Tu+ 1:
Proceedings of the first workshop on
Turkish, Turkic and the languages of Turkey

November 21 - November 22, 2015
University of Massachusetts, Amherst

Edited by
Faruk Akkuş, İsa Kerem Bayırlı, Deniz Özyıldız
Thank you

The 1st Workshop on Turkish, Turkic and the languages of Turkey (Tu+1) was held at the University of Massachusetts, Amherst on 21-22 November 2015, in collaboration with Yale University. In addition to the two invited talks by Sabine Iatridou (MIT) and Jaklin Kornfilt (Syracuse University), the workshop hosted 23 oral and poster presentations. The presenters came from 17 different institutions, 6 of which were non-US institutions.

The articles in this proceedings volume are a selection of papers presented at Tu+1. Our hope is that this workshop will be held annually and that it will provide a platform for discussion of empirical and theoretical questions raised by Turkic languages and the languages spoken within Turkey.

We are grateful to the linguistics departments at Yale and at UMass for supporting the workshop, morally, technically and financially. Rosetta Berger, Rajesh Bhatt, Robert Frank, Vincent Homer, John Kingston, Tom Maxfield and Michelle McBride deserve special mention. We would also like to thank all those who gave a helping hand during the workshop. We are grateful to the Graduate Linguistic Student Association for publishing this volume, to Leah Chapman for agreeing to design the cover, and last but not least, to our presenters and audience for making this workshop an enjoyable learning experience.

The organizers and the editors
Table of Contents

İsa Kerem Bayırlı
On the complex connectives in Turkish 1

Jennifer Bellik
Feature domains and lexically conditioned harmony in Turkish 17

Tatiana Bondarenko
Subject marking and scrambling effects in Balkar nominalizations 27

Colin Davis
Auxiliaries in North Azeri and some related issues 43

Ophélie Gandon
Relative clause strategies in languages of East Anatolia: Divergence and convergence 57

Tamarae Hildebrandt
Turkish scrambling within single clause wh-questions 73

Laura Kalin & Ümit Atlamaz
Reanalyzing Indo-Iranian “stems”: A case study of Adıyaman Kurmanji 85

Jaklin Kornfilt
Turkish comitatives: The genuine and the apparent 99

Sabine Laszakovits
What Turkish conditionals can teach us about the question particle 127

Filiz Mutlu
Iconic templates in Turkish 141

Matthew Tyler
A Locality Restriction on Indexical Shift: Evidence from Turkish 151

Jonathan Washington
An ultrasound study of the articulatory correlates of vowel anteriority in three Turkic languages 161

Gita Zareikar
Aspect and evidentiality in Azeri 179
On the complex connectives in Turkish

İsa Kerem Bayırlı

Massachusetts Institute of Technology

1. Introduction

This paper is concerned with the absence of free choice-type inferences in the context of several expressions in Turkish. The complex disjunction ya...ya... and complex conjunction hem...hem... do not give rise to free choice-type effects (i.e. strengthening to wide scope conjunction) in some contexts in which their simple versions do. To capture these observations, it is claimed here that we need to revise the conditions on the distribution of the exh operator.

Spector (2014) has developed an analysis of French complex disjunction, in which the positive polarity nature of the complex disjunction is linked to its giving rise to “obligatory exclusivity inferences” (modelled as the obligatoriness of an exh operator c-commanding the complex disjunction). The analysis developed here retains this insight. It is shown, however, that the observation that ya...ya... is not acceptable in the scope of an existential modal is unexpected. The condition on the distribution of exh is revised so that more constructions (but the right ones) are ruled out. The analysis developed for ya...ya... is extended to the complex conjunction hem...hem.... The absence of the free choice with ya...ya... and hem...hem... are shown to follow from similar assumptions.

Here is the outline. I briefly introduce (aspects of) the analysis of French complex disjunction by Spector (2014) and the derivation of free choice inferences in Fox (2007). I go on to explain why the unacceptability of the complex disjunction under an existential modal in Turkish does not follow from a combination of these two analyses and offer a new constraint on the distribution of the exh operator. Later in the paper, I tackle the issues concerning conjunction.

