The Syntax and Semantics of Correlative Proforms

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1. Introduction

The correlative construction involves a relative clause which is not adjacent to the nominal it is interpreted with; rather the relative clause precedes the clause containing the nominal. As an illustration, consider the Hindi correlative in (1) (from Srivastav 1991), where the relative clause is not embedded like the relative clause in the English translation.

(1) [jo laRkii khaRti hai] vo lambii hai.
   REL girl standing is DEM tall is
    'The girl [who is standing] is tall.'

In the typological literature the term CORRELATIVE is often applied both to the construction in (1) and to sentences in which the relative clause follows the main clause (mirroring the word order of the English (2)), because in both cases the relative clause appears away from the main-clause nominal. Srivastav, however, argues that these two constructions have distinct syntactic and semantic properties and it is therefore misleading to refer to both as correlatives. She proposes that the relative clause in (1) is base-generated as left-adjoined to the matrix clause, while sentence-final relative clauses are extraposed NP-modifiers that originate inside the main clause. Thus only the structure in (1) is unusual from the point of view of English relativization; sentences with post-main-clause relatives are of the type of the English (2) where the relative clause has been extraposed:

(2) The girl is tall who is standing.

Following Srivastav, I will use the term CORRELATIVE only for constructions with left-dislocated relative clauses, as in (1). The structure of correlatives can be represented

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*I am particularly indebted to Sabine Iatridou for the encouragement to pursue the topic and for the many helpful discussions. I also want to thank Alexis Dimitriadis, Rajesh Bhatt, Dave Embick, Tony Kroch, David Pesetsky, Beatrice Santorini, and Spyridoula Varlokosta for their useful comments.

Andrews (1985) allows for base-generated post-main-clause relatives. Similarly, Dwivedi (1994) argues that the right-adjoined relative is a type of an afterthought restrictor. Because I will only be concerned with left-adjoined clauses here, the status of right-adjoined relatives will not be relevant.
schematically as in (3). This representation reflects Srivastav's further proposal that the left-adjointed relative clause is syntactically and semantically similar to a free relative.3

(3) \([CP \ [FREE \ RELATIVE], \ [CP \ ... \ PROFORM, ...]]\)

Thus correlatives involve a left-adjointed free relative coindexed with a nominal inside the main clause. Typically this nominal is a demonstrative pronoun (cf. vo in (1)) or a NP with a demonstrative determiner and this nominal is what I call the CORRELATIVE PROFORM.4

Previous analyses of correlatives have mainly concentrated on the syntax of the relative clause and the mechanism for its interpretation. Here I examine the syntactic status and the semantic contribution of the correlative proform. I present evidence that the proform is treated in the syntax like a wh-element. I also propose that the proform contributes a particular reading of exhaustiveness to the matrix proposition. In discussing the interpretative effect of the proform and its syntax I build on Iatridou's (1991, 1994) work on conditional then.

In the next section I present Iatridou's proposal about the meaning of then. Section 3 examines the semantic contribution of correlative proforms, establishing that the behavior of then is not idiosyncratic but is part of a larger pattern. Section 4 presents an analysis of the syntax of correlative proforms. The connection between the syntax and the meaning contribution of correlative proforms is discussed in the concluding section.

2. The Meaning of Conditional Then

Iatridou (1991, 1994) shows that the use of conditional then is not without meaning, as was usually assumed. She proposes that if \( p \), then \( q \), in addition to asserting \( O[p,q] \), presupposes \( \neg O[\neg p,q] \), where \( O \) is the operator restricted by the antecedent clause of the conditional.5 In other words, the speaker can felicitously use then only when s/he believes and/or wants to convey that there are cases in which, when \( \neg p \) holds, \( \neg q \) holds as well. To illustrate with an example, the conditional in (4) asserts (4a) and presupposes (4b):

(4) If Stefan is happy, then he sings in the shower.
   a. In every case in which Stefan is happy, he sings in the shower.
   b. In some case in which Stefan is not happy he does not sing in the shower.6

Because of its presupposition in (4b) the conditional in (4) cannot be felicitously used if Stefan always sings in the shower, happy or not.7

