"Relative pronouns" as agreeing complementizers: German *welch-* [*]

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Abstract Studies on relative clauses have highlighted two opposing views on the nature of relativizing elements. On the one hand, Kayne (2010) has challenged the long held view, dating back to Klima (1964), that relative *that* in English is a complementizer, arguing instead that it is a relative pronoun. In contrast, Pesetsky and Torrego (2006) argue that even (simplex) *wh*-relativizers, like *who* and *which* in English, are agreeing complementizers (see also Thornton and Crain 1994, Thornton 1995, Crain and Thornton 1998). Similarly, Bayer (2014:23) argues for Bavarian that "word-size *wh*-operators have syntactic as well as phonological properties of functional heads rather than genuine phrases", and that "*wh*-words embrace the role of the complementizer". Starting from some basic, though not much discussed, asymmetries between two sets of so-called relative pronouns in German, the novel claim I put forward is that the relativizer *welch-*, commonly rendered as *who* or *which* in English, is in fact a (agreeing) complementizer and not a relative pronoun, on a par with other simplex *wh*-elements, most notably *was*/*wo*, in (varieties of) German (Bayer 1984, 2002a,b, van Riemsdijk 1989, and references therein), and *who* and *which* in English (Pesetsky and Torrego 2006). Consequently, I argue for the fluidity of syntactic categories within a functional domain (specifically, the C-domain). Crucially, the analysis I put forth is only compatible with a non-head-raising analysis of relative clauses, whether in its external head variety, as assumed in Heim and Kratzer (1998) among others, or the matching analysis.

1 Basic observations

German has two (sets of) so-called relative pronouns differing primarily in terms of the morphology they bear, namely *d*-morphology (*der, die, das* and their cognates, identical in form with definite determiners and demonstratives) vs. *w*-morphology (*welch-er/-e/-es*). Only the latter are also bona fide *wh*-elements (i.e. question words), just like their (non-partitive) *w*-cognates *wer* (*who*) and *was* (*what*). Unlike *wer/was* though, but like *der/die/das*, *welch-* is barred in free relatives.[1] These facts are illustrated in (1) to (3).

(1) *Der Soldat, { **der** / **welcher** / ***wer** } im Irak war, ist wieder zu Hause.*
the soldier d-REL$_{NOM}$ which$_{NOM}$who$_{NOM}$ in Iraq was, is again at home
'The soldier who served in Iraq is back home.'

(2) a. **Welche** *(Frage)* *hast du* *beantwortet?*
which (question) have you answered
'Which (question) did you answer?'
b. **Wen** / **was** *hast du* *gesehen?*
who$_{ACC}$ / what have you seen
'Who/what did you see?'

(3) {**Wer** /***der** /***welcher (Student)**} *zu meiner Party kommt, muss*
who$_{NOM}$ d-REL$_{NOM}$ which$_{NOM}$ (student) to my party comes must
etwas mitbringen.
something bring
'Whoever/whichever student comes to my party must bring something.'

However, as possessor of a DP, *welch-* does not pattern with *der* (the genitive form of which is *dessen*), but with *wer* (the genitive form of which is *wessen*), as shown in (4).

(4) *Der Mann,* [{ **dessen** / ***wessen** / ***welches** } *Hund*] *gestorben ist, war*
the man d-REL$_{GEN}$ which$_{GEN}$ who$_{GEN}$ dog died AUX was
verzweifelt.
desperate
'The man whose dog died was desperate.'

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[1] The ungrammaticality of *welch-* in free relatives has nothing to do with the fact that it is a complex *wh*-phrase, since as Grosu (2003) notes, these are not disallowed in free relatives. In other words, the impossibility of *welch-* in free relatives cannot be some subjacency-like effect.

There is a variation of expressing the possessor of a DP with dative + possessive pronoun (instead of GEN and no pronoun). In these cases, parallel to (4), *welch-* is out, but *d-* isn't:

(5)   *Der Mann,* [{ ***dem* / **welchem*** } *sein Hund*] *tot*   *ist,*   *war*   *verzweifelt.*
        the man   d-REL$_{DAT}$ which$_{DAT}$ his   dog   dead   AUX, was   desperate

Importantly, the ungrammaticality of *welch-* in (4) and (5) is not readily derivable from Keenan and Comrie's (1977) Accessibility Hierarchy (namely: SU > DO > LO > OBL > GEN > OCOMP), since *welch-* may bear both genitive and dative case, as with genitive and dative case assigning verbs; this is shown in (6a) and (6b), respectively.