2. Preliminary Remarks

In Turkish, there are (at least) two strategies for expressing disjunction. Two disjuncts can be separated by a single disjunction morpheme as in (1)
(1) Ekin dondurma ya-da çikolatalı puding yedi
   Ekin ice-cream or chocolate pudding eat.PAST.3sg
       ‘Ekin ate ice cream or chocolate pudding’

Another strategy is to repeat the morpheme ya on both disjuncts. I will call this strategy “complex disjunction”. “Complex” here is intended as a purely descriptive term in an attempt to contrast this construction to the “simple” one in (1).

(2) Ekin ya dondurma ya-da çikolatalı puding yedi
   Ekin or ice-cream or chocolate pudding eat.PAST.3sg
       ‘Either Ekin ate ice cream or she ate chocolate pudding’

This paper is mainly about the properties of the complex disjunction in Turkish. In next section, I introduce some observations about ya...ya... with reference to the analysis of the complex disjunction in French developed by Spector (2014). Later, the analysis of free choice effects developed in Fox (2007) will be presented. These two studies form the basis for the analysis that is developed in this paper.

2.1 Spector (2014) on complex disjunction

In this section, I present the analysis of the French complex disjunction by Spector (2014). In doing so, I have two ambitions. First, this will give me a chance to report some properties of the Turkish complex disjunction that are relevant to the analysis that I develop later in the paper. Second, Spector’s analysis for the PPI-hood of the French complex disjunction will provide me with a “type of thinking” that will be at the core of my explanation for the unacceptability of ya...ya... under an existential modal. In introducing Spector’s analysis, I will be using examples from Turkish since all the relevant judgments that are crucial to Spector’s argumentation seem to be identical. That is to say, Spector’s analysis of the PPI-hood of the French complex disjunction soit...soit... can be extended to ya...ya... without any immediate problem that I can see.

Let me start with simple disjunction in Turkish and contrast with ya...ya.... Simple disjunction gives rise to DeMorgan readings ($\neg(p \lor q) \equiv \neg p \land \neg q$) when it is in the scope of the negation:

(3) Ekin dondurma ya-da çikolatalı puding yemedi
   Ekin ice-cream or chocolate pudding eat.NEG.PAST.3sg
       ‘Ekin ate neither ice cream nor chocolate pudding’

Spector notes that the complex disjunction in French (soit...soit...) is judged to be unacceptable in the scope of negation. The same observation can be extended to ya...ya....

(4) # Ekin ya dondurma ya-da çikolatalı puding yemedi
   Ekin or ice-cream or chocolate pudding eat.NEG.PAST.3sg
       ‘Ekin didn’t eat ice cream or chocolate pudding’
Complex disjunction structures (in French and in Turkish) are licensed again when the negation is itself in the scope of a downward entailing operator (here negation).

(5) (Antakya’ya gitmişken) ya künefe ya baklava yemek kabuledebilir (once in Antakya) YA künefe YA baklava eat.NEG acceptable

bişey değil
a.thing NEG
‘It is not an acceptable thing to not eat kunefe or baklava (once in Antakya)’

A description of these observations is to call ya...ya... a positive polarity item (PPI).¹

The PPI-hood of ya...ya... seems to correlate with another property of this construction. Namely, it ‘triggers much stronger exclusivity inferences than’ simple disjunction. The contrast in the following dialog exemplifies this.

(6) A: Ali Ankara’ya ya-da İzmir’e gidecek
   Ali Ankara-to or İzmir-to go.will.3sg
   ‘Ali will go to Ankara or İzmir.’

