# Ever free relatives crosslinguistically[1]

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**Abstract.** Based on a sample of seven languages, I show that the so called modal inferences in ever free relatives (ignorance and indifference) are not universally available. The primary reading of eFRs crosslinguistically turns out to be a "non-modal" one, which is available to all languages under investigation. The implication is that if there is a modal inference triggered by the use of the ever-morpheme in FRs, the inference is likely to have a source external to the eFR (Lauer 2009, Condoravdi 2015, Hirsch 2016). In line with this conclusion, I propose to generalize Hirsch's (2016) analysis of ignorance eFRs, suggesting that all eFRs, no matter what their interpretation ends up being, are instances of (un)conditionals + donkey-anaphoric definite descriptions.

**Keywords:** ever free relatives, (un)conditionals, definite descriptions, modal inferences, crosslinguistic semantics

## 1. Introduction

This paper aims to contribute to our understanding of the semantics of *ever free relatives,* illustrated by the examples in (1).

(1)    a.    **Whoever brought the cake** is exceptionally talented.
        b.    Sue was so hungry that she ate immediately **whatever they served her**.
        c.    Dave always goes **to whatever party Lisa goes**.

Ever free relatives (henceforth eFRs) have attracted a lot of attention by semanticists thanks to the intriguing interpretive effects caused by the presence of the ever-morpheme. It is commonly assumed that the primary function of the ever-morpheme is to convey a so called modal inference, particularly the inference that the speaker or some other agent does not know or care about the identity of the eFR referent, dubbed ignorance and indifference, respectively (Dayal 1997, von Fintel 2000, Tredinnick 2005). Only some researchers (e.g. Lauer 2009, Condoravdi 2015) have entertained the idea that eFRs, particularly the so called universal or free choice eFRs, can be genuinely "non-modal". It is more common to assume that these eFRs are in fact a subspecies of indifference eFRs.

After I provide some background to the modal inferences of eFRs (§2), I turn to novel crosslinguistic evidence that challenges the common assumption that eFRs are *primarily* or even *always* modal (§3). Based on a small-scale crosslinguistic empirical survey involving seven languages, I demonstrate that what can be considered non-modal eFRs are available in all of them, but the so called modal eFRs only in a proper subset of them. This result supports the recent trend of treating eFRs essentially as non-modal; whenever modality is conveyed, its source is external to the eFR (Lauer 2009, Hirsch 2016). I further provide some new arguments in favor of treat-

ing eFRs as subkinds of (un)conditionals (following Hirsch 2016, who in turn is building on Rawlins 2013) and show that there are reasons to believe that *all kinds of eFRs* (not just ignorance eFRs) should receive this treatment (§4). An explicit analysis, closely following Hirsch's (2016) proposal is also provided.

## 2. Background on the modal inferences of ever free relatives

Much semantic literature on eFRs converges on the idea that their *raison d'être* is to convey some modal inference (Dayal 1997, von Fintel 2000, Tredinnick 2005).[2] The so called *ignorance inference* is probably the best-known and most studied type of inference; consider the classical example (2), which conveys that the speaker does not know (is "ignorant" about) which movie is now playing at the Avon. In fact, the interpretation is even stronger—the speaker has *no settled belief* about the identity of the movie. This intuition is captured by the inference in (3): there are worlds in the speaker's doxastic state that differ in the identity of the movie currently played at the Avon.[3] The varying identity of the eFR referent is referred to—ever since Dayal's (1997) seminal paper—as the *variation requirement.*

(2)      Whichever movie is now playing at the Avon is making a lot of money.

(Dayal 1997: 101)

(3)      $\exists w, w'[w, w' \in \text{DOX}(w_0)(\text{SPEAKER}) \wedge$
          $\iota x \text{ PLAYING AT THE AVON}(w)(x) \neq \iota x \text{ PLAYING AT THE AVON}(w')(x)]$

As noted by Lauer (2009) and Condoravdi (2015), there is a subspecies of the ignorance inference, namely the *irrelevance inference.* This inference arises in cases where discourse participants fail to agree on the identity of the eFR referent but agree that the identity is irrelevant—can remain unsettled—for the purpose of the current discourse. In this case, the variation requirement is satisfied not with respect to the doxastic state of a single individual (both A and B can stick to their respective beliefs about the deadline), but with respect to the union of more doxastic states (or, more specifically, the context set). From now on, when I speak about ignorance, I silently assume ignorance or irrelevance.[4]

(4)      A:  The deadline at the end of March is binding.
         B:  But the deadline is at the end of April!
         A:  Well, I think it's March, but it doesn't really matter now—whatever deadline is written on the syllabus is binding.          (adapted from Lauer 2009: 39)

(5)      $\exists w, w'[w, w' \in [\text{DOX}(w_0)(\text{SPEAKER}) \cup \text{DOX}(w_0)(\text{HEARER})] \wedge$
          $\iota x \text{ DEADLINE ON THE SYLLABUS}(w)(x) \neq \iota x \text{ DEADLINE ON THE SYLLABUS}(w')(x)]$

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[2]The choice of the neutral term "inference" is intentional. I will get to the issue of what kind of inference is meant shortly.

[3]Ignorance is not strong enough because the speaker cannot follow up with . . . *the movie is the Arrival* even if she is wrong about that (if her belief is false). Another way of capturing the intuition is to say that the speaker knows that she doesn't know. Despite these complications, I stick to the term ignorance.

[4]I have not encountered a language that would distinguish between the two formally or that would allow one but not the other reading.

Another type of well-studied inference is the *indifference inference*. Consider example (6), which implies that Zack voted indifferently—he did not care about the identity of the person that was at the top of the ballot. According to the influential proposal of von Fintel (2000), this inference is captured well by a counterfactual condition of the form 'had there been somebody else (than in actuality) at the top of the ballot, Zack would have voted for him/her anyway', expressed slightly more formally in (7). In this case, the variation requirement is satisfied with respect to counterfactual worlds.

(6)    Zack simply voted for whoever was at the top of the ballot (namely Clinton).

