the selection of d- vs. wh-morphology on the relativizer. We try to decide between the following two hypotheses:

  A) Certain features on a ([+neuter]) nominal antecedent lead to relativization by means of *was*.
  B) Any [+neuter] nominal antecedent leads to relativization by means of *das*.

- 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.
- 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, 5.4 billion words) at the IDS Mannheim (http://www.ids-mannheim.de/cosmas2/).

Corpus study 1a

- We probed for about 30 neuter gender mass nouns at the beginning of sentences (so as to exclude effects of "indivduation" caused by classifiers or articles and the like), i.e., we searched the corpus for the variants exemplified in (10).

(10) Fleisch/Geld/Mehl, **das/was**...
meat/money/flour that/what...

- Results: 1232 times *das*, 6 times *was* (all with *Geld* 'money'). → Hypothesis A is <u>not</u> supported.

Corpus study 1b

- 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 wh-relativizers coded something like a mass interpretation, then they should surface with these predicates. Concretely, we checked whether *was* is more frequent than *das*:

(11) ..., **das/was** massenweise/massenhaft/zuhauf ...
that/what en.masse/plentiful/in.droves ...

- Results: 7 times *das*, 1 time *was*:

(12) 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)

- But note that in (12), the head element is a superlative (and not a lexical noun). The other examples that we found all featured d-relativizers, in face of the fact that the nouns that were modified were mostly mass nouns themselves. (13) is a typical example.

(13) 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)

Our results do not support the importance of the count vs. mass distinction.

Corpus study 2a

- We tested the frequencies of d- vs. wh-relativizers in construction with antecedent schemata that we had abstracted from the literature:

Antecedent	*das*	*was*	Ratio
das 'that'	111	50.000	**1:450**
das N 'that/the N'	65.385	657	**99:1**
alles 'everything'	42	34.211	**1:814**
alles N 'everything N'	231	29	**8:1**
vieles 'many things'	174	1.306	**1:7,5**
vieles N 'many/much N'	1	0	
viel N 'many/much N'	279	5	**56:1**
nichts 'nothing'	307	3.241	**1:10**
nichts N 'nothing N'	9	5	**2:1**
das einzige 'the only thing'	621	4.412	**1:7**
das einzige N 'the only N'	2.048	50	**41:1**
jedes 'each'	9	1	**9:1**
jedes N 'each N'	1.700	16	**106:1**
keines 'none'	117	4	**29:1**
kein N 'no N'	1.845	60	**30:1**

Table 1: Relative frequencies of *das* vs. *was* in different contexts

⇒ *das/alles/vieles/nichts/das einzige*: The presence or absence of a lexical noun in the antecedent appears to rule the distribution of *das/was* in RCs.

⇒ A certain subset of quantifiers (*jedes/keines*) always seems to trigger *das*, independent of whether a lexical noun is present or not (ratio for *das* with 'naked' *jedes*/*keines* is 9:1, and 117:4, respectively). Similarly, *eines* (1.500 times *das*, 50 times *was*, i.e., 30:1) has too many *das* to be N-less.[5]

[5] Note that there are relatively fewer occurrences of *das* in contexts where *was* dominates (no lexical noun: *was* c. 200 times more frequent than *das*), while there are relatively more occurrences of *was* in contexts where *das* dominates (with lexical noun: *das* c. 50 times more frequent than *was*).

- Assumption: *jedes/keines/eines* require the presence of a silent lexical noun.[6]
- Support: In all instances of *keines, das* found in the corpus, the lexical restriction of the quantifier is provided by an element previously mentioned in the immediate discourse context:

(14) Ein richtiges Fußballspiel. **Keines, das** ich nur im Fernsehen
a real football match none that I only in-the TV
anschauen kann, sondern eines auf Rasen, eines, bei dem ich am Rand
watch can but one on lawn one at which I at-the edge
stehen und mitfiebern kann. Eines, bei dem man die Spieler
stand and engage can one where one the players
nicht nur als Stars aus der Werbung kennt.
not only as stars from the commercials knows
(BRZ10/MAR.05983 Braunschweiger Zeitung, 12.03.2010;)

- Debated issue: Where do the restrictions of (certain) quantifiers come from? D- vs. wh-relativization might provide an empirical argument for the view (Marti 2003) that they stem from syntactically present but unpronounced nominals (as opposed to the context of utterance or other sources), see also Kayne (2003, 2007).
- *Jedes* vs. *alles*: While *jedes* clearly selects for (lexical) nouns, *alles* selects for (possibly nominalized) adjectives rather, cf.

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

- Further arguments for the presence of a silent N in certain (unexpected) cases of wh-relativization come from concord, to be discussed in section 4 below.