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2 In Srivastav's analysis the main clause is an IP, rather than a CP. It will become clear later on in section 4 why I am taking the main clause to be a CP.
3 Free relatives get their name from the fact that they are not modifiers on an NP. The many interesting issues in the syntax of free relatives need not concern us here (for discussion see Bresnan and Grimshaw 1978 and Groos and van Riemsdijk 1979, among others).
4 While in Hindi demonstratives function as proforms, in Bangla, as Bagchi (1994) shows, only anaphoric pronouns can be used as proforms and not deictic pronouns.
5 Assuming an analysis of conditionals in terms of restricted quantification, as in Lewis (1975), Kratzer (1986). O is an overt modal or adverb of quantification, or an implicit generic operator/modal of necessity.
6 The presupposition in (4b) is equivalent to the statement Not in every case in which Stefan is not happy does he sing in the shower, i.e., \( \neg O[\neg p,q] \).
7 In the absence of then the conditional is true if and only if it implies that it is not the case that Stefan always sings in the shower. Indeed, in asserting \( p, q \) in a situation where s/he knows that \( q \) obtains, the
Von Fintel (1994) assumes Iatridou's proposal about the meaning of then but also differs from her in one respect. For him the use of then triggers a (conventional) implicature that alternatives to the antecedent (all ¬p cases) do not satisfy the matrix proposition. The question whether then contributes the meaning that all or some alternatives to the antecedent do not satisfy the consequent will be discussed briefly in sections 3 and 5.8

Next, I will examine several cases where the meaning contributed by then is incompatible with the meaning of the conditional and therefore the use of then is precluded. The behavior of correlative proforms in the same cases will be examined later and the reader will see that the contribution of conditional then is shared by all correlative proforms.

Because of its meaning, then is incompatible with asserted consequents. Thus, if the antecedent of the conditional exhausts all possibilities, then should be precluded. This is indeed what happens as seen in the following examples (all taken from Iatridou):

(5)  
   a. If John is dead or alive, (# then) Bill will find him.  
   b. Even if John is drunk, (# then) Bill will vote for him.  
   c. If I were the richest linguist on earth, (# then) I (still) wouldn't be able to afford this house.  
   d. If he were to wear an Armani suit, (# then) he (still) wouldn't like him.

In (5a) the predicate dead or alive covers all possibilities (i.e., John is necessarily dead or alive). In (5b) the antecedent is the associate of even.9 The use of even is associated with universal quantification over a scale; the associate of even marks an endpoint on the scale and the proposition is taken to hold for all other alternatives to the associate on the scale (cf. Horn 1969 and Fauconnier 1975). Another way to have an exhaustive antecedent is to use a superlative or pragmatically determined endpoint on a scale (cf. Fauconnier 1975). Both (5c) and (5d) have scalarly exhaustive antecedents of this type. The examples in (5) are analogous in that their consequents are asserted due to the exhaustive nature of their antecedents. Since then is intended to contribute the meaning that at least in some cases the consequent doesn't hold, clearly its use cannot be appropriate.

Related to the above cases is the observation in von Fintel that unless conditionals prohibit the use of then. Consider (6) (from von Fintel 1994):

speaker would violate the Gricean Maxim of Quantity and would therefore be less than cooperative. Thus, upon hearing if p, q and working on the assumption that the speaker is following the Cooperative Principle, the hearer infers that it must be the case that q does not always hold. This is a typical case of generating a conversational implicature by exploiting a Gricean maxim. That a conversational implicature is indeed at hand here is seen from the fact that it is cancelable. The following utterance is not infelicitous.

(i) If Stefan is happy, he sings in the shower. This is so because he always sings in the shower.

Taking the contribution of then to be a presupposition, as in Iatridou's analysis, allows one to capture the fact that the use of then brings about an interpretation stronger than a conversational implicature.

Iatridou's proposal that it is some rather than all alternatives to the antecedent that do not satisfy the consequent is based on the position that a conditional like the one in (i) is not interpreted as a biconditional and that this is so can be shown by the felicity of the continuation.

(i) If Pete runs for president, then the Republicans will lose. If he doesn't run I don't know what will happen. They might lose or they might win.

9Care should be taken to interpret the whole antecedent as the associate of even. In cases when some constituent of the antecedent is the associate of then then should be acceptable.
(6) Unless it rains tomorrow, (# then) I won't leave.

The behavior of *unless* conditionals with respect to *then* is predicted by Latroodou's proposal in combination with von Fintel's analysis of the semantics of *unless* clauses. Von Fintel proposes that *unless* is an exceptive operator on the restrictive clause of conditionals. Under the approach pursued by von Fintel *unless* asserts that for all the alternatives to *p, q* holds. Since the presupposition associated with *then* requires at least some of the *¬p* cases to be *¬q* cases, then is disallowed in *unless* conditionals.

The so-called RELEVANCE conditionals also prohibit the use of *then*. The antecedent in relevance conditionals is not part of the assertion but rather presents the conditions under which uttering the consequent would be relevant. In (7) (from Latroodou 1994), because the consequent is asserted, the unacceptability of *then* is to be expected.

(7) If you are thirsty, (♯ then) there's beer in the fridge.

Finally, *then* cannot appear in conditionals in which the antecedent is a presupposition of the consequent. Consider (8a, b) (again taken from Latroodou 1994):

(8) a. If there are clouds in the sky, (♯ then) it puts her in a good mood.

b. If Mary bakes a cake, (♯ then) she gives some slices of it to John.