(von Fintel 2000: 32)

(7)    $\forall w[w \in \text{BEST}(w_0) \land \iota x \text{ AT TOP OF BALLOT}(w)(x) \neq \iota x \text{ AT TOP OF BALLOT}(w_0)(x)$
         $\rightarrow \text{VOTED}(w)(\iota x \text{ AT TOP OF BALLOT}(w)(x))(\text{ZACK})$

An example of what is sometimes considered a non-modal eFR is provided in (8). Lauer (2009) argues that this type of eFR carries no conventional modal inference (whether ignorance or indifference) and that it is sufficient if (i) Parker wrote at least two different things in those days (9a) and (ii) that all the things that he wrote in those days were violent (9b).[5]

(8)    In those days, whatever Parker wrote was (always) violent.        (Lauer 2009: 7)

(9)    a.    $\exists s, s'[s, s' < \text{THOSE DAYS} \land$
                 $\iota x \text{ WROTE}(s)(x)(\text{PARKER}) \neq \iota x \text{ WROTE}(s')(x)(\text{PARKER})]$

        b.    $\forall s[s < \text{THOSE DAYS} \land \exists x[\text{WROTE}(s)(x)(\text{PARKER})]$
                 $\rightarrow \text{VIOLENT}(s)(\iota y \text{ WROTE}(s)(y)(\text{PARKER}))]$

## 3. Modal inferences crosslinguistically

### 3.1. Existing evidence

The existing literature on eFRs has a record of more or less episodic observations to the effect that modal inferences in various languages are not as freely available as they are in English. von Fintel (2000: 38) reports Anna Szabolcsi's (p.c.) observation that Hungarian eFRs lack ignorance and indifference eFRs altogether (and only have the "universal" (non-modal) ones).[6] Giannakidou and Cheng (2006) report that Greek eFRs lack the ignorance reading, but do have the non-modal one (they are silent on the indifference reading).

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[5]The formalization in (9) is simplified and will be made more precise in section 4.

[6]According to Julia Bacskai-Atkari, Éva Dékány, and Beáta Gyuris (all p.c.), (morphologically marked) eFRs do not even exist in Hungarian. One possible reason for this is that the ever-morpheme (or rather free choice-morpheme) in Hungarian (*bár-* or *akár-;* see Abrusán 2007) attaches to plain wh-words (*bárki/akárki,* where *ki* ≈ 'who') but FRs necessarily make use of wh-words prefixed by *a-* (e.g. *aki* 'REL.who'); attaching *bár-/akár-* to these relative wh-words results in ungrammaticality (*\*akáraki/\*báraki* intended 'whoever.REL'). For comparison, note that other languages with morphologically marked relative wh-words can and must use these in eFR (cf. Greek *opjosdhípote,* where *opjos* 'REL.who' contrasts with the plain (interrogative) *pjos* 'who'); see e.g. Daskalaki (2008).

(10)    *Greek* (Giannakidou and Cheng 2006: 166/169)

    a. ?#Opjadhipote jineka ine i   arxisindaktria aftou   to        periodikou,   pire

        which:EVER woman is   the editor        this:GEN the:GEN magazine:GEN got

        ena vravio xthes vradi.                                                    **ignorance**

        a   prize last   night

        Intended: 'Whichever (≈ The) woman (who) is the editor of this magazine got a prize last night.'

    b. Opjosdhipote irthe        sto    parti, efxaristithike.            **non-modal**

       who:EVER      came:3SG to.the party was.happy:3SG

       'Whoever (≈ Everyone who) came to the party had a good time.'

Eilam (2007) says about Hebrew eFRs that "examples [involving indifference] are easier to find and given a null context, the indifference reading will be the one preferred by speakers, *if the ignorance reading is available at all*. However, it is not the case that the latter is entirely impossible [...]" (my emphasis). Caponigro and Fălăuş (2017) demonstrate that Italian and Romanian eFRs also lack the standard ignorance and indifference readings, but do have the non-modal one, as illustrated for Romanian below.[7]

(11)    *Romanian* (Caponigro and Fălăuş 2017: ex. (47c), (51c), (48c))

    a. *Este usturoi în orice        mâncare găteşte Bianca acum.        **ignorance**

       is   garlic  in EVER.what dish      cooks  Bianca now

       Intended: 'There's garlic in whatever dish Bianca is cooking now.'

    b. *În acel moment, am       luat       orice        unealtă îmi    era la îndemână,

       in that moment  have.1SG grabbed EVER.what tool     me.DAT was at hand

       care s-a        nimerit   să   fie un ciocan.                    **indifference**

       REL REFL-has happened SUBJ be a   hammer

       Intended: 'In that moment, I grabbed whatever tool was handy, which happened to be a hammer.'

    c. Este usturoi în orice        mâncare găteşte Bianca.          **non-modal**

       is   garlic  in EVER.what dish      cooks  Bianca

       'There's garlic in whatever (≈ every) dish Bianca cooks.'

Balusu (2017) observes that Telugu utilizes three different morphemes, reserved for ignorance, indifference, and non-modal readings, respectively. It might be of significance that only the last type (called "quantificational" by the author) appears to form a genuine FR (the other two are correlatives/unconditionals).

Based on the data and claims above, one could gain the impression that these languages (perhaps with the exception of Hebrew) simply have no definite eFRs, but only eFRs that are genuine universal quantifiers.[8] It turns out, however, that a definite construal is available in

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[7]Caponigro and Fălăuş (2017) argue that Italian and Romanian eFRs—what they call "free choice FRs" (a term also used by Giannakidou and Cheng 2006, but in the sense of (non-modal) eFRs), are semantically more akin to subtrigged free choice items than to eFRs. In other words, they are claimed not to be definite descriptions, but rather quantificational expressions. For the purpose of this paper, I take Romanian eFRs to be standard eFRs, i.e., definites, see below.

[8]The hypothesis that at least some eFRs are genuine universal quantifiers used to be quite popular, if not stan-

languages without ignorance and indifference eFRs. Consider the minimal pair in (12), where the minimal difference concerns tense—past in (12a) and future in (12b). Future tense appears to license the eFR, which receives an uncontroversial definite construal.

(12)      *Romanian* (SURVEY)
        a.   \*Ieri      la ora   8, David s-**a**     **uitat**   la orice       era pe HBO.
           yesterday at hour 8   D.      REFL-has looked at EVER.what was on HBO
           'Yesterday at 8, David was watching whatever they were showing on HBO.'
        b.   Diseara la 8, David se     **va uita** la orice       va fi pe HBO.
           Tonight at 8, D.      REFL will look at EVER.what will be on HBO
           'Tonight at 8, David will be watching whatever ($\approx$ the thing) they will be showing on HBO.'