(6)   a. *Die Soldatin,* { ***derer*** / ***deren*** / ***welcher*** } *wir uns heute erinnern,*
           the soldier$_{FEM}$ d-REL$_{GEN}$ d-REL$_{GEN}$ which$_{GEN}$ we us today commemorate
           stammte   *aus*   *Irland.²*
           came   from   Ireland
           'The soldier we commemorate today came from Ireland.'
     b. *Der Mann,* { ***dem***   / ***welchem*** } *wir*   *halfen,*   *ist gegangen.*
           the man   d-REL$_{DAT}$ which$_{DAT}$ we   helped   is   gone
           'The guy we helped is gone.'

Finally, as Heck (2005) observes, under the head-raising analysis (Kayne 1994 et seq.), the occurrence of *welch-* should also be possible when it is associated with a head noun bearing genitive case (see the examples in (7)), but in these cases there is necessarily a switch to *dessen*/*dem sein*, as was already illustrated in (4) and (5) and as is shown again in (9).³ Note that the fact that (8a) is slightly marked (the

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² There is a variation for the genitive of the feminine *d*-form: both *derer* and *deren* are used.
³ There is a complication relating to genitive marking of *welch-* with genitive case assigning verbs, namely that if the head noun is masculine or neuter, *welch-* is not entirely happy bearing genitive case marking, as shown in the examples (i) through (iii), which thus contrast with the grammatical (6a):

(i)   **Der Mann,*   *welches*   *wir hier gedenken,*   *war einsam.*
       the man   which$_{GEN}$ we here commemorate   was lonesome
(ii)   **Das Kind,*   *welches*   *wir hier gedenken,*   *war glücklich.*
       the child   which$_{GEN}$ we here commemorate   was happy
(iii)   **ein Buch,*   *welches*   *wir nicht bedürfe*n
       a book   which$_{GEN}$ we not need
       'a book that we do not need'

post-nominal genitive (8b) is better) does not explain the strong ungrammaticality of (7a), and that the post-nominal variant is excluded in relative clauses, as shown in (7b).

(7)   a. *Die Frau, [**welcher** Hund] gestorben ist, ist einsam.
          the woman which$_{GEN}$ dog   died   is,   is lonesome
          [Intended] 'The woman whose dog died is lonesome.'
     b. *Die Frau, [(der) Hund **welcher**] gestorben ist,   ist einsam
          the woman (the$_{NOM}$) dog which$_{GEN}$ died   is,   is lonesome
          [Intended] 'The woman the dog of whom died is lonesome.'

(8)   a. ? [**Welcher** Frau Hund]   ist gestorben?
           which$_{GEN}$ woman dog   is died
          'Which woman's dog died?'
     b. [Der   Hund **welcher** Frau]   ist gestorben?
          the$_{NOM}$ dog   which$_{GEN}$ woman is died
          'The dog of which woman died?'

(9)   a. die Frau,   [**deren** Hund]   wir gut kennen, ist einsam.
          the woman who$_{GEN}$ dog   we well know   is lonesome
          'The woman whose dog we know well is lonesome.'
     b. die Frau,   [**der**   **ihren** Hund] wir gut kennen, ist einsam.
          the woman who$_{DAT}$ her$_{ACC}$ dog   we well know   is lonesome
          'The woman whose dog we know well is lonesome.'

2 Proposal

I contend that all the data presented in section 1, and further data to be presented below, can be formally and uniformly derived under the proposal that *welch-* is not a relative pronoun, but an agreeing complementizer in C^0, specifically agreeing with an empty operator in Spec of CP, as given in (10); note that the non-head-raising structure in (10) evades Heck's objection detailed in section 1, irrespective of whether one opts for a head-external, or a matching analysis.

Crucially however, as the examples in (7) show, the ungrammaticality of *welch-* in possessor contexts persists even with feminine head nouns (note again the contrast between the grammatical (6a) and the ungrammatical (7a)), a fact that has thus far remained unaccounted for, and which constitutes a central motivation for the present undertaking. And while one may speculate on the reason for the gaps in (i) through (iii), the fact that speakers' judgments vary in that not all find these examples equally bad is noteworthy.