   B: Kesinlikle! Hatta ikisine de gidecek.
      ‘Absolutely! In fact, he will go both’

(7) A: Ali ya Ankara’ya ya İzmir’e gidecek
   Ali or Ankara-to or İzmir-to go.will.3sg

   B: # Kesinlikle! Hatta ikisine de gidecek
      ‘Absolutely! In fact, he will go both’

The idea is that, by uttering Kesinlikle! “Absolutely”, the speaker B commits herself to the truth of the first assertion. With simple disjunction, the exclusivity inferences can be cancelled and the speaker B’s response is felicitous. With ya...ya..., on the other hand, these inferences are obligatory (or almost obligatory) and the speaker B’s response is infelicitous as it does not observe this inference. As Spector notes, this is not reason to believe that the complex disjunction is the realization of the logical exclusive disjunction operator $\lor$. As seen below, in the scope of a universal modal, the complex disjunction gives rise to readings that are incompatible with an exclusive analysis.


For positive polarity items, anti-licensing is usually thought to be a local phenomenon (Szabolcsi, 2004). That is, the positive polarity items are anti-licensed only in the scope of a clause-mate negation. With the complex disjunction, the situation is different. The complex disjunction in Turkish, just like the complex disjunction in French, is anti-licensed no matter how far negation is.

(i) # Ali’nin ya Ankara’ya ya-da İzmir’e gideceğini sanniyorum
   Ali-GEN or Ankara-to or İzmir-to go.will.3sg think.NEG.IMPF.1sg
   Int. ‘I don’t think that Ali will go to Ankara or İzmir’

This leads Spector to conclude that the complex disjunction is a new type of a PPI: it is a *global PPI*. 
İsa Kerem Bayırlı

(8) A: Bu ödülü almak için, ya ilk ya ikinci soruyu cevaplaman lazım (to obtain this gift), or first or second question answer. 2sg necessary ‘To obtain this gift, you must answer the first or the second question’

B: Kesinlikle! Soruların ikisi birden cevaplamak da mümkün. ‘Absolutely! You can solve both!’

The salient reading of (8) is that it is enough to answer the first or the second question to obtain the gift. There is no extra requirement that you not answer the questions both, as would be predicted with an exclusive construal. To explain the observation that soit…soit… gives rise to exclusivity inferences without being an exclusive disjunction operator itself, Spector proposes the following constraint for French, which I adopt for Turkish since all the relevant judgments are identical.

(9) Constraint on the Turkish complex disjunction
    ya...ya... must occur in the scope of an exh operator.

Spector adopts a relatively simple version of lexical entry for the exh operator. We will need a more involved entry in the next section.

(10) \[[\text{exh}(S)]\] = \[\lambda w. \left[\text{S}(w) = 1 & (\forall \phi \in \text{ALT}(S), \phi(w) = 1 \rightarrow (\left[\text{S}\right] \subseteq \phi))\right]

That is, the prejacent is true and for any alternative of the prejacent, the alternative is true only if it is entailed by the prejacent. In other words, if an alternative is not entailed by the prejacent, then the alternative is false. Assuming that the only alternative to must p or q is must p and q,2 it is not hard to see that Exh(must p or q) is compatible with the continuation in 8B (that is, (exh(must p or q)) and (can p and q) is not a contradiction).

It is time to present how Spector derives the PPI-hood of the complex disjunction from the assumption that it must occur in the scope of an exhaustivity operator. The central idea is that there is a condition on the exh operator that makes it necessary that it strengthen the meaning of the sentence to which it is attached. This is stated as the following constraint:

(11) Economy Constraint on the distribution of exh
    An occurrence of exh in a given sentence S is not licensed if eliminating this occurrence leads to S’ such that S’ entails S.

With this, we can show that exh will not be licensed in DE contexts as its elimination does not weaken the meanings. We observe this situation below with negation as a special case. The first expression is the one in which exh comes between negation and the disjunction.

2 There are some problems with this statement. Usually, may is taken to be an alternative to must and each disjunct is taken to be an alternative to the disjunction (Sauerland, 2004). As things currently stand, I have to restrict the alternatives to must p and q to get the readings I am interested in. Both problems can be solved when we adopt the exh operator in Fox (2007) to be discussed in the next section and the calculation of alternatives in Fox (2007, fn. 35).
(12) Let $S$ be $\neg(\text{exh} \ (p \lor q))$
\[ S = \neg (p \underline{\oplus} q) \]
\[ S' = \neg (p \lor q) \]
\[ S' \Rightarrow S \]

We do not get a strengthened meaning. Neither do we get a strengthening when $\text{exh}$ is above the negation operator.