In (8a) the contents of the antecedent are referred to in the consequent clause. The presupposition contributed by *then* requires evaluation of alternatives to the antecedent (i.e. situations where there are no clouds in the sky). But to evaluate such situations would mean that it would no longer have its original referent. Similarly, in (8b) *it* refers to the cake baked by Mary and it requires the truth of the antecedent for establishing its reference. The use of *then*, on the other hand, requires evaluating at least some cases where the antecedent doesn't hold, thus preventing felicitous anaphora.

In sum, Latroodou proposes that the use of *then* is not strictly speaking optional. For her and for von Fintel *then* contributes the meaning that in some/all of the cases when the antecedent is false, the consequent is also false. The clash between this meaning and the intended reading of the conditional results in the unacceptability of *then*; this happens in conditionals with asserted consequents and with consequents that presuppose the truth of the antecedents. The next section discusses the relationship between correlatives and conditionals and shows that the conditions on the use of *then*, discussed above, apply to all correlative proforms.

3. The Contribution of Correlative Proforms

3.1. Conditionals and Correlatives

Relating correlative proforms to conditional *then* is not coincidental. As Geis and Lycan (1989) point out, conditionals with *then* are the last remnant in English of a

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10Assuming the Lewis-Kratzer approach to conditionals, the semantic representation of *unless* *p, q* is (9) *O*(p) ⊃ *¬q*. In other words, (8) is interpreted roughly as All cases, except the ones in which it rains tomorrow, are cases in which I won't leave.
once productive correlativization strategy. Ilatridou and von Fintel also point out the similarities between conditionals with *then* and a certain type of NP/PP dislocation in Germanic. The German example in (9) (from Ilatridou) illustrates this construction:

(9) \[ \text{Hans, *den* mag Maria.} \]
    \[ \text{Hans him loves Maria} \]
    \[ \text{’Hans, Maria likes him.’} \]

This type of dislocation is a remnant of the correlative construction (hence its name **CORRELATIVE DISLOCATION** in von Fintel). The proform is a demonstrative pronoun and it has to appear at the beginning of its clause, just as in the Dutch (10), a true correlative. The only difference between the two constructions is in the category of the dislocated constituent.

(10) \[ \text{[Wie jij uitgenodigd heet], *die,* wil ik niet meer zien.} \]
    \[ \text{who you invited have that-one want I no longer see} \]
    \[ \text{’The one you’ve invited, I don’t want to see him any longer.’} \]

We see that there are good reasons to treat *then* as an anaphoric element of the correlative proform type. Let us turn now to the question of how the behavior of *then* compares to the behavior of correlating proforms.

### 3.2. Felicity Conditions on Correlative Proforms

Before we start the discussion of the contribution of correlating proforms, we need to consider the question of the optionality of their use. To illustrate the relevance of optionality consider the following. It is because both if *p, q* and if *p, then q* constructions are available that one can examine the differences between them and argue that *then* contributes a certain meaning to the conditional. Similarly, in order to isolate the meaning contribution of the correlating proform, we need both types of constructions, a correlating, as in (11a) and a construction closely related in meaning where the free relative clause is not dislocated but appears internally to the main clause, as in (11b):

(11) a. \[ [\text{if } p, \text{ [free relative], } [\text{if } p, \ldots \text{proform}, \ldots]] \]
    b. \[ [\text{if } p, \ldots [\text{free relative}, \ldots] \]

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11In the Indo-Aryan languages conditionals are formed as correlatives. The following Marathi sentences (from Andrews 1985) illustrate the use of locative and conditional adjunct clauses in correlatives; note the morphological parallelism between the relative pronouns and the demonstrative proforms, as well as the structural parallelism between the two clauses of the correlative construction.

\[ \text{(i) a. } \text{Uthe sawali hotil, *taha,* Ram basla,} \]
    \[ \text{where shade was there Ram sat-down} \]
    \[ \text{’Where there was shade Ram sat down.’} \]

\[ \text{b. } \text{[for to itha yell], *tar, mi tya-la goli marin,} \]
    \[ \text{if he here comes then INFIN he-DAT hullet kill...will} \]
    \[ \text{’If he comes here, then I’ll kill him.’} \]

12(10) is from Groos and van Riemsdijk (1979) who do not characterize it as a correlating; they consider it as part of their investigation of the properties of free relative clauses.

13Conditionals with and without *then* also have different syntax (cf. Ilatridou 1991, Ilatridou and Kroch 1997).
As pointed out by Srivastav (1991) free relatives in Hindi cannot appear in argument position. Since the contrast between (11a,b) is lacking in Hindi (at least for arguments), this language is not going to be revealing with respect to the contribution of the proform. Languages like Modern Greek and those of the Slavic family are more suitable to test the behavior of correlative proforms. Although these languages are never, to my knowledge, mentioned in studies of correlative proforms, they have fairly productive correlativization but also allow free relatives to appear sentence internally (in argument or adjunct positions, depending on the status of the free relative). This is why the behavior of correlative proforms will be illustrated in this section with examples from Slavic and Modern Greek.