(10) [DP [NP [CP [Spec,CP $Op_{[case, φ]i}$] [C⁰ *welch-*$_{[case, φ]}$] [TP … t_i …]]]]

Crucial evidence for this analysis involves the following facts. In German restrictive relatives, in addition to the 'canonical' verb final (V-final) order, there is a verb second (V2) variation (Gärntner 2000), which is however restricted to indefinite heads, as shown in (11).

(11) a. *Das Blatt hat eine Seite, die ganz schwarz **ist**.*   [V-final]
     the sheet has a side that whole black is
     b. *Das Blatt hat eine Seite, die **ist** ganz schwarz.*   [V2]
     the sheet has a side that is whole black
     'The sheet has a side that is completely black.'
     c. *Ich kenne die Theorie, die du präferierst.*   [V-final]
     I know the theory that you prefer
     'I know the theory that you prefer'
     d. **Ich kenne die Theorie, die präferierst du.*   [V2]
     I know the theory that prefer you

The V2 pattern illustrated in (11b) is, however, impossible with the relativizer *was*. This follows, as *was* is a complementizer in C⁰, hence the verb cannot raise to this position:

(12) a. *Das Buch hat ein Blatt, **was** ganz schwarz **ist**.*   [V-final]
     the book has a sheet WAS whole black is
     'The book has a sheet that is all black.'
     b. **Das Buch hat ein Blatt, **was ist** ganz schwarz.*   [V2]
     the book has a sheet WAS is whole black
     'The book has a sheet that is all black.'

Interestingly, V2 relatives are also impossible with the *welch-* relativizer; see (13). This is predicted under my analysis, since *welch-* and the verb compete for the same position.

(13) a. *Das Buch hat ein Blatt, **welches** ganz schwarz **ist.***   [V-final]
     the book has a sheet which whole black is
     'The book has a sheet that is all black.'
     b. **Das *Buch hat ein Blatt, **welches ist** ganz schwarz.*   [V2]
     the book has a sheet which is whole black

Furthermore, the possessor facts illustrated earlier in (7) find a natural explanation under my proposal, since in the case of (7a), a parse where *welch-* is a C-head would require an analysis where an empty operator has been extracted from a left branch, as given in (14), which can however be dismissed since German obeys the Left Branch Condition.

(14) *Die Frau, OP_i [$_C$ welcher$_i$] [t_i Hund] gestorben ist,   ist einsam.
       the woman   which$_{GEN}$ dog   died   is   is lonesome

Turning to (7b), again assuming the presence of an empty operator, the analysis would look as in (15):

(15) *Die Frau, [$_{DP}$ OP_i (der) Hund] [$_C$ welcher$_i$] gestorben   ist, ist einsam.
       the woman   the dog   which$_{GEN}$ died   is, is lonesome

To explain the ungrammaticality of (15) (i.e. (7b)), one could say that the OP must establish agreement with respect to gender, number and case with the C-head, which is however blocked in (15) because the φ-features of *(der) Hund* serve as a closer goal for the agreement probe on C. Corroboration for this view comes from the fact that in (16), an instance of pied-piping, there are no intervening φ-features and the result is well-formed:

(16) a. *Der Mann, mit **welchem** wir verhandelt haben, wollte mehr   Geld.*
          The man   with which$_{DAT}$ we negotiated have, wanted more money
           'The man we negotiated with wanted more money.'
       b. Der Mann, [$_{PP}$ mit OP_i] [$_C$ welchem$_i$] wir verhandelt haben, . . .

In contrast, the traditional analysis according to which *welch-* is a relative pronoun offers no straightforward explanation for the ungrammaticality of the examples in (7), especially since such an analysis would also have to account for the well-formedness of the variant that replaces *welcher* by *deren*, as was shown in (9a), or that of expressing the possessor of a DP with DAT and a possessive pronoun instead of GEN and no pronoun, i.e. (9b). One could resort to the idea that in (9a) the possessor relative pronoun need not agree with the null C-head simply because this type of relative complementizer does not require agreement with respect to φ-features. A reasoning along similar lines would also apply to the variation of expressing the possessor of a DP with dative and possessive pronoun, instead of GEN and no pronoun, i.e. (9b).