(13) Let $S$ be $\text{exh} \ (\neg (p \lor q))$
\[ S = \neg (p \lor q) \]
\[ S' = \neg (p \lor q) \]
\[ S' \Rightarrow S \]

Therefore, $\text{exh}$ is not licensed when $\text{ya}...\text{ya}...$ is in the scope of a single neg operator. This conflicts with the requirement that $\text{ya}...\text{ya}...$ occur in the scope of an $\text{exh}$ operator. That is, complex disjunction cannot occur in the scope of a single negation. We describe this situation by calling it a Positive Polarity Item.

2.2 Fox (2007) on the free choice-type inferences

The free choice puzzle can be described as the observation that, in the scope of an existential modal, a disjunctive expression ends up having a meaning that is stronger than what is entailed by what seems to be its logical form.

(14) Ekin dondurma ya-da çikolatalı pudding yiyebilir
Ekin ice-cream or chocolate pudding eat.may.3sg
‘Ekin is permitted to eat ice-cream and she is permitted to eat chocolate pudding’

The total meaning of (14), given in (15)b, does not follow from the logical form of the sentence given in (15)a.

(15) a. $\Diamond(p\lor q)$
   b. $\Diamond p \& \Diamond q$
      where $\Diamond(p\lor q) \neq \Diamond p \& \Diamond q$

It has been observed that this conjunctive inferences become unavailable when the disjunction is in the scope of a downward entailing operator (Alonso-Ovalle 2006, see also Fox 2007).

(16) Ekin dondurma ya-da çikolatalı pudding yiyemez
Ekin ice-cream or chocolate pudding eat.may.NEG.PAST.3sg
‘Ekin can eat neither ice cream nor chocolate pudding’

It is an observed property of implicatures that they are cancelled in downward entailing environments (Gazdar 1979 a.o.) or, at least, strongly dispreferred (Chierchia et al. 2012).
If the conjunctive readings are implicatures, their being cancelled in a downward entailing environment is expected. This leads to the view that the conjunctive inferences must be derived as an implicature/inference in some way. That is, we do not take the conjunctive meanings to be the literal meaning of the sentence in (14).

We have seen that Spector (2014) has derived the obligatory exclusive inferences associated with the complex disjunction by appending an \textit{exh} operator to a c-commanding position. Fox (2007) notices that, with a proper lexical entry for \textit{exh}, doing this recursively, i.e. adding another \textit{exh} to a sentence that already has an \textit{exh} in it, will yield readings that entail the free choice inference associated with these sentences. The entry Fox proposes is the following:

\begin{equation}
[[\text{Exh}]](A_{\text{all}})(p_w)(w) = [p(w) \& \forall q \in I-E(p,A) \rightarrow \neg q(w)]
\end{equation}

As before, the proposition expressed by the prejacent is true and some propositions that are alternatives to the prejacent are false. Which of the alternative propositions are false? These are now called the \textit{innocently excludable} alternatives of the prejacent. A proposition is an innocently excludable alternative with respect to a prejacent only if its negation is member of every set that contains the prejacent and as many negated alternatives as possible. Here is a formal definition of this set given in Fox (2007).

\begin{equation}
\text{I-E}(p,A) = \bigcap \{A' \subseteq A: A' \text{ is the maximal set in } A \text{ such that } A' \cup \{p\} \text{ is consistent} \}
\end{equation}

What we do is look at those maximal (i.e. as many membered as possible) subsets of \(A\) whose exclusion from \(A\) is consistent with the prejacent. We, then, find the members that are in the intersection of all such maximally consistent sets. These are the alternatives that are negated. Let us see what happens when we append an \textit{exh} operator to a sentence with a disjunction under existential modal. Following Sauerland (2004), we take each disjunct to be in the set of the alternatives.