Let us turn now to the meaning contribution of the proform. I propose that, given a choice between constructions of the type (11a) and (11b), a statement $F(ree) \ R(elative)$, proform, $q$ (where $q$ is the main clause in a correlative minus the proform), in addition to asserting $FR q$ also presupposes that alternatives to the free relative do not make the main clause true. To illustrate with an example, consider the Russian correlative in (12):

(12) [Kogo ljublj\u0441],, togo, poceluju.
whom love-1sg that-one will-kiss-1sg
'I'll kiss who I love.'

This correlative asserts that I will kiss the people I love. It also has a presupposition that I will not kiss the people that I do not love. In other words the proform contributes a reading of exhaustiveness to the main clause: the individuals that I will kiss are all and only those people that I love. Note that according to my proposal the interpretative effect of the proform is that all of the alternatives to the free relative make the main clause false. This is a stronger claim than the one put forward by Iatridou for conditional $then$ and as such it corresponds to von Fintel’s account. The difference in the behavior of conditional $then$ and of correlative proforms like the one in (12), though interesting, cannot be investigated at this point. A possible adjunct/argument distinction in the contribution of the anaphoric pronouns is discussed in the last section.

Next, I am going to examine environments that are not compatible with the proposed presupposition of the correlative proform. As proposed above, when a proform is used, it should not be the case that all alternatives to the antecedent satisfy the matrix proposition. Thus, if the antecedent clause is exhaustive and does not leave any alternatives to be evaluated, a proform should not be felicitous. Consider first the Modern Greek example in (13). In the absence of the proform, i.e. when the free relative is not dislocated, the fact that it exhausts all possibilities (taking rain and sunshine to be the only two possible weather conditions) has no effect on the acceptability of the sentence. When the proform is introduced and the exhaustive free relative becomes the dislocated antecedent in a correlative

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14She relates this to the more general fact that in Hindi CPs cannot appear in case-marked positions.
15(12) has the same assertion as (i), where the free relative appears in argument position inside the main clause. Sentence (i) does not share the presupposition that (12) has.
(i) Poceluju [kogo ljublj\u0441],
will-kiss whom love-1sg
'I'll kiss who I love.'

16This is essentially the same phenomenon as the one referred to as STRONG EXHAUSTIVENESS in Groe.

Poceluju [kogo ljublj\u0441],
will-kiss whom love-1sg
'I'll kiss who I love.'

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construction, the sentence becomes unacceptable.

(13) [Ke otan vrexi ke otan exi ilio] (#tote) vjenume ekso.
   and when rains and when has sun then go-1pl out
   ‘We go out when it is sunny and when it is raining.’

Consider also the case when the free relative is the associate of *even*. As discussed earlier, *even* is associated with an end-point of a scale over which universal quantification applies, and as a result, if it were to take the antecedent of a correlative as an associate, the antecedent would have concessive character and the main clause would be asserted. The Bulgarian example in (14) shows that the proform is disallowed in such a case. Without the proform, the sentence is acceptable showing that in principle free relatives can be the associate of *even*. It is only in the correlative construction that free relatives disallow *even*.

(14) [Dori kojto se uči], (#taj) njama da spoluči.
   even who refl studies he will-not to succeed
   ‘Even who studies will not succeed.’

In both Bulgarian and Modern Greek the use of the conjunction together with the invariable subjunctive/infinital particle (*da*/*na*, respectively) in free relatives results in the concessive reading of the free relative. The details of the analysis of this construction, though interesting, need not concern us here. We can use it though as another environment to test the behavior of correlative proforms. Again, the prediction is met; the correlative proform is disallowed, as the Modern Greek (15) shows.

(15) [Oti ke na theli] (#afto) tha tu dhosos.
   what and to wants that will him give-1sg
   ‘I’ll give him whatever he wants.’

Next, consider the case of **RELEVANCE** free relatives. The free relative in the Modern Greek (16) states the circumstances under which uttering the main clause is relevant. In other words, the main clause is asserted and thus the proform is expected to be unacceptable. Since this is indeed what happens, we can conclude that correlative proforms behave like conditional *then* in one more environment.

(16) [Otan tha ise etimi] (#tote) ime sto grafiou mu.
   when will be-2sg ready then be-1sg in-the office my
   ‘When you get ready, I am in my office.’