A potential problem for the idea that *welch-* is a C-head is the claim that empty operators are unable to induce pied-piping (Browning 1987, Grosu 1994), as supported by the observation that even languages with an invariant element

(arguably a complementizer) in relativization contexts, such as *wo* or *was* in varieties of German, use a different element when pied-piping is involved, which typically inflects for φ- features, as shown in (17). Note that (17b) contrasts with (16a).

(17) a. *Es gibt Leute,* **wo** *immer* *recht haben.*
         it gives people WO always right have
         'There are people who are always right.'
      b. **Es gibt Leute,* *mit* **wo** *man* *nichts* *zu tun* *haben will.*
          it gives people with where one nothing to do have want
         'There are people one does not want to have anything to do with.'
      c. *Es gibt Leute, mit* **denen** *man nichts zu tun haben will.*
         it gives people with those$_{DAT}$ one nothing to do have want
         'There are people with whom one does not want to have anything to do.'

One may think that the problem with (17b) is not due to pied-piping by a null operator, but rather to the fact that the null operator bears an oblique (prepositional dative) case. Note also that as shown in (18), the grammatical (17c) becomes bad in the presence of the complementizer *wo*.

(18) **Es gibt Leute, mit* **denen** **wo** *man nichts zu tun haben will.*
       it gives people with those$_{DAT}$ WO one nothing to do have want
      'There are people with whom one does not want to have anything to do.'

This fact is important also because it relates to the question of why it is not possible to have both, an overt relative pronoun and the C-head *welch-*,[4] unlike for instance in Bavarian dialects, where *der* is followed by the relative complementizer *was* or *wo* (Bayer 2002). However, while the combination *der welcher* is indeed not attested in spontaneous data (which might be due to *welch-* not existing in dialects), speakers show a preference for this combination as compared to *welcher wo*, which they reject; see (19).[5]

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[4] I assume that this lack of co-occurrence relates to some filter violation of sorts, specifically to a stylistic breach, i.e. the fact that *welch-* belongs to a register that is at odds with dialectal forms.
[5] In contrast, for those speakers of German varieties where the DFC-filter is not active, there is no restriction for non-relative *welch-* co-occurring with a C-element, as shown in (i) below:

(i)   (*Hier sind* *drei* *Bücher*.) *Ich weiss nicht* **welches dass** *du lesen wirst.*
          Here are three books I know not which that you read will
         '(Here are three books.) I don't know which (one) you want to read.'

(19) *Der Herr,* {??*der welcher* / **welcher wo*} *nebenan wohnt, klopft*
the gentleman d-REL_NOM which_NOM which_NOM WO next-door lives, knocks
immer an die Wand.
always on the wall
'The gentleman who lives next door always knocks against the wall.'

I thus submit that the complementizer *welch-* is an instance of syntactic reanalysis from a relative pronoun, an idea that is corroborated by the fact that in older stages of the language, namely Early New High German and immediately after, but crucially not in present-day German, occurrences of V2 *welch-*relatives are attested (See Catasso and Hinterhölzl 2016).[6]

In the next section, I build an additional argument on the syntactic fluidity of *welch-* on the basis of strong analogies with another element in the C-domain, namely *was*.

3 Fluidity within the C-system

3.1 *Was* as a "radically" underspecified element

As mentioned earlier, in many varieties of German *was* is a complementizer in relative clauses (Bayer 1984, 2002a,b, van Riemsdijk 1989).[7] But, as Bayer (2002a,b) notes and as the examples in (20) illustrate, *was* is "extremely", "radically", or "maximally" underspecified also in its non-complementizer guises.

(20) a. [+argument, –human]   *Was hast du gegessen?*
what have you eaten
'What did you eat?'
b. [+argument, +human]   *Was dort so alles herumhängt!*
what there so all hangs.around
'The lot that hangs around there!'
c. [–argument, +amount]   *Was der Vater heute mal wieder schnarcht!*
what the father today once again snores
'How much father is snoring again today!'
d. [–argument, +reason]   *Was stehst du hier herum?*
what stand you here around

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[6] This fact is particularly interesting also because it speaks against a syntactic coordination analysis of V2 relatives à la Gärtner's (2000), since unlike the *d*-form relativizers, *welch-* cannot possibly be said to be a demonstrative pronoun.