\begin{equation}
\text{Exh}(C)(\text{you may eat the cake or pizza})
\end{equation}

\begin{equation}
\text{ALT}_{\text{AorB}} = \{A \text{ or } B, A, B, A \text{ and } B\}
\end{equation}

By convention, the propositions are put together so that they get stronger as we move to the right. Propositions that are related by their strength are indicated with lines. With independent propositions, there are no lines.

\begin{equation}
C = \Box(p \lor q) \quad \Box p \quad \Box q \quad \Box(p \land q)
\end{equation}

There are two two-membered sets whose exclusion does not contradict the prejacent. The prejacent and the negation of the members of these sets are maximally consistent sets. (Notice that there are no three membered such set.)
We notice that there is only one member in the intersection of these two sets. This will be the proposition that will be negated. We obtain the following results.

(22)  \[ I\-E(◊(p∨q), ALT(◊(p∨q))) = \{◊p, ◊(p∧q)\} \cap \{◊q, ◊(p∧q)\} \]
\[ \{◊(p∧q)\} = I\-E(◊(p∨q), ALT(◊(p∨q))) \]
\[ Exh(C)(◊(p∨q)) = ◊(p∨q) & ~◊(p∧q) \]

This does not entail the free choice reading (crucially, it is compatible with it). It would be a stipulation to assume that \(exh\) can be applied only once. If we do not make this stipulation, we see that the sentence has yet another parse. (Here I am simply repeating the calculations from Fox 2007)

(23)  \[ Exh(C') \text{[Exh(C) you may eat cake or pizza]} \]
where \(C' = \{Exh(C)(p): p \in C\}\)

It turns out that when we compute the meaning that comes out of this parse, we get a reading that entails the free choice.

(24)  \[ C' = \{1. Exh(C)(◊(p∨q)), 2. Exh(C)(◊p), 3. Exh(C)(◊q), 4. Exh(C)(◊(p∧q))\} \]

We calculate each of these new “higher order” alternatives.

(25)  1. \(Exh(C)(◊(p∨q)) = ◊(p∨q) & ~◊(p∧q)\)
2. \(Exh(C)(◊p) = ◊p & ~◊q\)
3. \(Exh(C)(◊q) = ◊q & ~◊p\)
4. \(Exh(C)(◊(p∧q)) = ◊(p∧q)\) (ignored as its negation is entailed by the prejacent)

\[ C' = ◊(p∨q) & ~◊(p∧q) \]

\[ \text{The universal alternative of the existential modal is ignored here for illustrative purposes. The results are not affected by this omission.} \]
The negation of both alternatives is consistent with the prejacent.

\[(26)\]

1. \(\diamond (p \lor q) \land \neg \diamond (p \land q)\)  \hspace{1cm} \text{prejacent}

2. \(\neg (\neg p \land \neg q)\)  \hspace{1cm} \text{neg alt}

3. \(\neg (\neg q \land \neg p)\)  \hspace{1cm} \text{neg alt}

4. \(\neg \diamond p \lor \diamond q\)  \hspace{1cm} \text{from 2}

5. \(\neg \diamond q \lor \neg p\)  \hspace{1cm} \text{from 3}

6. \(\diamond p \rightarrow \diamond q\)  \hspace{1cm} \text{from 4}

7. \(\diamond q \rightarrow \diamond p\)  \hspace{1cm} \text{from 5}

8. \(\diamond p \leftarrow \diamond q\)  \hspace{1cm} \text{from 6, 7}

9. \(\diamond (p \lor q)\)  \hspace{1cm} \text{from 1}

10. \(\diamond p \lor \diamond q\)  \hspace{1cm} \text{from 9}

11. \(\neg \diamond q \land \neg \diamond p\)  \hspace{1cm} \text{from 8, 10}

12. \(\neg (p \land q)\)  \hspace{1cm} \text{from 1}

13. \((\neg p \land \neg q)\) \& \(\neg (p \land q)\)  \hspace{1cm} \text{from 11, 12}

We derive a proposition that entails the free choice reading.