Recall that Iatridou identifies another case prohibiting conditional *then*; namely, when the truth of the antecedent is a presupposition for the consequent. We can see that, again, correlative proforms behave just like conditional *then*. When the contents of the free relative are referred to in the main clause it is not possible to evaluate alternatives to the free relative and still preserve the anaphora. Since the presupposition associated with the proform requires evaluation of the alternatives to the antecedent, the proform should be unacceptable. That the prediction is met is evident from the Bulgarian example in (17):

I use this name in analogy to the **relevance conditionals** discussed by Iatridou (cf. (7)).
(17) [Kἀdētο Μαρια se pojaví., (#iam) tova; se zabeižaví.  
where Maria refl appears there this refl notices  
‘Where Maria shows up, her appearance gets noticed.’

Example (18) from Modern Greek illustrates another case where the presupposition associated with the proform conflicts with anaphora. When alternatives to the free relative are evaluated, the pronoun in the main clause cannot have its original referent.

(18) [Otani Maria grafi vivlio.], (#tote) o Janis to, agorazi.  
when the Maria writes book then the Yanis it buys  
‘When Maria writes a book Yanis buys it.’

Crucially, both (17) and (18) are acceptable in the absence of a proform.

The discussion so far shows that the presupposition associated with conditional then is a property of all correlative proforms. Because this presupposition leads to a conflict in a number of environments, the proform is not always allowed. The same environments that prohibit then in conditionals also prohibit correlative proforms. There is one more case where conditionals with then and correlatives behave alike, namely when the antecedent is the associate of only. Unlike the previous examples, this environment does not involve a meaning clash. Because of that, the behavior of only is puzzling, but the facts receive a natural explanation when the structure of correlatives is taken into account. The problem raised by only, as identified by Laitridou, is that only if conditionals are compatible with the presupposition of then, yet they disallow it:

(19) Only if it is sunny (#then) will I/I will visit you.

Only if conditionals are expected to permit then because their assertion in fact strengthens the presupposition introduced by then. Whereas the use of then requires that some of the \( \neg p \) cases be \( \neg q \) cases; the only if conditional asserts that none of the alternatives to \( p \) satisfy \( q \), that is, that all \( \neg p \) cases are \( \neg q \) cases.

The same effect can be observed in the case of correlatives. When the free relative clause is the associate of only, the correlative proform cannot felicitously appear. The Hindi example in (20) illustrates this fact.

(20) # [sirf jo laRkii khaRi hai] vo lambii hai.  
only REL girl standing is DEM tall is  
‘Only the girl who is standing is tall.’

In proposing possible solutions for the problem Laitridou notes that other elements that prevent the if-clause from appearing in the Spec, CP position of the main clause behave like then in disallowing only:18

(21) # Only if it rains what will we eat?

I will pursue the idea that structural considerations are preventing the appearance of only in the presence of then, proposing that the reason for the incompatibility lies in the conflict between the left-dislocated nature of the free relative in the correlative construction and the
focus-sensitive nature of *only*. Note that *only* is not inherently incompatible with correlative proforms, including *then*. As (22) shows, when *only* takes *then* as an associate rather than the if-clause, the resulting sentence is grammatical:

(22) If he comes only *then* will she leave.

Similarly, *only* can felicitously take the proform in correlatives as its associate, as illustrated by the Hindi example in (23): 19

(23) [jo laRkii khaRii hai] sərf vo lambii hai.
REL girl standing is *only* DEM tall is

‘Only the girl who is standing is tall.’

That the associate of *only* needs to be focused is uncontroversially accepted (cf. Jackendoff 1972, among many others on the topic of association with focus). The antecedent in the correlative construction, however, cannot be focused, as it is left-dislocated and part of the background. Other ways of focusing the antecedent in correlatives also result in ungrammaticality. In Hindi, the emphatic particle *hi* cannot take the antecedent in the correlative as its associate; it has to focus the proform (see (24)). Similarly, the relative clause in the Bulgarian correlative in (25) cannot be focused by the focusing clitic *li*.

(24) a. *[jo laRkii khaRii hai] *hi* vo lambii hai.
REL girl standing is EMPH DEM tall is

‘The girl who is standing is tall.’

b. [jo laRkii khaRii hai] *vi* hi lambii hai.

(25) [Kakvoto si obeļtal] *li*, (*tova) šte napraviš?
what are promised Q-foc that will do-2sg

‘Are you going to do what you’ve promised?’

The incompatibility between the proform and *only* is a direct result of the structure of correlatives: *only* requires a focused associate, yet the relative clause is dislocated and cannot be focused. When the free relative is inside the main clause and the proform is therefore absent, there is no incompatibility and *only* can freely appear.

3.3. *Unifying Then and Correlative Proforms*

A final problem needs to be resolved, however, before we can conclude that *then* and correlative proforms behave alike. Iatrìdou and von Fintel agree that if the interpretation of the correlative dislocation construction (cf. (9)) is the same as that of conditionals with *then* we would expect the NP-dislocation in (26) to be unacceptable, which is not the case:

‘Everybody understood the lecture. Hans understood it. Maria understood it. And our friend Peter, *der* understood it too.’

