A Compositional Semantics for Turkish Correlatives

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1. Introduction

In this paper, I propose a compositional semantics for the construction in Turkish that Iatridou (2013) identifies as the correlative construction. Building on the compositional semantics for unconditionals proposed in Rawlins (2013), I analyze the correlative construction in Turkish as a conjunction of conditional statements. This compositional analysis is in opposition to the relativization analysis of Hindi correlatives in Srivastav (1991), where the correlative clause features relativization and denotes a predicate. I will show that the denotation of the correlative clause in Turkish is not a predicate but a set of propositions (i.e. a wh-question), each of which functions as a conditional antecedent. Hence, the analysis, if it is on the right track, contributes to the semantic typology of structures labelled as “correlatives”, setting Turkish apart from the canonical “correlative languages” like Hindi.

2. Basic properties of Turkish correlatives

Correlativization is canonically defined as a non-local relativization strategy wherein a relative clause appears in the sentence initial position and co-occurs with a demonstrative pronoun that refers back to it (Lipták, 2009). The Hindi sentence in (1) exemplifies correlatives (Srivastav, 1991).

(1) [jo laRkii khaRii hai] vo_i lambii hai
REL girl standing is DEM tall is
Lit: which girl is standing, that is tall.
‘The girl who is standing is tall.’ (Srivastav (1991)’s (5a) on p.642)

Iatridou (2013) analyzes the construction exemplified in (2) as the counterpart of correlatives in Turkish and lays out its basic properties as follows. As in Hindi correlatives, there is a sentence-initial clause (shown in brackets) followed by a demonstrative pronoun (henceforth glossed as DEM) that seems to refer back to it. Considering this similarity between Hindi and Turkish, Iatridou conjectures that the sentence-initial clause (henceforth ‘the correlative clause’) might be a relative clause, denoting a predicate. However, she acknowledges that what we see in (2) is not the canonical relativization strategy in Turkish, illustrated in (3).

(2) [John kim-i davet-et-ti-yse]o_k gel-di.
John who-ACC invite-PST-SA DEM come-PST
Lit: John invited who, that came.
‘Whoever John invited came.’

(3) [John-un e davet-et-tiğ-i] (kadın) geldi.
John-GEN e invite-NOML-3SG.POS woman came
‘The woman/one that John invited came.’

Iatridou (2013) furthermore argues that when the correlative clause appears without an overt demonstrative, it is not occupying an argument/case position. She takes such sentences to feature the
null version of the demonstrative proform, i.e. pro, as shown in (4). One piece of evidence for this analysis is the inability of the correlative clause to bear case marking. While the English Free Relative in (5) is in an argument/case position, the correlative clause fails to receive case as illustrated in (6).

(4) [Mary partiye kim-i çàğr-di-ysa] pro geldi
Mary party who-ACC invite-PST-SA pro.NOM came  
‘Whoever Mary invited to the party came.’

(5) [FR] Whoever Mary invited to the party] came.

(6) John [Mary ne pişir-di-ye]-(*yi) yedi
John Mary.NOM what cook-PST-SA-(*ACC) ate  
‘John ate whatever Mary cooked.’

Iatridou (2013, 2015) also notes that the morpheme { -SA } is obligatory in correlatives (4), conditionals (7) and unconditionals (8)3.

(7) John çàlıs-tı-ysa sınav-ı geç-miştir
John study-PST-SA exam-ACC pass-PERF-EPIS  
If John studied, he must have passed the exam.

(8) [Partiye kim gel-se] eğleniriz.
Party who come-SA we.will.have.fun  
Whoever comes to the party, we’ll have fun.

Notice that unconditionals and correlatives are structurally almost identical. The unconditional reading arises when the denotation of the matrix clause remains constant whereas the correlative reading arises when the denotation of the matrix clause varies contingent on the -SA clause. To illustrate, in the correlative reading of (9) in (i), the denotation of [ [ pro comes ] ] is contingent on who John invites to the party whereas in the unconditional reading in (ii), pro refers to an individual salient in the discourse, e.g. Bill, and hence the denotation of [ [ pro comes ] ] remains constant.