3. **The puzzle of the Turkish complex disjunction**

We have already seen that the Turkish simple disjunction gives rise to free choice-type inferences in the scope of an existential modal.

\[(27)\]

Ekin dondurma ya-da çikolatalı pudding yiyebilir
Ekin ice-cream or chocolate pudding eat.may.3sg

‘Ekin is permitted to eat ice-cream and she is permitted to eat chocolate pudding’

We observe, however, that the same sentence becomes unacceptable when we use *ya...ya...* instead of the simple disjunction.

\[(28)\]

Ekin ya dondurma ya-da çikolatalı pudding yiyebilir
Ekin or ice-cream or chocolate pudding eat.may.3sg

Int. ‘Ekin is permitted to eat ice-cream and permitted to eat chocolate pudding’

Notice the claim is something more than the unavailability of the free choice readings. The observation being made here is that *Turkish complex disjunction is not acceptable in the scope of the existential modal.* We might perhaps hope that we can rule *ya...ya...* in the

---

4 There is one prosodic shape of the sentence in which the free choice readings are again available. This is when there is strong accent on both disjuncts.

(ii) Ekin ya DONDURMA ya-da ÇIKOLATALI PUDİNG yiyebilir
Ekin or ice-cream or chocolate pudding eat.may.3sg

‘Ekin is permitted to eat ice-cream and she is permitted to eat chocolate pudding’

This problem will not be discussed in this paper due to space limitations.
On the complex connectives in Turkish

context of the existential modal the way Spector has ruled out *soit...soit...* in the scope of negation. We might try to show that the *exh* operator is not licensed here due to the economy condition on the distribution of *exh* (repeated below):

(29) **Economy Constraint on the distribution of *exh***:

An occurrence of *exh* in a given sentence *S* is not licensed if eliminating this occurrence leads to a sentence *S’* such that *S’* entails *S*.

It turns out that this strategy, as things stand right now, does not work. The *exh* strengthens the meaning when it is immediately above the disjunction.

(30) Let *S* be ◊*exh* (*p V q*)

\[
\begin{align*}
S &= ◊((p V q) &∼(p&q)) \\
S &= ◊(p V q) \\
S' &= ◊ (p V q) \\
S' &⊃ S
\end{align*}
\]

Consider the model under which all worlds are *p*-worlds and *q*-worlds. Under this model, *S* is false while *S’* is true. That is, *S’* does not entail *S*. This should get the *exh* operator licensed. Note that the state of affairs will not change if the *exh* operator is higher in the structure.

(31) Let *S* be *exh* ◊(*p V q*)

\[
\begin{align*}
S &= ◊(p V q) &∼◊(p&q) \\
S' &= ◊ (p V q) \\
S' &⊃ S
\end{align*}
\]

Consider now the model under which there is a *p* and *q*-world. Under this model, *S* is false while *S’* is true. That is, *S’* does not entail *S*. Again, the *exh* operator should get licensed - contrary to the observations. It seems that if we want to get the unacceptability of the complex disjunction from the distribution of the *exh* operator, we need to revise the condition. How should we do that? Here is the intuition. We have noticed that both ◊*exh* (*p V q*) and *exh* ◊(*p V q*) are stronger than their *exh*-less alternatives. There could, however, be another alternative that is stronger than both these sentences. What if *exh*(◊*exh* ◊(*p V q*)) was one of the alternatives against which both ◊*exh* (*p V q*) and *exh* ◊(*p V q*) are evaluated? ⁵

(32) *exh’* ◊*exh* ◊(*p V q*) ↔ ◊p &◊q&∼◊(p&q)

\[
\begin{align*}
\text{◊*exh* ◊(*p V q*)} & ↔ ◊(p V q) &∼◊ (p&q) \\
\text{◊*exh* (*p V q*)} & ↔ ◊(p V q) \\
\text{◊p &◊q&∼◊(p&q)} & ⊨a ◊(p V q) &∼◊ (p&q) \\
\text{◊p &◊q&∼◊(p&q)} & ⊨a ◊(p V q)
\end{align*}
\]

We observe that *exh*(◊*exh* ◊(*p V q*)) entails (in fact, stronger than) both ◊*exh* (*p V q*) and

⁵ ⊨a is asymmetric logical entailment.
exh (p ∨ q). All we need now is to get exh(exh (p ∨ q)) to be a competitor. Here is one way to do it.