[6] It is tempting to speculate that the inflectional element *-es* plays the role of N in pronominal uses of *eines*, and try this against *keines* as well, cf. the pattern in (i):

(i) a. jedes – jedes Mädchen
every – every girl
b. eines – ein(*es) Mädchen
one – one girl
c. keines – kein(*es) Mädchen
none – no girl

However, this approach does not seem to make the correct predictions for other elements such as *vieles* 'many things', that exhibits a similar pattern (but in addition expresses a mass/count distinction), but favors *was* in the absence of a lexical restriction (see Table 1 above):

(ii) vieles – viel Wasser/viele Mädchen
many X – much water/many girls

Moreover, the inflectional differences between *jedes* and *eines/keines* are due to a historical accident (non-complete extension of originally adjectival inflections to highly frequent determiners such as *eines/keines*), which suggests that one should perhaps not make too much of this distinction (this was pointed out to us by Bernd Wiese, p.c.).

Corpus study 2b

- To exclude continuative RCs, which occur only clause-finally (in the so-called "Nachfeld"), we confined the earlier search to the beginning of sentences:

	das	*was*	Ratio
das	15	4.432	**1:295**
das + N	20.621	87	**237:1**
alles	3	9.190	**1:3063**
alles + N	48	9	**5,3:1**
vieles	22	438	**1:20**
vieles + N	0	0	
viel + N	25	1	**25:1**
nichts	9	290	**1:32**
nichts + N	0	0	
das einzige	204	2.650	**1:13**
das einzige + N	305	9	**34:1**
jedes	1	0	
jedes + N	712	9	**79:1**
eines	390	2	**195:1**
ein + N	14.680	32	**458:1**
keines	9	0	
kein + N	398	0	

Table 2: Relative frequencies of *das* vs. *was* in clause-initial position

- While excluding many cases of spurious *was*, the results confirm the earlier findings.

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

4.1 Why N?

- Our findings suggest: 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*.
- Following Geach (1962) and Baker (2003), we assume that nouns furnish a criterion of identity (viz. referential index, RI) 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.)

- 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 (cf. Baker 2003:101):

(16) a. Das ist dasselbe Mädchen wie (das) ich gestern getroffen habe.
that is the.same girl as (that) I yesterday met have
b. * Das ist dasselbe Beste/Gute wie (das) ich gestern gegessen habe.
that is the.same best/good as (that) I yesterday eaten have

(17) a. Jedes Mädchen bekommt ein Bonbon.
every girl gets a candy.
b. Jedes Gute/?Beste bekommt ein Bonbon.
every good/best gets a candy

(18) a. Ein/das Mädchen kam herein.
one/that girl came in
b. *Ein Bestes/?Das Beste kam herein.
one best the best came in

- (16)-(18) show:
  i. in contrast to bona fide lexical nouns, nominalized adjectives do not appear to furnish individuals that can be further modified by means of relativization;
  ii. superlatives are odd as restrictors of the distributive universal quantifier *jedes*;
  iii. 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 supply such criteria of identity quite simply because they have no descriptive content.
- 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 de-adjectival categories may in certain cases do without the otherwise obligatory adjectival agreement.

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

Our proposal: The choice between d- and wh-morphology is determined in the course of the syntactic derivation, depending on whether the relativizer acquires a referential index/criterion of identity under agreement with a lexical head noun:
(i) The more specified exponent *das* is used in cases where a subset of the feature content of the relativizer is valued/identified with a certain subset of the features present in N under agreement;
(ii) elsewhere, *was* is inserted.

4.2 The syntax of relative clauses – background assumptions

- An attributive RC is merged as the sister of the head element (Smith 1964, Chomsky 1965, and more recently Platzack 2000).
- (Standard) German: RCs are 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.[7]

[7] 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.

- In (restrictive) RCs, (gender/number) agreement between the head noun and the relativizer is established in the syntax by Upward Agree (cf. e.g. Zeijlstra 2012, 2013 for the idea that agreement involves a relation between a probe and a higher, c-commanding goal):[8]

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

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

- Standard assumptions: RP contains a category feature, an operator feature [op] and a set of phi-features (person, number, gender, case).
- Baker (2003): In addition, 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 in (21) (features that await valuation in the course of the syntactic derivation are marked as 'uF'):[9]

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

- The gender feature and the referential index (RI) are determined via (upward) agreement with the head noun. Case is assigned and valued internal to the RC.
- Focusing on the *das*/*was* alternation, 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:[10]

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[8] 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).

[9] Note 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). 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. 13.

[10] 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), [±plural] for number, [±masculine, ±feminine] for gender (where 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]

(22) a. RP [D, Op, –pl, –obl, –obj/+obj, **+RI**]
b. RP [D, Op, –pl, –obl, –obj/+obj, **–RI**]

Spelling out RP...

- Assuming a realizational model of grammar (i.e., bundles of abstract morpho-syntactic features are supplied with phonological exponents post-syntactically, cf. e.g. Halle & Marantz 1993), 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 (22) above.