(9) John partiye kimi çàğr-sa pro/lo gelir.
John party who invite-SA pro/DEM.NOM comes  
i. Whoever John invites to the party will come.  
ii. Whoever John invites to the party, he (e.g. Bill) will come.

3. Towards a semantic analysis for Turkish correlatives

Srivastav/Dayal (1991; 1995) analyzes the correlative clause as a definite description4 and claim that the proform vo is construed as a variable. Accordingly, the LF of (1) will be as in (10)5.

(10) [ [ l (λx. x is standing and x is a girl) ] [λ2 vo2 tall] ]

Note that in Dayal’s semantics for Hindi correlatives, the correlative clause involves relativization (via lambda abstraction) and the relationship between the correlative clause and the proform is characterized as variable binding6.

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2 See van Riemsdijk (2006) for an overview.

3 She suggests that { -SA } might be a marker of the correlative syntax, which has been argued to be the syntax of conditionals, besides nominal correlatives (Bhatt & Pancheva, 2006).

4 Note that the majority of work on (ever-)FRs takes them to denote definite descriptions, as well (Jacobson 1995; von Fintel 2000; Caponigro 2003; Tredinnick 2005; Condoravdi 2015). Iatridou & Varlokosta (1998), on the other hand, argue that ever-FRs are essentially universals.

5 Srivastav’s (1991) original implementation involves type-lifting the denotation of the correlative clause into a generalized quantifier which then combines with the predicate that the matrix clause denotes.

6 Bhatt’s (2003) implementation of the proposed variable binding relationship involves the movement of the correlative clause (cf. Izvorski (1996) who argues that it is the demonstrative proform that moves.)
Similarly, the Turkish correlative sentence in (11) seems to receive an interpretation that could be paraphrased using a definite description or a universal quantificational phrase. If we assume an analysis along the lines of Srivastav/Dayal (1991; 1995), the LF of (11) will be as in (12). Notice that there is predicate abstraction in the correlative clause. Hence, it denotes a predicate that combines with \( \iota \) or \( \forall \).

(11) John ne pişir-se Mary onu yer
John what cook-SA, Mary DEM eats
Whatever John cooks, Mary eats it.
   i. Mary eats everything that John cooks.
   ii. Mary eats the thing(s) that John cooks.

(12)

However, Turkish lacks wh-relatives otherwise. If it were possible to construe the wh-phrase as a relative pronoun (or a variable) in (11), it would not be clear why it is not in (13). As shown in the contrast between (13) and (14) below, the wh-phrase ne ‘what’ can only yield a wh-question while relativization requires a gap in the relativization site.

(13) Mary [John-un ne pişir-diğin]-i sordu/*yedi
Mary John-GEN what cook.NOML-ACC asked/ate
Mary asked/*ate what John cooked.

(14) Mary [John-un (*ne) pişir-diğin]-i yedi
Mary John-GEN what cook.NOML-ACC ate
Mary ate what John cooked.

Given this fact, I would like to entertain the hypothesis in (15) regarding the wh-syntax of Turkish.

(15) In Turkish, wh-words always denote alternatives. These alternatives compose with the rest of the structure via pointwise functional application a la Hamblin (1973).

This hypothesis readily explains why wh-phrases cannot be used for relativization purposes but also precludes the LF in (12). This raises the question of how wh-phrases are interpreted in correlatives. In the following section, I will attempt to present an answer to this question.

4. A semantics for Turkish correlatives

Under the hypothesis in (15), the correlative clause necessarily denotes a set of propositions (i.e. a wh-question), not a predicate. Although this idea may not be very intuitive at first, it has been explored for English unconditionals in Rawlins (2013). Rawlins analyzes an unconditional antecedent as a set of conditional antecedents and an unconditional sentence as a conjunction of conditional statements. Therefore, the unconditional sentence in (16) is interpreted as shown below.

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7 cf. İssever (2009) and the references therein.
8 Here is an example of how PFA works: PFA(\([\text{c}ame]\))(\([\text{who}\])\}) = (\(\lambda x.\lambda w.x \text{ came in } w\))(\{\text{Bill, Susan,}...\}) = \{\[\lambda w.\text{Bill came in } w\], [\lambda w.\text{Susan came in } w]..., \}
9 Building on Rawlins (2013), Hirsch (to appear) explores a similar idea for English ever-FRs where the ever-FR denotes a wh-question and a definite description at the same time.
Whoever comes to the party, we’ll have fun.
If John comes to the party, we’ll have fun. & If Susan comes to the party, we’ll have fun. & ...