19 If *then* is dislocated, it too cannot be the associate of *only*: (ii) If it rains only *then* what will we eat?
The use of *der* should be associated with a presupposition that alternatives to the dislocated NP, i.e., people other than Peter, do not satisfy the matrix proposition. Yet the previous discourse explicitly states that all the alternatives to Peter make the matrix proposition true. I would like to suggest that the use of a focus-sensitive adverb (in this case *too*) is what is relevant here. Thus, the correlative dislocation in (26) is interpreted roughly as in (27):

(27) And also our friend Peter, *der* too understood it.

Such sentences are not problematic for the unified analysis of conditional *then* and correlative proforms since the same facts obtain in the case of conditionals. Consider (28) which is based on an example from von Fintel. In the absence of focus sensitive adverbs the last conditional does not license the appearance of *then*.

(28) We will definitely play soccer. If the sun shines we will. If it is cloudy and cold we will. And if it rains (#*then*) we will. And also if it rains *then* too we will.

Of course, it still remains to be explained why the use of a proform is allowed in (27) and (28), given that the alternatives to the antecedent clearly satisfy the matrix proposition, contrary to the presupposition of the proform. But at least we can conclude that correlative proforms and *then* behave alike in all respects. The findings in this section confirm Latrodiou's and von Fintel's suggestion that the meaning contribution of *then* is not a lexical idiosyncrasy but can be derived from the configurational properties of the *if p, then q* construction.

4. The Syntax of Correlative Proforms

Having discussed the meaning contribution of correlative proforms I now turn to the question of their syntactic status. I propose that the correlative proform undergoes wh-movement, either overt or at LF, depending on the language. This movement is essential for the realization of the binding relation between the free relative clause and the proform. In Srivastav's (1991) analysis, the antecedent clause in the correlative construction functions as a generalized quantifier that binds a variable in the main clause, namely the proform. In other words, Srivastav needs to assume that the main clause in the correlative is interpreted as an open sentence. My proposal that the proform undergoes wh-movement provides a natural explanation for why this should be so. The movement of the proform establishes an operator-variable structure which is straightforwardly interpreted as a predicative term.

The rest of this section provides evidence in support of the position that the correlative proform undergoes wh-movement. Let us begin the discussion with conditional *then*. Previous work on the syntax of *then* (Collins 1989, Latrodiou 1991, Latrodiou and Kroch 1993, von Fintel 1994) has established that *then* is a maximal projection in Spec, CP of the consequent clause of the conditional. The antecedent in this case is adjoined to CP. While the evidence that *then* is in Spec, CP of the consequent clause is very convincing,
the common assumption is that it is base-generated there. However, a closer examination of the relevant data shows that a more appropriate analysis will be that then is wh-moved to Spec, CP. For one, then cannot appear in an embedded clause (as noted in Collins 1989):

(29)  
(a) If it rains then I think that we should stay at home.
(b) *If it rains I think that then we should stay at home.

Although then belongs to the embedded part of the consequent (i.e., it is not my thinking that is conditional on the weather, it is the proposition that we should stay at home), it can only appear in the highest Spec, CP. Furthermore, then is sensitive to islands. Observe the contrast in (30). The (a) sentence is acceptable because the bridge verb allows extraction of then to the highest Spec, CP in the consequent. The sentence in (30b), on the other hand, is unacceptable because the complex NP disallows extraction.

(30)  
(a) If it rains tonight, then I believe that it will be cold tomorrow.
(b) If it rains tonight, (then) I believe the forecast that it will be cold tomorrow.

Further examples of island violations are given in (31). Again, as before, the judgements on the acceptability of then are meant to reflect the possibility of interpreting it in the embedded clause of the consequent.

(31)  
(a) If she finishes the project, then I expect that she will be promoted.
(b) If she doesn’t finish the project (then) I regret that she won’t be promoted.
(c) If she finishes the project, (then) I wonder whether she will be promoted.

Given the island effects, it is reasonable to conclude that then is moved to (the highest) Spec, CP of the consequent rather than being base-generated there.

Let us turn now to correlative proforms. In languages with no overt wh-movement the correlative proform may remain in-situ and does not have to immediately follow the adjunct free relative (cf. Hindi (32)). Island effects can be observed, suggesting that the proform undergoes movement at LF. Example (33) (from Srivastav) shows that correlative proforms in Hindi cannot be inside a complex NP.

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22The only reading that (30b) could have is the unlikely one where my present belief in the weather forecast is conditional on tonight’s rain. Using a future matrix verb unsurprisingly improves the sentence:

(i) If it rains tonight, then I will believe the forecast that it will be cold tomorrow.

But of course in this case, then belongs to the matrix clause of the consequent: the sentence is interpreted as asserting that tonight’s rain will influence my belief system in a particular way.