(33) **The Strong Meaning Condition on exh**
For some sentence S with an occurrence of exh in it
Let S₀ be derived from S by deleting this exh
Let S₁,…Sₙ for some n ≥0 be derived from S₀ by adding exh one by one to a position c-commanding the eliminated exh
The occurrence of exh in S is not licensed if
∃n such that Sₙ asymmetrically entails S

There are two novelties in the new constraint that I have formulated: the c-command condition and the asymmetric entailment condition. Here is the justification for the first one. If we do not add the c-command condition, we seem to rule out (exh(□(p ∨ q))), which we have already seen to be a possible representation. Its meaning is re-calculated below.

(34) (exh(□(p ∨ q))) ↔ □(p ∨ q) & ~ □(p∧q)  
    ↔ □(p ∨ q) & (◊¬p ∨ ◊¬q)

Without c-command condition, we could eliminate exh and tuck in another exh between universal modal and disjunction.

(35) (□(exh(p ∨ q))) ↔ □(p∨q)

□(p∨q) is strictly stronger than □(p ∨ q) & (◊¬p ∨ ◊¬q) as the readers can verify for themselves. Why asymmetric entailment? Consider the matrix disjunction in (36)

(36) Let S= exh (p ∨ q)  
      S' = exh(exh (p ∨ q))  
      S ⇒ S' & S' ⇒ S

Fox (2007) has shown that a matrix disjunction is not strengthened beyond the first application of the exh operator. Then, if the relation was just entailment, since a proposition entails itself, we would have ruled out the matrix disjunction. Asymmetric entailment eliminates this possibility.

There is a problem, though. How does this new constraint work with respect to negation? No issue arises when the exh operator comes between disjunction and negation. It is anti-licensed by the condition on the distribution of the exh operator. We eliminate exh and add zero exh to a commanding position.

(37) Let S be ¬(exh (p ∨ q))  
      S = ¬(p ∨ q)  
      S' = ¬(p ∨ q)  
      S ≠ S' & S' ⇒ S
On the complex connectives in Turkish

However, when the \textit{exh} operator is above the negation, we have a redundant \textit{exh} operator. Redundancy of this kind is not ruled by our condition.

\begin{align*}
(38) & \text{Let } S \text{ be } \textit{exh}(\neg(p \lor q)) \\
& S = \neg(p \lor q) \\
& S' = \neg(p \lor q) \\
& S' \implies S & S \land S' \implies S
\end{align*}

I would like to introduce a new condition that will target specifically redundancy of this type.

\begin{align*}
(39) & \text{The Strong Meaning Condition on } \textit{exh} \\
& \text{For some sentence } S \text{ with an occurrence of } \textit{exh} \text{ in it} \\
& \text{Let } S_0 \text{ be derived from } S \text{ by deleting this } \textit{exh} \\
& \text{Let } S_1, \ldots, S_n \text{ for some } n \geq 0 \text{ be derived from } S_0 \text{ by adding } \textit{exh}, \text{ one by one, to a position } c-\text{commanding the eliminated } \textit{exh} \\
& \text{The occurrence of } \textit{exh} \text{ in } S \text{ is not licensed if} \\
& \text{i. } \exists n \text{ such that } S_n \text{-entails } S \text{ or} \\
& \text{ii. } S_0 = S
\end{align*}

We still have a problem. We have seen that there is some way with which we can eliminate the expressions \(\textit{exh}(p \lor q)\) and \(\textit{exh}(p \lor q)\), namely by reference to the competitor \(\textit{exh}(\textit{exh}(p \lor q))\). However, we have not said anything about what will rule out \(\textit{exh}(p \lor q)\) as the base against which the licensing condition is computed. Notice that there is no possible strengthening and no redundancy. What I would like to suggest is that \(\textit{exh} \textit{exh}(p \lor q)\) cannot be generated in the first place given the following constraint.