Upon a closer look, even eFRs in simple present contexts turn out to have a definite reading. In the absence of the adverbial quantifier *întotdeauna* 'always', one might be under the impression that the eFR has a universal reading; however, this impression disappears in the presence of the adverbial, which, intuitively, "takes over" the universality, quantifying over situations such that in each of the situations, David eats the thing(s) that his girlfriend cooks for him. Therefore, there is empirical motivation to adopt Tredinnick's (2005) proposal that quasi-universal eFRs in non-modal contexts are in fact definites in the scope of covert generic or iterative operators.

(13)      *Romanian* (SURVEY)
        La cină,    David mănâncă (întotdeauna) orice      îi   găteste prietena lui.
        at dinner D.     eats      always      EVER.what him cooks   girlfriend his
        'For dinner, David (always) eats whatever his girlfriend cooks for him.'

## 3.2. Crosslinguistic empirical survey

In order to have a more reliable overview of the crosslinguistic situation, I have conducted a small-scale crosslinguistic survey of seven languages, testing the acceptability and interpretation of eFRs in the following four contexts: a. habitual present, b. simple past, c. temporally punctual future, and d. temporally punctual past, illustrated in (14). The former two lend themselves to iterative / quasi-universal readings; the latter two do not.[9]

(14)      a.   Mark (always) eats whatever his girlfriend cooks.
        b.   Last week, Mark ate whatever his girlfriend cooked.
        c.   Tonight at 8pm, Mark will watch whatever they'll be showing on HBO.
        d.   Yesterday at 8pm, Mark watched whatever they were showing on HBO.

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dard (see e.g. Cooper 1983, Larson 1987, Tredinnick 1995, Iatridou and Varlokosta 1998). Ever since Jacobson's (1995) seminal paper on the semantics of free relatives, however, the field has been dominated by the assumption that all FRs, including eFRs, are definite descriptions (see esp. the arguments in Tredinnick 2005).

[9]More contexts were tested, but only these are systematically reported here. More detailed information on the survey (including the list of all participants, who were mostly linguists), blank as well as filled out questionnaires, and a spreadsheet summarizing the results can be found on https://osf.io/kq3ag.

Table 1 provides the median ratings per context and language (Likert scale from 1/unacceptable to 5/acceptable; *n* indicating the number of participants). The results show that eFRs are universally accepted in contexts allowing for iterative/quasi-universal interpretations (a, b). In context (b), which in principle allowed a single event or an iterative reading, the preferred reading (and in some languages the only one) was the iterative one, i.e. multiple instances of cooking–eating. eFRs are further generally accepted in the punctual future context. This suggests that despite the fact that the preferred/only reading in the simple past context is iterative (quasi-universal), the definite reading is generally available in the future context. In other words, all languages behave as Romanian as exemplified in (12b). The most interesting observation is that all the languages exhibit a decrease in acceptability in the punctual past context, as compared to the punctual future context. (The number of participants is too small for any statistical analysis to be meaningful.) This decrease is very slight (not greater than 1 point on the Likert scale + absolute rating above 3) in three of the investigated languages, namely Serbian, Polish, and Hebrew, while it is clearly pronounced (not smaller than 2 + absolute rating 2 or lower) in the other four languages—Greek, Russian, Czech, and Romanian. Let us call these CAT(EGORY)1 and CAT(EGORY)2 languages, respectively.[10]

|   | CONTEXT | SERBIAN $n = 4$ | POLISH $n = 5$ | HEBREW $n = 4$ | GREEK $n = 6$ | RUSSIAN $n = 5$ | CZECH $n = 4$ | ROMANIAN $n = 4$ |
|---|---------|--------|--------|--------|-------|---------|-------|----------|
| a | **habitual present** | 5.0 | 5.0 | 5.0 | 5.0 | 4.0 | 5.0 | 5.0 |
| b | **simple past** | 5.0 | 5.0 | 5.0 | 4.0 | 4.0 | 4.5 | 4.5 |
| c | **punctual future** | 5.0 | 5.0 | 4.5 | 4.5 | 4.0 | 4.0 | 5.0 |
| d | **punctual past** | 4.5 | 4.0 | 3.5 | 2.0 | 2.0 | 2.0 | 1.0 |

Table 1: Median ratings of eFRs per context and language

It further turns out that CAT1 languages are not uniform with respect to the kind of reading that arises in the punctual past context. Serbian speakers accept both the ignorance and the indifference reading (confirmed in post-hoc p.c. with Boban Arsenijević); Polish speakers prefer the indifference reading (confirmed in post-hoc p.c. with Aleksandra Gogłoza); finally, Hebrew speakers prefer the ignorance reading (contra what is reported by Eilam 2007). The (un)availability of modal eFRs (for our purposes, eFRs in context (d)) also corresponds, by and large, to the (un)availability of single event readings in context (b). While speakers of CAT2 languages generally reject single event readings in context (b), speakers of CAT1 report that the single event reading in context (b) is available to them. The only exception is Polish, where 4 out of 5 speakers report the iterative reading as the only available one. This seems to suggest a borderline status of Polish, in which, possibly, the non-modal (iterative) reading is the only possible one if nothing speaks against it, while the modal (indifference) reading is available as a sort of last resort.

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[10]In the Greek survey, 3 of the 6 speakers rated context (d) with 1 (clearly in line with CAT1 language speakers), while the other 3 speakers with 3 or 4 (possibly in line with CAT2 language speakers). In other languages, the rating of context (d) was more consistently low.

3.3. Discussion: What underlies the CAT1 vs. CAT2 distinction?

The hitherto published evidence as well as the present empirical survey clearly indicate that there are at least two categories of languages: CAT1 languages (English, Serbian, Hebrew, and Polish), whose eFRs are acceptable in punctual past contexts, conveying a modal inference (indifference and/or ignorance), and CAT2 languages (Greek, Russian, Romanian, and Czech), whose eFRs are not acceptable in punctual past contexts. It further seems evident that all languages, whether CAT1 or CAT2, allow for so called non-modal readings, such as the quasi-universal iterative readings or definite readings, in case there is an appropriate licensing expression or operator, exemplified here by the future tense.

The existing literature as well as the present survey remain ambivalent as to which factor or parameter underlies the CAT1 vs. CAT2 division. I can think of two plausible candidates. The first option is that the relevant factor is semantics vs. pragmatics. The idea is that eFRs in CAT1 languages may satisfy the variation requirement "semantically", i.e., by anchoring the variation to an object-language operator (such as a modal or aspectual operator), but also "pragmatically", i.e., by anchoring the variation to the belief/epistemic states of discourse participants or to the common ground (this idea is defended for English by Lauer 2009). CAT2 languages, on the other hand, would only allow for the variation requirement to be satisfied "semantically". If there is no suitable semantic operator (the case of punctual past contexts), the eFR is simply unacceptable.