23The acceptability of (31b, c) in the absence of then suggest that the if-clause itself is not extracted from the islands but is rather base-generated as adjoined to the main clause. Independent evidence that this is indeed the case comes from examples like the following:

(i) If Mary finishes the project, she, expects/believes that she will be promoted.

If the antecedent clause of the conditional was base-generated below the main clause and then extracted to its pre-main clause position, the sentence would be bad on the coindexed reading because of a Condition C violation. (The question then arises of how the if-clause gets to be interpreted within the scope of the matrix verbs, which I am not going to address here.)

24As David Pesetsky pointed out to me, the conditions on extractability are similar to those of neg-raising. Here however I cannot pursue the implications of this suggestion.

25In Hindi finite clauses are islands for (covert) extraction. For some speakers at least proforms are unacceptable in embedded finite clauses.

(i) [Sitajo banaa-tii hai, Ram-ne Ramesh-se kaha ki Anoop voh, khaa-ta hai]
   Sita REL make-HAB is Ram-ERG Ramesh-INST said that Anoop DEM eat-HAB IS
   'Ram told Ramesh that Anoop eats what Sita makes.'
[Ram-ne Sita-ko jo kitaab diii], Bill-ne Sara-ko voh, dikhaa-ii. Ram-ERG Sita-DAT REL book give-PERF Bill-ERG Sara-DAT DEM show-PERF 'Bill showed to Sara the book that Ram gave to Sita.'

* [jo vahaa rahtaa hai], mai yeh baat ki vo, nahii ayaa jaantii h00. REL there live is I this matter that DEM not came know is 'Who lives there, I know the fact that he did not come.'

In languages with overt wh-movement the proform is fronted to the highest Spec, CP obligatorily, as the Bulgarian sentences in (34) show. As expected, the proform is sensitive to islands (cf. the Bulgarian example (35)):

(34) a. [Kolkoto pari iska], tolkova, misli ce ste i dam. how-much money wants that-much thinks that will her give-1sg 'She thinks that I'll give her as much money as she wants.'
b. *[Kolkoto pari iska], misli ce ste i dam tolkova,.
c. *[Kolkoto pari iska], misli ce tolkova, ste i dam.

(35) [Kakto im kazah], taka, cuh (*sluha) ce sa postapili. how them told-1sg that-way heard-1sg the-rumor that are done 'I heard (the rumor) that they had acted the way that I had told them to.'

In addition to the covert/overt movement distinction between languages, further variations in wh-movement (i.e., extraction from indicative vs. subjunctive clauses, possibility vs. prohibition of left-branch extractions, whether or not topics are allowed to precede the wh-word) obtain in the case of correlative proforms. These facts cannot be considered here in detail because of the lack of space but they provide further support for the position that the correlative proform is treated like a wh-phrase by the syntax.26

The behavior of proforms in multiple correlatives gives additional evidence in support of the syntactic analysis of proforms advocated here. In multiple wh-fronting languages all of the proforms have to be fronted to Spec, CP, as illustrated in the Russian example in (36):

(36) a. [Kto kogo ljubit], tot o tom i govorit. who whom loves he of him and speaks 'Everybody speaks about the person they love.'
b. *[Kto kogo ljubit], tot i govorit o tom.

Parametric variation in the extraction and in the ordering of wh-phrases between multiple wh-fronting languages is also reflected in multiple correlativization. While in Bulgarian and Romanian all wh-words need to be fronted to the matrix clause, in Serbo-Croatian, Polish and Czech only one wh-pronoun can undergo long wh-movement while the rest may move only locally in the embedded clause (cf. Rudin 1988).27 As expected, only one correlative proform can be fronted to the matrix clause in multiple correlatives in the latter group of languages. The following examples from Serbo-Croatian illustrate this fact:

These findings support Srivastav's position that the proform behaves more like a phonetically realized trace than like an English type resumptive pronoun. Rudin herself, and my native speaker consultants confirm, that the facts are more complicated and that for some speakers certain verbs allow extraction of more than one wh-word from a clause.
(37) a. [Kome se kako predstaviš], *taj* misli da *tako* treba da te tretira.
   whom refl how present-yourself he thinks that thus should to you treat
   'The way you present yourself, this is how people think they should treat you.'

b. *[Kome se kako predstaviš], taj tako* misli da treba da te tretira.

Superiority effects in the ordering of multiple *wh*-words and the distribution of clitics and parentheticals with respect to multiple *wh*-words are all mirrored in the case of correlative proforms. Again, these facts cannot be illustrated here but they too confirm the conclusion that can be drawn from the discussion in this section, namely that proforms undergo movement that is subject to the same parametric variation that the movement of *wh*-phrases is. The implications of this proposal for the interpretation of the correlative proforms will be discussed in the next section.