I propose to adopt Rawlins (2013) for Turkish correlatives\(^\text{10}\). Accordingly, the meaning we would like to generate for (17) is paraphrased in (18).

\[
\begin{align*}
\text{(17)} & \quad \text{John kimi çağır-sa o partiye gelir} \\
& \quad \text{John who invite-SA DEM party come.will} \\
& \quad \text{Whoever John invites will come to the party.}
\end{align*}
\]

\[
\begin{align*}
\text{(18)} & \quad \text{If John invites Bill, he will come to the party \&} \\
& \quad \text{If John invites Susan, she will come to the party \& ...}
\end{align*}
\]

The LF of (17) is given in (19). Notice that it minimally differs from the LF of a conditional sentence. On a par with a conditional antecedent, each propositional alternative in the denotation of the correlative clause restricts the modal pointwise (Lewis 1975; Kratzer 1986 a.m.o.). To generate the co-reference between the demonstrative proform and the correlative clause (hence ‘the correlative reading’), I assume that the proform receives an E-type pronoun construal. The specifics of the composition are presented below.

\[
\begin{align*}
\text{(19)} & \quad \text{CP} \\
& \quad \text{OP}_\gamma \quad \text{CP}_2 \\
& \quad \text{CP}_3 \quad \text{IP} \\
& \quad \Box \quad \text{CP}_4 \quad \text{DEM} \\
& \quad \text{John who invites} \\
& \quad \text{party comes}
\end{align*}
\]

\textbf{STEP#1 - Composition of the Correlative Clause:} Following Hamblin (1973) and consequent work (Kratzer & Shimoyama 2002; Rawlins 2013 a.o.), I take \([[\text{who}]]\) to denote \(\{x: x \text{ is human}\}\). Since the alternatives that \([[\text{who}]]\) denotes project upwards, \(\text{CP}_4\) will -with no resort to movement- denote a set of propositions:

\[
\begin{align*}
\text{(20)} & \quad \[[\text{CP}_4]] = \{[\lambda s. \text{John invites Bill in } s], [\lambda s. \text{John invites Susan in } s], ...\}
\end{align*}
\]

\textbf{STEP#2 - The Demonstrative Proform:} I suggest DEM is construed as an E-type pronoun (Heim 1990; Heim & Kratzer 1998). Hence, the semantic contribution of the DEM will be a context dependent predicate closed off by iota. The final denotation of the demonstrative proform is given in (21). Note that the maximal individual that John invites will be situation-dependent and hence different for each proposition in the denotation of the correlative clause.

\[
\begin{align*}
\text{(21)} & \quad \iota(\lambda y. \lambda s. \text{John invites } y \text{ in } s) = \text{the maximal individual that John invites in } s
\end{align*}
\]

\textbf{STEP#3 - PFA with the Modal:} The modal pointwise combines with each proposition in the denotation of the correlative clause and the IP. Therefore, the final denotation of \(\text{CP}_2\) will be as in (22).

\[
\begin{align*}
\text{(22)} & \quad \{ [\lambda s. \forall s' \in F_c(s)[\text{John invites Bill in } s' \rightarrow \text{the maximal individual John invites in } s' \text{ comes to the party in } s']], \\
& \quad [\lambda s. \forall s' \in F_c(s)[\text{John invites Susan in } s' \rightarrow \text{the maximal individual John invites in } s' \text{ comes to the party in } s']], ...\}
\end{align*}
\]

\(^{10}\) Unconditionals in Turkish are trivially accounted for under Rawlins (2013). I should again note that unconditional and conditional antecedents are morphosyntactically identical in Turkish, which follows from Rawlins’ analysis.
STEP#4 - Assertion: \[ [OP_v] = \lambda P(st, t), \forall s \ [P(p) \rightarrow p(s)] \] captures the alternatives and asserts them. We get a generalized conjunction of conditional statements, roughly paraphrasable as in (23).

(23) If John invites Bill, the max individual John invites will come to the party & If John invites Susan, the max individual John invites will come to the party & ...