The second option is that the relevant factor is epistemic (including doxastic) vs. root (or rather non-epistemic). The nature of this parameter could thus be either semantic or syntactic (assuming Hacquard's 2010 approach to the epistemic vs. root distinction). The idea is that CAT1 languages allow variation within the domains of either epistemic or root/aspectual operators, whereas CAT2 languages only within the domains of root/aspectual operators. This approach is compatible with the assumption that all eFRs are licensed in the object language (i.e., "semantically"), which in turn entails that every utterance is in the scope of an implicit (speaker-related) doxastic operator (cf. Meyer 2013), which, in the absence of any other suitable operator, generates the ignorance readings of eFRs.

In Šimík (2016: 123ff.), I showed that the situation in Czech might argue for the latter approach because explicit epistemic necessity modals do not seem to license eFRs. The present empirical survey contained a comparable condition and the results are suggestive of yet another parametric division. Russian and Greek seem to pattern with my intuition about Czech—the participants (who gave low ratings in context (d)) either found eFRs under epistemic modals unacceptable or, if they accepted them, they interpreted them iteratively, clearly suggesting that the epistemic modal is not the licensor. In Romanian and for three of the four Czech participants, on the other hand, eFRs are not only licensed under epistemic modals (median for Romanian: 4.75; median for Czech: 5.0), they also receive single event (definite) readings, suggesting that the epistemic modal can indeed license the eFR.[11]

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[11]Cf. Fălăuş (2009), who shows that Romanian free choice/epistemic indefinite determiner *vreun* gets licensed by epistemic necessity modals.

In what follows, I put forth a unified "semantic" analysis of eFRs, building on Hirsch's (2016) proposal on ignorance eFRs. I show how his proposal can be extended to non-modal eFRs and discuss some empirical implications.

**4. Ever FRs as (un)conditionals + donkey definites**

4.1. Basic idea and some arguments

Hirsch (2016) proposed that ignorance eFRs have a double syntactic and semantic life: on the one hand, they function as unconditionals (in the sense of Rawlins 2013; also called concessive conditionals), on the other, they function as donkey-anaphoric definite descriptions, picking up the referent introduced in the unconditional.[12] An eFR like the one in (15a) receives the LF in (15b), where the unconditional (uC) denotes a set of propositions, pointwise restricting the universal doxastic operator (OP), and the free relative (FR), being part of the conditional consequent (nucleus of OP) denotes a definite description whose value equals the referent introduced by *whatever* in the unconditional. The LF is thus basically identical to the one of the unconditional in (15c).

(15)  a.  Sue ate whatever Dave cooked.
      b.  [$_{OP}$ [$_{uC}$ whatever Dave cooked]] Sue ate [$_{FR}$ whatever Dave cooked]
      c.  Whatever Dave cooked, Sue ate it.

The motivation for treating eFRs as a subspecies of unconditionals is not just their morphosyntactic similarity, but also their interpretation, which involves (or can involve, in the case of eFR) the ignorance inference. This immediately raises the question whether Hirsch's (2016) analysis can be extended to languages in which ignorance is not a possible inference conveyed by eFRs.[13] In my opinion, such an extension is possible, if not desirable. Let us go through some suggestive arguments.

First, eFRs are known to differ from plain FRs in that they allow the use of complex wh-phrases, as shown in (16). The same contrast has been reported for Dutch (Groos and van Riemsdijk 1981), German (Meinunger 1998), Polish, Croatian (Citko 2010), Italian (Caponigro 2003), or Czech (Karlík 2013), so it is clearly no accident and it applies across different semantic types of eFRs.

(16)  I'll take **which**\*(**ever**) book you give me.

<div align="right">(adapted from Bresnan and Grimshaw 1978: 335)</div>

The unconditional / question-based analysis of eFRs makes it possible to view this contrast in terms of the function(s) played by the wh-expression in eFRs vs. plain FRs: while in plain FRs, the wh-expression is merely a relative operator, and relative operators are normally simplex, in eFRs, the wh-expression also plays the role of an interrogative phrase (being the locus of

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[12]The intimate relation between eFRs and conditionals was also noted by Baker (1995).

[13]In fact, this raises many more questions that are worth investigating, concerning how unconditionals and ever free relatives are related, morphosyntactically, as well as semantically, within individual languages.

variation in the set of propositions) and as such, it is free to be complex. The second argument, which reinforces the one just mentioned, comes from the asymmetry illustrated in (17): only plain wh-words can function as relative operators in (light-)headed relatives; ever wh-words cannot. This follows if wh-expressions in eFRs are not really relative operators.

(17)     *Polish* (adapted from Citko 2004: 105)
Jan śpiewa to,     {**co**     / *****cokolwiek**} Maria śpiewa.
J.   sings  DEM   what    what.EVER M.    sings
(Intended:) 'John sings what(ever) Mary sings.'

Third, eFRs, as opposed to plain FRs, are unable to accommodate a contrastive topic–focus structure. The same holds of conditional antecedents and wh-questions (in Czech; not illustrated here). Apparently, all these structures are too "small" to be able to accommodate such peripheral phenomena as contrastive topic arguably is (see Rizzi 2001 for some relevant discussion).

(18)     *Czech*
     a.   Vařili, **co**   Karlovi$_{CT}$ chutnalo$_F$ (ale Marii$_{CT}$   bohužel ne$_F$).
         cooked what Karel:DAT tasted       but Marie:DAT unfort. not
         'They cooked what Karel$_{CT}$ liked$_F$ (but Marie$_{CT}$ unfortunately did not$_F$).
     b.   Vařili, **cokoliv**   Karlovi$_{(*CT)}$ chutnalo$_{(*F)}$ (*ale Marii       bohužel ne).
         cooked what:EVER Karel:DAT  tasted       but Marie:DAT unfort. not
         'They cooked what Karel$_{CT}$ liked$_F$ (but Marie$_{CT}$ unfortunately did not$_F$).

Fourth, eFRs, as opposed to plain FRs, but like wh-questions and conditional antecedents (McDowell 1987, Progovac 1988, Drubig 2001), cannot host epistemic modals.