5. Do the Syntax and Semantics Come Together?

Here I presented an account of the syntax and the meaning of correlative proforms. I showed that the proform undergoes *wh*-movement and that it contributes a presupposition that alternatives to the free relative do not make the main clause in the correlative true. The question that arises is whether the syntax and the semantic contribution are related in any way. We already saw that the syntax ensures the compositional interpretation of the main clause as the predicative expression necessary for proper binding. Given that *wh*-movement plays an essential role in the correlative construction, the question is whether the contribution of the proform is also an effect of the syntactic movement.

Some evidence that the syntax is relevant for the exhaustive interpretation of the main clause comes from pairs like those in (38) (from Russian). Both examples involve a left-dislocated free relative clause coindexed with a pronoun inside the main clause. The only difference between the two is in the nature of the anaphoric pronoun. In (38a) the pronoun is a demonstrative and is obligatorily fronted; the pronoun in (38b) is a personal pronoun and appears in situ. Both sentences have the same assertion, namely that we will appoint the people you suggest. Sentence (38a) also has the presupposition that we will appoint only people suggested by you; (38b) does not have such presupposition. Therefore, the fact that the free relative is dislocated cannot alone account for the meaning contribution of the pronoun.

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28This analysis identifies the reason for the structural parallelism between the two correlative clauses, known as the CORRELATIVE DIPTYCH (Lehmann 1984): the parallelism obtains because the word order in the free relative and in the main clause of the correlative construction is derived by the same syntactic mechanism.

29The only difference in interpretation between (38b) and (i), where the free relative is in argument position, is attributable to the fact that in the former the free relative is left-dislocated. (38b) is akin to the English-type left-dislocation in sentences like John, we'll appoint him. As is well-known, resumptive pronouns of this type are felicitous inside islands. On this view, the sentence in (38b) is not a correlative and the pronoun is not a correlative proform.

(i) My vyberem [kogo ty predložiš'],
   we will-appoint whom you suggest
   'We'll appoint who you suggest.'

30Von Fintel relates the contribution of *then* to the fact that the antecedent is dislocated. The sentences in (38) show that while left-dislocation is a necessary condition for the exhaustive interpretation of the correlative proform, it is not sufficient on its own.
Since the use of a demonstrative pronoun and wh-movement go hand in hand, as we see in (38), we cannot definitively conclude which of the two is triggering the presupposition that alternatives to the free relative do not satisfy the matrix proposition. Even though we cannot establish a causal relationship between the wh-like nature of the proform and its exhaustive interpretation, the connection between the two becomes suggestive when the semantics of different wh-constructions is considered. The exhaustive interpretation in wh-questions is discussed in Groenendijk and Stokhof (1982) (see footnote 16). Jacobson (1990) analyzes exhaustiveness in free relatives. Given that all wh-constructions are associated with exhaustiveness effects, it is at least plausible that the exhaustive meaning contributed by the proform stems from the fact that the proform acts like a wh-element.

To sum up, in this paper I provided evidence that correlative proforms have the distribution of wh-phrases. I also showed that proforms contribute a reading of exhaustiveness; namely, the interpretation that all and only those variable-assignments that make the antecedent free relative clause true also make the main clause in the correlative true. The discussion of the syntactic and semantic behavior of proforms naturally leads to the question of whether the interpretative effect has roots in the syntax. This question cannot be definitively answered yet. Exhaustiveness effects in wh-constructions are themselves not entirely understood. The parallels drawn here offer at least the promise of contributing towards the larger issue of the mapping between syntax and semantics in wh-constructions.

31 Some indication that it is not the deictic nature of the correlative proform that is involved in the interpretation comes from the fact that in Bangla deictic pronoun cannot function as correlative proforms (cf. footnote 4).
32 Jacobson accounts for the exhaustiveness effects by proposing that free relatives denote maximal individuals, essentially giving free relatives the semantics of definites. She also extends her analysis to the the semantics of questions. See Rullmann (1995) for a recent account of exhaustiveness in all wh-constructions, including comparatives as well, in terms of maximality.
33 Potentially, this proposal has further implications. Recall that Latisidou’s and von Fintel’s accounts of the meaning contribution of then differ in whether they take some or all alternatives to the antecedent to fail to make the consequent true in the presence of then. Since then is not an argument, a contrast like that in (38) will be impossible to deduce on the basis of word order. When then appears in the beginning of the main clause, it could have been moved there or it could have been base-generated in the appropriate position for sentential adverbials. If the latter, then it would function not as a correlative proform, but as a resumptive pronoun of the English type. Some indication that this is the case is that if the antecedent is not always interpretable as a biconditional (cf. footnote 8).
References


Collins, C. 1989. Extraction from Conditionals, ms. MIT.


Iatridou, S. 1991, Topics in Conditionals, Ph.D, thesis MIT.


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