[7] See also Lowenstamm (1977) for *vos* in Yiddish.

                        'Why are you standing here?'

    e. [indefinite pronoun] *Hier stimmt **was** nicht.*
                           here attunes WAS not
                           'Something is not right here.'

    f. [*wh*-scope marker] ***Was** findest du, wie sie ausschaut?*
                           what find you how she looks
                           'How do you think she looks?'

Furthermore, as Bayer (2002b) states for a paradigm like the one in (21), "[t]he assumption that we are dealing with a case of homophony is problematic in view of the cross-linguistic evidence for one and the same element appearing as both argument/operator and head".

(21) a. French: que
       b. Italian: che
       c. Russian: что
       d. Polish: co
       e. Greek: oti (*ti* 'was')
       f. Albanian: që (*ç* 'what')
       g. Persian: ke (*che* 'what')
       h. Hindi/Urdu: ki (*kyaa* 'what')
       i. English: that (*the book that he bought* vs. *Did you see that?*)

Bayer's (2002a:11) core claim is that "[i]f German *was* and Bavarian *wos* (both meaning 'what') are radically underspecified, they may not only comprise the feature C but count as a morphological instantiation of C", which, as he points out, also explains why Bavarian *wos* cannot co-occur with *daß* although Bavarian is generally a DFC-dialect:

(22) a. *I woaß, wos-a   gern   trinkt.*
          I know what-he preferably drinks
          'I know what he likes to drink.'
      b. *?*I woaß, wos daß-a   gern   trinkt.*
           I know what that-he preferably drinks
      c. *I woaß, wos fiar-a-Bier daß-a   gern   trinkt.*
           I know what for-a-beer that-he preferably drinks
           'I know what kind of beer he likes to drink.'

Finally, as Bayer and Brandner (2008:87) argue, the ban on the doubly filled complementizer in the presence of simplex *wh*-words (also mirrored in those English varieties where the doubly filled complementizer filter is violated, cf.

Zwicky 2002), "can be explained if these *wh*-words occupy the C^0 position themselves, and thus act as complementizers – in addition to their clause typing function which they fulfill due to their status as *wh*-elements."

3.2   *Welch-* as an underspecified element

Recall that, on top of being a complementizer, *welch-* is a bona fide *wh*-element, (2a). In addition, *welch-* is an exclamative preceding the determiner (on a par with *was für*), as in (23). Note that *welch-* here is uninflected, i.e. it does not (and cannot) agree with the DP.

(23)   *Welch(*-e)   eine   Überraschung!*
       which(*FEM) a_FEM   surprise
       'What a surprise!'

Furthermore, *welch-* also occurs as a quantificational element, as in (24).

(24)   *Pflanzen   hat   sie   welche.*
       plants   has   she   which
       'As for plants, she has some.'

Finally, just like *which* in English, *welch-* can be used in what – for lack of a better term – I will refer to as 'appositive conditionals', illustrated in (25).[8]

(25)   *Ich kann vielleicht nicht kommen, in welchem Fall ich   anrufen würde.*
       I   can probably not   come,   in which   case I   call   would
       'I might not be able to come, in which case I would call (you).'

4   Conclusion

In this paper, I have discussed some striking morphosyntactic properties of the relativizing element *welch-* in German, and I have proposed that it should be analyzed as an agreeing complementizer. The issue is theoretically important on at least three counts. First, it is further evidence that some traditionally called 'relative pronouns' are in fact agreeing complementizers (Pesetsky and Torrego

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[8] Note that *welchem* in (25) cannot alternate with anything else, i.e. *dem*, *diesem*, *was* are all out. Similarly, the fact that in English the sequences *if which* or *which if* are ungrammatical in this construction is not obvious to account for under analyses of *which* as a relative pronoun, especially given the existence of the anaphoric expression *if so*. So this might turn out to be additional evidence for the C^0-status of *which*.

2006 contra Kayne 2010). Secondly, it makes a further case for syntactic fluidity and syntactic reanalysis in the C-domain (see in particular Bayer 2002a,b for German and Walkden 2013 for English). Thirdly, it provides a strong argument against the raising analysis of relative clauses, which Heck (2005) notwithstanding has gone largely unnoticed, thus speaking for a non-raising analysis, such as the external-head analysis also assumed in Heim and Kratzer (1998) among others.

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