5. Defending the analysis

In this section, I try to defend the following claims that are crucial to the analysis presented in the previous section:

- The correlative clause denotes a set of propositions (i.e. a wh-question), not a predicate.
- On a par with a conditional antecedent, each proposition in the denotation of the correlative clause pointwise restricts a modal (or an adverb of quantification).
- The demonstrative proform is an E-type pronoun.

5.1. Arguments for the conditional analysis

In this section, I show that the correlative clause is not a quantificational phrase or a definite description but patterns with conditional antecedents. The first test case concerns adverbs of quantification. It is well-known that a conditional antecedent can restrict an adverb of quantification (Lewis 1975; Heim 1990; von Fintel 2004; Kratzer 2016 a.o.). (24) illustrates this.

(24) If it rained, we usually stayed home.
    In most s’ such that it rained in s’, we stayed at home in s’

As (25) shows, the correlative clause can do the same. Each proposition in the denotation of the correlative clause restricts the adverb of quantification. This contrasts with the universal quantifier in (26), which cannot do so.

(25) Mary hangi partiye oy-ver-di-yse, genelde o parti kazan-di
    Mary which party vote-PST-SA usually that party win-PST
    ‘Whichever party Mary voted for usually won.’
    In most s’ s.t Mary voted for Party A in s’, the party Mary voted for in s’ won in s’ &
    In most s’ s.t. Mary voted for Party B in s’, the party Mary voted for in s’ won in s’ & ...

(26) [[Mary’n in oy-verdi˘gi] her parti] genelde kazandı
    Mary-GEN voted.REL every party usually won
    #In most (election) situations, every party that Mary voted for won.

The second test case involves structures with an overt possibility modal. Consider (27) and (28) in the context below.

Context: The speaker knows that exactly ten students took the exam. Although each one of them was equally likely to pass the exam, only one of them did. When she finds out that only one of the students passed the exam, she says:

(27) #[Sınava giren ¨o˘grenci-ler] gece-miş olabilir
    exam enter.REL student-PL pass-PERF
    ‘The students who took the exam might have passed the exam.’

---

11 For expository reasons, I simplify the paraphrases with situation variables. The accurate version should be [For most minimal situations s1 such that it rained in s1, there is an extended situation s2 such that s1 is part of s2 and s2 is a situation in which we stayed home]. The reference to extended situations is necessary as a minimal situation in which it rained contains nothing more than a raining event. Hence, this minimal situation is situated in an extended situation of staying home that contains it. See Heim (1990) and von Fintel (2004) for a detailed discussion.

12 The test also argues against a definite semantics for Turkish correlatives, which I cannot address here due to space restrictions.
Unlike the definite description in (27), the correlative in (28) is felicitous in the given context. We can derive the right truth conditions for (28) if the modal quantifies over minimal situations (Heim 1990; von Fintel 2004). The truth conditions for (28) are paraphrasable as in (29).

5.2. Arguments for the E-type analysis

Notice that when the proform is interpreted contingent on the -SA clause, (30) is ok but (31) is not.

(30) [Parite kim gel-se] Mary onunla konuşur party who come-SA Mary with.DEM talk.will
‘[Whoever comes to the party], Mary will talk with [them].’

(31) *Mary onunla [pariye kim gel-se] konuşur Mary with.DEM party who come-SA talk.will
Int: [Whoever comes to the party], Mary will talk with [them].

When the pronoun precedes its understood antecedent, it cannot receive an E-type interpretation as the contrast between (32) and (33) also suggests. This seems to be a property of E-type pronouns, not bound pronouns as shown in (34).

(32) [bir atı olan her çiftçi] onu her gün besler one horse.ACC be.REL every farmer DEM.ACC every day feeds
‘Every farmer who owns a horse feeds x every day.’

(33) onu [bir atı olan her çiftçi] her gün besler DEM.ACC one horse.ACC be.REL every farmer every day feeds
‘Every farmer who owns a horse feeds y/*x every day.’

(34) [pro anne-sin-i] her çocuk sever.
pro mother-3SG.POS-ACC every boy loves
‘Every boy loves his mother.’