(19)     He does what(*ever) must be a difficult job.
                         (Tredinnick 1995; cited via Iatridou and Varlokosta 1998: 16)

Fifth, just like conditional antecedents, also eFRs exhibit a strong tendency towards syntactic and semantic dependency on the main (consequent) clauses in which they are embedded. The example in (19) is, I would say, one illustration of this: the eFR cannot host an independent epistemic modal because its very function is to restrict one. Non-modal eFRs, besides not being able to host epistemic modals, which is illustrated in (20), often exhibit temporal dependencies, such that the tense of the eFR should match the tense of the embedding predicate; see (21).

(20)     *Czech*
Na dovolené ti       budu    vařit, **co**   (*****koliv**) ti       **určitě** bude chutnat.
on vacation you:DAT will:1SG cook what   EVER you:DAT surely will  taste
'On vacation, I'll cook for you what(ever) will surely taste good to you.'

9

(21)   *Czech*
    a.   Uvařím  ti,  **co**  {sis      přála / si  budeš  přát}.
        cook:1SG you:DAT what   REFL.2SG wished  REFL will:2SG wish:INF
        'I'll cook for you what you wished / (will) wish.'
    b.   Uvařím  ti,  **cokoliv** {#sis     přála / si  budeš  přát}.
        cook:1SG you:DAT what    REFL.2SG wished  REFL will:2SG wish:INF
        'I'll cook for you whatever you wished / (will) wish.'

The "dependent" character of eFRs (as opposed to plain FRs) is in some languages even built into the very morphosyntactic make-up of these constructions. An example is Bulgarian, which, lacking the ever-morpheme, uses the subjunctive to formally encode eFRs (Pancheva Izvorski 2000). Similar observations, albeit less categorically, arguably apply to Hungarian, which also lacks the ever-morpheme in (e)FRs (see footnote 6) and Greek, which does have it, but still opts for the subjunctive in many cases (Veronika Pleskotová, p.c.).

In summary, there are a range of arguments demonstrating (i) an asymmetry between eFRs and plain FRs and at the same time (ii) a similarity of eFRs to wh-questions and/or conditional antecedents. These arguments are valid also for languages which have no ignorance eFRs (such as Czech), suggesting in turn that eFRs in general—not just ignorance eFRs—are akin to questions and (un)conditionals.

By way of concluding this section, it is good to point out that the above-discussed classification of eFRs parallels the familiar and much discussed classification of conditionals into epistemic/truth conditionals (≈ ignorance/irrelevance eFRs), and content/situational conditionals (≈ non-modal eFRs); see Declerck and Reed (2001) or Haegeman (2003) for discussion and references and also Haspelmath and König (1998), who show that the same classification is also applicable to unconditionals. Indifference eFRs are, of course, reminiscent of yet another well-established category of conditionals, namely counterfactual conditionals (von Fintel 2000). In terms of the epistemic vs. content conditional classification, indifference eFRs can probably fall into either of the two categories; see Tredinnick (2005), who distinguishes between internal and external indifference.

## 4.2. Ignorance eFRs

Let us now turn to how the (un)conditional-based analysis of eFRs is materialized. I start with spelling out Hirsch's (2016) proposal on ignorance eFRs. I opt for a fully compositional treatment, which makes me introduce some elements beyond Hirsch's (2016) proposal, but hopefully nothing that would affect the gist of it. Consider the LF in (22) and the associated semantic computation in (23).[14]

Let us go through the composition step-by-step. The basic meaning of the free relative is a property (23a) that gets shifted to a (maximal) entity (here by a covert D that corresponds to Schwarz's 2012 definite article)—here the entity that Dave cooked, (23b) (see Jacobson 1995,

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[14]The notation $\{\tau\}$ where $\tau$ is a semantic type is to be read as 'a set of expressions of type $\tau$'.

(22)  Sue ate whatever Dave cooked.
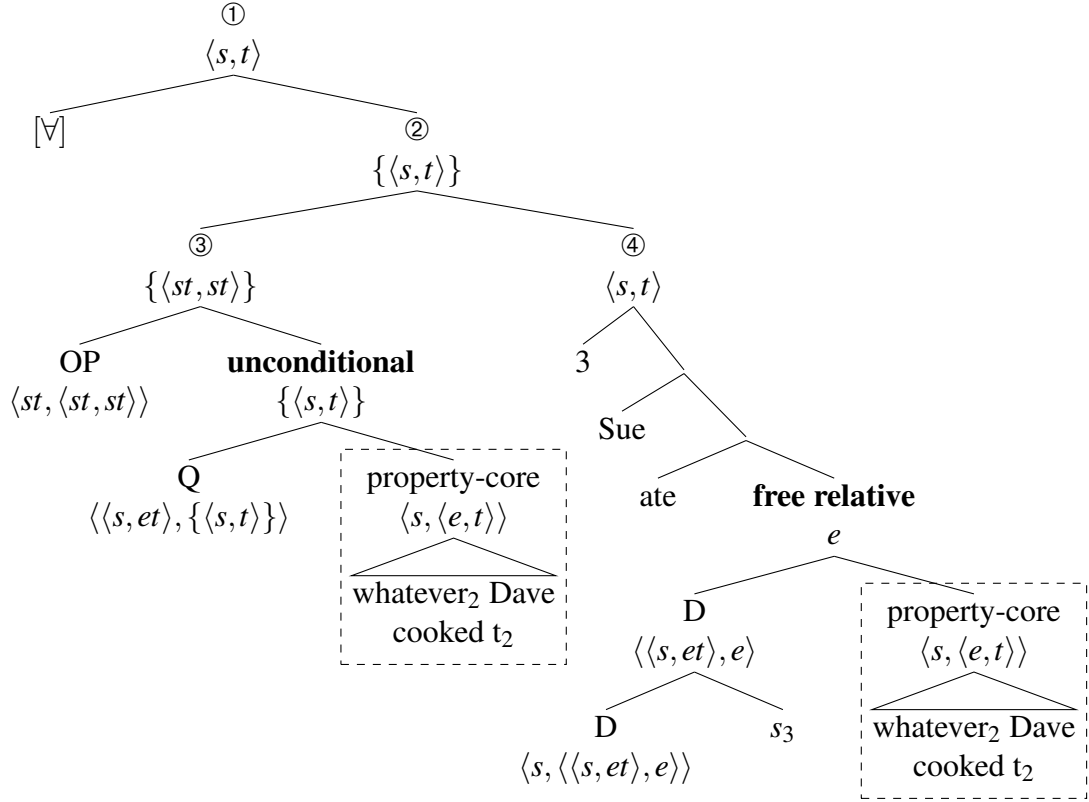


(23)  a.  $[\![\text{property-core}]\!]^g = \lambda s \lambda x [\text{COOKED}(s)(x)(\text{DAVE}) \wedge \text{THING}(s)(x)]$