(23) a. [D, +op, –obl, +RI] ↔ /das/
b. [+op] ↔ /vas/

- *das* signals [op], a category feature and the presence of a referential index; in contrast, *was* is a pure focus/scope marker (cf. Bayer & Brandner 2008, Grewendorf 2012) that lacks both phi- and category specifications.[11]
- Under the standard assumption that the insertion of phonological exponents 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:

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

- The RCs in (24a) and (24b) start from the same numeration.
- 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:

(25) $[_{NP}\ \textit{Buch}_{[i]}\ [_{CP}\ \textit{RP}\ [_{C'}\ C\ [_{TP}\ \textit{du}\ [_{T'}\ T\ [_{vP}\ \textit{RP}\ [_{v'}\ \textit{du}\ [_{v'}\ v\ [_{VP}\ \textit{RP}\ \textit{liest}]]]]]]]]$

(26) [[D], [op], [–pl], [–obl, +obj], [$_{RI}$ i]]

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b. accusative: [–obl, +obj]
c. dative: [+obl, +obj]
d. genitive: [+obl, –obj]

[11] Note that in (23), 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.
The decision to posit a contrast between *das* and *was* with regard to the feature [–obl] is based on the observation that *was* but not *das* is compatible with contexts where dative case is assigned by a preposition, cf.

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

Recall, though, that there is a (strong) tendency to avoid *was* in oblique cases assigned by a verb. Possibly, this has to do with fact that oblique verbal cases are typically assigned to animate/human arguments, which is incompatible with the character of *was* as a non-person marker (cf. e.g. Wiese 2013).

The feature set in (26) is compatible with both *das* and *was*. According to the Elsewhere Condition, however, the more specified exponent must be used ⇒ insertion of *das*.

- 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:[12]

(27) $[_{DP}$ *alles* $[_{CP}$ *RP* $[_{C'}$ C $[_{TP}$ *du* $[_{T'}$ T $[_{vP}$ *RP* $[_{v'}$ *du* $[_{v'}$ v $[_{VP}$ *RP liest*]]]]]]]]]

(28) [[D], [op], [–pl], [–obl, +obj], [$_{RI}$ __]]

das does not match the insertion context in (28) since it requires the presence of a valued RI ⇒ insertion of the pure operator marker *was*, which is underspecified for the distinction ±RI.

4.4 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:

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

- This restriction is somewhat unexpected...
- Possible solution: silent nouns again...
- Above we have argued that there are good reasons to believe that in cases like (29) 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:

(30) 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

[12] 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 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).

- 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:

(31) $[_{DP}$ jeder/keiner $[_{NP}$ N $CP_{rel}]]$

- As a result, the referential index of the RP can always be identified with the relevant index 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 RI):

(32) $[_{DP}$ alles $CP_{rel}]$

- Crucial assumption: [Neuter singular] corresponds to the absence of gender ([masculine, feminine]) and number ([plural]) features.
- When a determiner fails to acquire gender features from a lexical noun as in (32), the resulting absence of gender specifications is automatically interpreted as neuter at the interfaces to the post-syntactic computation.[13]

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 D-head. Due to the lack of a head noun, the D-element is assigned neuter by default, and the RP cannot acquire a RI.

5. On the way to one system?

- The relation between *das* and *was* is similar 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 (33) to rule the distribution of anaphors (here: "R-pronouns") versus pronouns (here: "non-R-pronouns"), cf. Reinhart (1983:167):

(33) *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.

[13] This approach raises a question for the analysis of free relatives, though. Obviously, the wh-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 wh-pronoun enters the derivation with a fully specified phi-set (with the exception of case), similar to wh-interrogative pronouns. This seems to suggest that (relative) wh-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.

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.

- Reinhart's approach claims that where possible, the more specific form should be used: 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.[14]
- Accordingly, 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 (34), which brings out a difference in meaning resulting from using *das* vs. *was* relativizers.

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

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 wh-relativizer suggests that the subject matter of the second conjunct is not the same as that talked about in the matrix: use of *das* forces interpretation in terms of an elided N, while use of *was* allows as well a construal in terms of whatever the context may dictate.

- "Exceptional" occurrences of the sequence …*das, das* point to the same conclusion, namely, that use of *das* forces interpretation in terms of an elided N.

(35) Didi Senft kommt daher wie das Duracell-Häschen aus der Werbung.
Didi Senft comes around like the Duracell bunny from the commercials
Das, das am längsten trommelt.
that that the longest drums
(T06/JUN.04743 die tageszeitung, 26.06.2006, S. 5; Didi, der Teufel)

- In contrast, no reconstructable noun is present in the case of *das, was*... . Instead, the syntactic-semantic role of N appears to be filled directly by the relative clause.

(36) **Das, was** möglicherweise auf Berlin zukommt, ist im Land Bremen
that what possibly for Berlin is.in.store is in-the country Bremen
seit Jahren Realität.
for years reality
(B01/JUN.43830 Berliner Zeitung, 01.06.2001; Firmenberater sanieren den "Konzern Bremen" [S. 21])

[14] 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).

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