Another contrast between E-type pronouns and bound pronouns concerns overt possessors. In Turkish, overt possessors fail to receive bound interpretations in configurations where the binder is local as illustrated in (35). However, E-type pronouns do not exhibit this restriction as shown in (36).

every boy DEM.GEN mother-3SG.POS-ACC loves
‘Every boy loves his mother.’

who class failed.SA DEM.GEN/pro mother-3SG.POS teacher called
‘[Whoever failed the class], his mother called the teacher.’

13 Similarly, a singular definite description is infelicitous in the given context as it brings in the uniqueness presupposition.
14 (28) is true in s* iff for any (contextually relevant person) x: there is a minimal situation s1 epistemically accessible from (the evaluation situation) s* such that s1 is a situation of x taking the exam and s1 is extendable to a situation s2 such that s1 is part of s2 and s2 is a situation of the unique individual that took the exam in s1 passing the exam.
15 The unconditional reading, where the demonstrative pronoun refers to a contextually salient individual, survives.
16 Barker & Shan (2008) discuss these facts for English in depth.
5.3. Arguments for the question analysis

As (37) shows, a configuration in which a wh-phrase is in the scope of a focus sensitive operator is illicit. However, overtly moving the wh-phrase to a position that escapes the scope of the focus-sensitive operator ONLY restores the grammaticality as shown in (38). Hence, wh-phrases in Turkish are subject focus intervention (Beck 2006; Cable 2010; Li & Law 2014). Following Cable (2010), I take focus intervention to suggest the absence of the covert movement strategy in wh-structures.

(37) *Sadece John kim-i gördü?
ONLY John who-ACC saw

(38) [Kim-i]ジョン sadece John t replacements kişi gördü?
who-ACC ONLY John t saw
‘Who did only John see?’

As illustrated below, wh-phrases in correlatives are also subject to focus intervention, conforming to our hypothesis that the wh-syntax of questions and correlatives are LF-identical.

(39) *[Sadece John kim-i çağırdıysa], partiye o geldi.
only John who-invited-SA party DEM came
Intended: Whoever only John invited came to the party.

(40) [Kimi sadece John t csak çağırdıysa], partiye o geldi
who-ACC ONLY John t invited-SA party DEM came
Whoever only John invited came to the party.

Another argument in favor of the wh-question analysis and against the relativization analysis involves islands. The relativization in (41) seems to be bad17. A wh-phrase, however, is acceptable in this exact environment. (42) and (43) illustrate this for wh-questions and correlatives, respectively. Hence, wh-phrases in correlatives pattern with wh-phrases in questions rather than the relativization gap.

(41) *[Mary e konuš-tuk-tan sonra] onu mutlu görmek konuš-2SG person
Mary e talk-NOML-ABL after her happy see-NOML-2SG person
Int: The person such that you saw Mary, happy after she, talked to that person

(42) [Mary kim-le konuš-tuk-tan sonra] onu mutlu görmek n?
Mary who-with talk-NOML-ABL after her happy see-PST-2SG
Which person is such that you saw Mary, happy after she, talked to that person?

(43) ?[Mary kim-le konuš-tuk-tan sonra] onu mutlu görmek yese-m,
Mary who-with talk-NOML-ABL after her happy see-PST-SA-1SG immediately
DEM.ACC party to invitation do-PST-1SG
for any person x, if I saw Mary, happy after she, talked to x, I immediately invited x to the party.

6. Conclusion

In this paper, I have argued for a semantics for Turkish correlatives based on the analysis of unconditionals in Rawlins (2013). I have tried to show that Turkish correlatives do not involve relativization and therefore cannot receive an analysis along the lines of Srivastav (1991). The (un)conditional analysis I have proposed as an alternative seems to be empirically supported in that we find semantic and morphosyntactic parallels between conditionals and correlatives. I have also attempted to empirically justify the main claims I have made, namely the LF-identity of the wh-syntax in correlatives and wh-questions and the E-type construal of the demonstrative proform. Further investigation into “correlative languages” is necessary to evaluate the cross-linguistic validity of the semantic typology of correlatives that this study has proposed.

17 I remain agnostic as to what exactly is responsible for the ungrammaticality in (41). See Kornfilt (2008) and references therein for relevant discussion on Turkish RCs.
References


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