   b.  $[\![\textbf{free relative}]\!]^g = \sigma x\, \text{COOKED}(g(3))(x)(\text{DAVE}) \wedge \text{THING}(g(3))(x)$

   c.  $[\![④]\!]^g = \lambda s [\text{ATE}(s)(\sigma x\, \text{COOKED}(s)(x)(\text{DAVE}) \wedge \text{THING}(s)(x))(\text{SUE})]$

   d.  $[\![\text{OP}]\!]^g = \lambda p \lambda q \lambda s \forall w [w \in \text{DOX}(s)(\text{SP}) \wedge p(w) \to q(w)]$

   e.  $[\![\textbf{unconditional}]\!]^g = \{\lambda s [\text{COOKED}(s)(x)(\text{DAVE}) \wedge \text{THING}(s)(x)] \mid x \in D_c\}$

   f.  $[\![③]\!]^g = \{\lambda q \lambda s \forall w [w \in \text{DOX}(s)(\text{SP}) \wedge \text{COOKED}(w)(x)(\text{DAVE}) \wedge \text{THING}(w)(x)$
       $\to q(w)] \mid x \in D_c\}$

   g.  $[\![②]\!]^g = \{\lambda s \forall w [w \in \text{DOX}(s)(\text{SP}) \wedge \text{COOKED}(w)(x)(\text{DAVE}) \wedge \text{THING}(w)(x)$
       $\to \text{ATE}(w)(\sigma y\, \text{COOKED}(w)(y)(\text{DAVE}) \wedge \text{THING}(w)(y))(\text{SUE})]$
       $\mid x \in D_c\}$

   h.  $[\![[\forall]]\!]^g = \lambda \mathcal{P} \lambda s \forall p [p \in \mathcal{P} \to p(s) = 1]$
   i.  $[\![①]\!]^g = \lambda s \forall p [p \in [\![②]\!]^g \to p(s) = 1]$

Caponigro 2003).[15] Node ④ denotes the proposition that Sue ate the thing(s) that Dave cooked, (23c). If the FR did not contain an ever-morpheme, we would be done with the computation of truth-conditions at this point. Because our FR *does* contain one, however, its property-core is "used" once more, this time as a complement of an abstract Q morpheme, whose role is to turn

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[15] I follow Heim and Kratzer (1998) and assume that wh-words in relative clauses function as lambda-operators, which is indicated in (22) by the index 2. I leave aside the question how exactly this works compositionally.

properties to sets of propositions.[16] This gives rise to what I term here unconditional—the set of propositions of the form 'Dave cooked $x$', where $x$ a member of some contextually deteremined domain $D_c$, (23e).[17] The unconditional, or more precisely the individual propositions in the set it denotes, function as restrictors of the operator OP. **The nature of this operator determines the reading of the eFR** (ignorance, indifference, non-modal). Since our aim is to derive the ignorance reading now, I assume that OP in (22) is a speaker-related doxastic operator—a universal quantifier over speaker's doxastic alternatives. As standardly assumed (in Kratzerian modal and conditional semantics; see Kratzer 2012), the operator takes two arguments—a restrictor, which codetermines its modal base (here the **unconditional**), resulting in (23f), and a nucleus (here ④). The result (23g) is a set of propositions of the form 'All worlds compatible with speaker's beliefs where Dave cooked $x$ are such that Sue ate $x$ / the thing that Dave cooked', for all $x \in D_c$.[18] The final step in the derivation is turning this set into an ordinary denotation, which is achieved by the (default) universal quantifier over Hamblin alternatives [∀], which conveys that all the propositions in its argument are true (in some situation).

Suppose now for concreteness that there are two relevant alternatives in the context—$\textbf{DISH}_1$ and $\textbf{DISH}_2$. Then, the meaning of ①, applied to the situation $s_0$, is true iff all worlds compatible with speaker's beliefs in which Dave cooked $\textbf{DISH}_1$, Sue ate that dish, and all worlds compatible with speaker's beliefs in which Dave cooked $\textbf{DISH}_2$, Sue ate that dish.[19]

(24)     For $D_c = \{\textbf{DISH}_1, \textbf{DISH}_2\}$ and some situation $s_0$, $[\![①]\!]^g(s_0) = 1$ iff
   
   a.    $\forall w[w \in \text{DOX}(s_0)(\text{SP}) \wedge \text{COOKED}(w)(\textbf{DISH}_1)(\text{DAVE})$
           $\rightarrow \text{ATE}(w)(\sigma x\, \text{COOKED}(w)(x)(\text{DAVE}))(\text{SUE})]$ **&**

   b.    $\forall w[w \in \text{DOX}(s_0)(\text{SP}) \wedge \text{COOKED}(w)(\textbf{DISH}_2)(\text{DAVE})$
           $\rightarrow \text{ATE}(w)(\sigma x\, \text{COOKED}(w)(x)(\text{DAVE}))(\text{SUE})]$

The benefit of this (i.e., Hirsch's 2016) semantics is that it derives the ignorance inference effortlessly. The fact that the doxastic state of the speaker in $s_0$ is compatible with more than just one entity that Dave cooked boils down to saying that the speaker's doxastic state is not settled on the issue of what Dave cooked. In other words, the speaker does not know (has no settled belief about) what Dave cooked.[20] This in turn has the positive outcome that one need not

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[16] The question of how it happens that the property-core appears in two positions at LF is interesting and important, but orthogonal to our present purposes. I side with Hirsch's (2016: fn. 8) opinion that Johnson's (2012) approach to quantifier raising seems to be a good fit for the structural situation we are facing.

[17] I adopt the assumption that the set of propositions gets generated by Q from Hirsch (2016) and I do so for presentational reasons. Otherwise, I subscribe to the more standard idea that the source of alternatives is the wh-word itself (as e.g. in Beck 2006, among many others). Making this assumption explicit would complicate the syntax-semantics mapping (a "complication" that might in fact eventually come with empirical benefits; cf. the discussion around (16)). Concerning the nature of the individual alternatives in $D_c$, I do not assume any particular restriction on these; they can be open-ended (or even "widened") and unknown to the discourse participants, but they can just as well constitute a closed set known to the discourse participants (see example (4), which illustrates the latter option).

[18] For simplicity, I assume that the composition of OP (ordinary denotation) with the unconditional (Hamblin-style denotation; Kratzer and Shimoyama 2002) happens via Hagstrom's (1998: 142) flexible function application.

[19] Rawlins (2013) argued that the alternatives are exhaustified (i.e. ...Dave cooked **only** $\text{DISH}_1$..., ...Dave cooked **only** $\text{DISH}_1$...). I am leaving exhaustification out for presentational purposes.

[20] As noted already by Rawlins (2013) and reiterated by Hirsch (2016), it must be the case (it is presupposed)

stipulate the variation requirement as an extra property of eFRs (cf. Dayal 1997 and subsequent literature). All that is needed is the empirically motivated assumption that eFRs—besides being FRs—are also unconditionals, which in turn obligatorily involve alternative denotations (more precisely, non-trivial alternatives, where $|D_c| > 1$). Since these alternatives "feed into" the doxastic operator, they automatically derive variation within the doxastic state; cf. Condoravdi (2015), who also utilizes alternative semantics for eFRs but does not seem to make the step towards abolishing the variation requirement as an extra condition on the use of eFRs.

Ever since von Fintel (2000) (see Lauer 2009 and Condoravdi 2015 for refinements) it has been known that the ignorance inference is not at issue (roughly in the sense of Simons et al. 2011), i.e., it cannot be negated or embedded by attitude predicates, for instance. In order to capture the not-at-issue nature of the ignorance inference, we have to assume that the operator OP in (22) cannot be negated or more generally embedded. I follow much recent literature and assume that the present doxastic OP is a sort of default operator attached to any matrix declarative (see e.g. Meyer's 2013 Matrix K Theory). As such, it cannot be properly embedded (unlike its overt kin, the verb *believe*), or at least not by overtly expressed operators.[21]

## 4.3. Non-modal eFRs

Let us now see how Hirsch's (2016) analysis can be extended to non-modal uses of eFRs. I will provide an analysis of two examples from my empirical survey—eFRs in the future context—giving rise to a definite interpretation—and in the simple past context—giving rise to a quasi-universal/iterative interpretation. The LF in (25) differs in one crucial respect—the operator which "licenses" the eFR and takes it as its first argument (in its unconditional function) is not an implicit doxastic operator, but rather either (a) the future operator (FUT) or (b) the aspectual iterative operator (ITR).

The computation of the truth-conditions is parallel to the one in (23) and will not be repeated here. Of relevance is the denotation of FUT and of ITR, which is provided in (26). The semantics of FUT follows the spirit of Copley's (2009) proposal, according to which the future is a modal with a metaphysical (circumstantial) modal base, yielding a set of worlds/situations that are possible continuations of the evaluation world/situation.[22] The semantics of ITR is based on the situation-semantic analysis of adverbial quantifiers like *always* (see e.g. von Fintel 1994). It quantifies over minimal situations (not encoded in the formula for the sake of simplicity) which are part of the evaluation situation and introduces, in the nucleus of the quantifier, an additional existential quantification over minimal situations, which are superparts of the situations introduced in the restrictor.
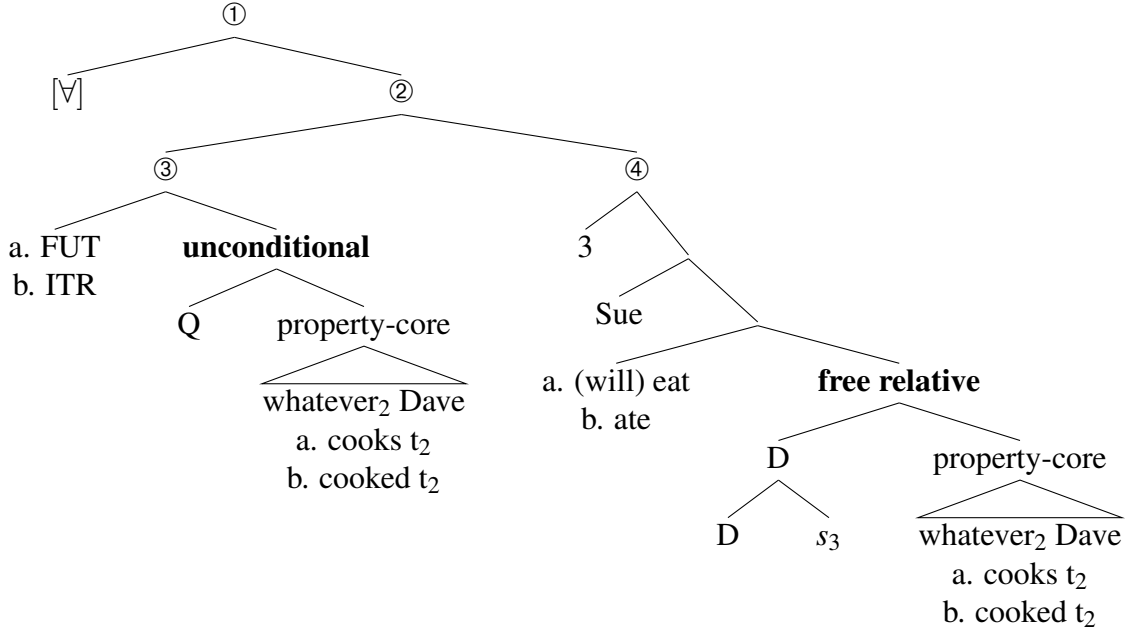
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that each restrictor in the set denoted by the unconditional is true in at least one world of the speaker's doxastic state (dubbed non-triviality).

[21]Tredinnick (2005: Ch. 4) gives ample evidence of ignorance eFRs' non-embeddability. She notes that there is a single exception, namely that ignorance need not be tied to the speaker, but also to a holder of an attitude expressed by a matrix attitude predicate.

[22]Notice that the circumstantial (root) nature of the licensing operator is crucial if the root vs. epistemic distinction is the relevant factor in licensing eFRs in CAT2 languages (see section 3.3); cf. Giannakidou and Mari (2018), who propose, contra Copley (2009), that the future is epistemic.

(25)  a.  (Tonight) Sue will eat whatever Dave cooks.
      b.  (Last week) Sue ate whatever Dave cooked.

①
├── [∀]
└── ②
     ├── ③
     │    ├── a. FUT / b. ITR
     │    └── **unconditional**
     │         ├── Q
     │         └── property-core
     │              └── whatever$_2$ Dave / a. cooks t$_2$ / b. cooked t$_2$
     └── ④
          ├── 3
          │    └── Sue
          └── a. (will) eat / b. ate
               └── **free relative**
                    ├── D
                    │    ├── D
                    │    └── s$_3$
                    └── property-core
                         └── whatever$_2$ Dave / a. cooks t$_2$ / b. cooked t$_2$

(26)  a.  $[\![\text{FUT}]\!]^g = \lambda p \lambda q \lambda s \forall s_1[s_1 \in \text{META}(s) \land p(s_1) \to q(s_1)]$
      b.  $[\![\text{ITR}]\!]^g = \lambda p \lambda q \lambda s \forall s_1[s_1 \leq s \land p(s_1) \to \exists s_2[s_2 \geq s_1 \land q(s_2)]]$

In (27) are the resulting truth-conditions of (25a). Sticking to the same domain of two dishes, as in our previous example, the sentence is true in $s_0$ iff in all the continuations of $s_0$ in which Dave cooks $\textbf{DISH}_1$, Sue eats that dish, and in all the continuations of $s_0$ in which Dave cooks $\textbf{DISH}_2$, Sue eats that dish. These truth-conditions capture the intuition that Sue will eat a single dish (or a single group of dishes, in case we allow for plural entities). This is because only one of the two possible continuations will actually be realized.

(27)  **Non-modal future-related reading**
      For $D_c = \{\textbf{DISH}_1, \textbf{DISH}_2\}$ and some situation $s_0$, $[\![①]\!]^g(s_0) = 1$ iff
      a.  $\forall s_1[s_1 \in \text{META}(s_0)) \land \text{COOKS}(s_1)(\textbf{DISH}_1)(\text{DAVE})$
           $\to \text{EAT}(s_1)(\sigma x \, \text{COOKED}(s_1)(x)(\text{DAVE}))(\text{SUE})]]$ **&**
      b.  $\forall s_1[s_1 \in \text{META}(s_0)) \land \text{COOKS}(s_1)(\textbf{DISH}_2)(\text{DAVE})$
           $\to \text{EAT}(s_1)(\sigma x \, \text{COOKED}(s_1)(x)(\text{DAVE}))(\text{SUE})]]$

The truth-conditions of (25b) are in (28). The sentence is true in $s_0$ (say last week) iff all subsituations of $s_0$ in which Dave cooked $\text{DISH}_1$ are such that they extend to a supersituation in which Sue ate that dish, and all subsituations of $s_0$ in which Dave cooked $\text{DISH}_2$ are such that they extend to a supersituation in which Sue ate that dish. Since the quantified situations are *actual* situations, it follows that Dave actually cooked two dishes last week and that Sue actually ate both of them. This reading is thus truth-conditionally equivalent to the reading of a sentence containing a universally quantified DP (*Sue ate everything that Dave cooked*), which is a welcome result, given the common assumption in the past that eFRs are or at least can be

14

universal quantifiers.[23]

(28) **Non-modal iterative reading**
For $D_c = \{\mathbf{DISH}_1, \mathbf{DISH}_2\}$ and some situation $s_0$, $[\![①]\!]^g(s_0) = 1$ iff

    a. $\forall s_1[s_1 \leq s_0 \wedge \text{COOKED}(s_1)(\mathbf{DISH}_1)(\text{DAVE})$
          $\rightarrow \exists s_2[s_2 \geq s_1 \wedge \text{ATE}(s_2)(\sigma x\, \text{COOKED}(s_2)(x)(\text{DAVE}))(\text{SUE})]]$ **&**

    b. $\forall s_1[s_1 \leq s_0 \wedge \text{COOKED}(s_1)(\mathbf{DISH}_2)(\text{DAVE})$
          $\rightarrow \exists s_2[s_2 \geq s_1 \wedge \text{ATE}(s_2)(\sigma x\, \text{COOKED}(s_2)(x)(\text{DAVE}))(\text{SUE})]]$

I conclude that Hirsch's (2016) proposal for ignorance eFRs can be effortlessly extended to non-modal eFRs. The differences in meaning follow from the nature of the operator that quantifies over ("licenses") the eFR in its unconditional function.

## 5. Conclusion

Ever since Dayal (1997), it has been common to assume that ever free relatives convey, in one way or another, a modal meaning—ignorance or indifference. This paper has delivered novel crosslinguistic evidence supporting the more recent view (Lauer 2009, Condoravdi 2015, Hirsch 2016) that modal inferences are not really an integral part of the meaning of ever free relatives: four out of the seven investigated languages cannot even convey ignorance or indifference with their ever free relatives. In contrast, the so called non-modal uses of ever free relatives, including the quasi-universal ones, are apparently universally available. I continued by delivering some old and novel arguments in favor of the hypothesis that ever free relatives are (un)conditionals of sorts (Baker 1995; recently Hirsch 2016). As (un)conditionals, ever free relatives can function as restrictors of various operators, which in turn derive the different readings that ever free relatives appear to have. The bottom line is: All ever free relatives are non-modal. Their apparent modality is the result of an interaction with certain operators, such as the implicit doxastic operator in ignorance ever free relatives.

The present paper leaves a lot of interesting questions open for future research. The most important one concerns the restriction of so called modal uses in certain languages. What is it that prevents ever free relatives in these languages to convey the ignorance and/or indifference inference? I formulated two hypotheses, both of which receive a certain amount of empirical backing, but a principled explanation and reduction to an independent factor is still to be found. Resolving the question might also require the use of a more solid empirical methodology, as the judgments prove to be difficult and there is a lot of cross-speaker variation within languages. It is unclear whether this variation is deeper or simply an artifact of an inadequate methodology. I further attempted to demonstrate that the (un)condtional / question-based approach to the syntax and semantics of ever free relatives opens up a whole new avenue of research into these and related constructions. Under this approach, ever free relatives are typically spelled out in their "in situ" position (like quantifiers and unlike wh-phrases; cf. Johnson 2012), which is probably the reason why they have always been put on a par—syntactically—with plain free relatives. Yet, I provided multi-faceted evidence that ever free relatives (as opposed to plain free rela-

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[23]eFRs in iterative contexts actually pass many tests applicable to universal quantifiers. See Tredinnick (2005) for a solution of this problem compatible with the present approach.

tives) exhibit many formal and semantic properties that clearly reflect their "raised" syntactic position, where they denote propositions (rather than entities) and where they play the role of (un)conditionals / questions. The question is, therefore, which properties reflect which of both syntactic/semantic functions of ever free relatives and *why* this is so. The answers, possibly different for different languages, are likely to lead to new insights into how morphosyntax and semantics communicate with one another.

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