\begin{align*}
(40) & \text{Condition on Rescuers} \\
& \text{Let } A \text{ contain a lexical item whose occurrence context is not met,} \\
& \text{Let } A_1, \ldots, A_j \text{ be the minimal licit continuation of } A^6, \text{ then,} \\
& \text{If a continuation of } A_j \text{ is grammatical, then } A_j \text{ is grammatical}
\end{align*}

Note that the occurrence context of the complex disjunction is met when there is an \textit{exh} operator \(c\)-commanding it. To see how the version of the condition works, consider how it rules out a sentence of the form \(\textit{exh} \textit{exh}(p \lor q)\) with complex disjunction. Let \(A = p \lor q\). Then one minimal licit continuation of \(A\) is \(A_1 A_2\) where \(A_1 = \text{\textit{exh}}(p \lor q)\) and \(A_2 = \text{\textit{exh}}(p \lor q)\). We are asking whether or not \(A_3 = \textit{exh} \textit{exh}(p \lor q)\) can be obtained. If it can be obtained then \(A_2\) is grammatical. Yet, we know already that \(A_2\) is not grammatical given that the strong meaning condition anti-licenses it. Therefore, \(A_3\) cannot be obtained.\(^7\) In short, we

\footnotesize
\begin{itemize}
\item[A_1, \ldots, A_j] \text{is the minimal licit continuation of } A \text{ if the requirement on } A \text{ is not met in any } A_{j<n} \text{ for any } n \text{ such that } j > n > 0 \text{ and the requirement on } A \text{ is met in } A_j.
\item[7] This might look circular. Previously, I have used \(\textit{exh}(\textit{exh}(0(p \lor q)))\) to eliminate \(\textit{exh}(0(p \lor q))\). Now, I am using \(\textit{exh}(0(p \lor q))\) to eliminate \(\textit{exh}(\textit{exh}(0(p \lor q)))\). I would like to claim that it is not circular. The mechanism with which competitors for the strong meaning are constructed and evaluated is not the same mechanism with which expressions of a natural language are defined/generated. The competitor \(\textit{exh}(\textit{exh}(0(p \lor q)))\) eliminates the natural language object \(\textit{exh}(0(p \lor q))\) and the ungrammaticality of the natural language object
\end{itemize}
eliminate \( \text{exh} \text{exh}(p \lor q) \) by the following requirement: the first point in the derivation at which the complex disjunction is licensed by an \( \text{exh} \) must be a grammatical step.

We can now talk about a prediction of the system. It has been noted that the singular indefinites do not give rise to free choice effects. This is exemplified below with Turkish simple disjunction.

(41) Bir öğrenci Ankara’ya ya-da İstanbul’a gitti
    a student Ankara-to or Istanbul-to go.PAST
    ‘A student went to Ankara or Istanbul’
    cannot mean: ‘A student went to Ankara and a student went to İstanbul’

In Fox (2007), the absence of the free choice inference is derived from the assumption that the Horn-set for the singular indefinite contains the numeral \( \text{two} \) as an alternative.\(^8\)

(42) \( \text{Alt(} \text{some}_{\text{sing}} \rangle = \{ \text{some, two} \} \)

With this set, after the first layer of exhaustification, we get the inference that a student went to Ankara or Istanbul and either no student went to Ankara or no student went to Istanbul.\(^9\) This inference is incompatible with the free-choice interpretation. A further layer of will not change the situation. This leads to a prediction in the context of complex disjunction in the scope of a singular indefinite. Since the meaning is not strengthened after the second layer of exhaustification, \( \text{exh}(\text{exh}(\exists x(Px \lor Qx))) \) will not rule out \( \text{exh}(\exists x(Px \lor Qx)) \). If so, what we predict is that \( \text{ya...ya...} \) will be acceptable in the context of singular indefinites (assuming no other factor plays a role). This is a good prediction.

(43) Bir öğrenci ya Ankara’ya ya İstanbul’a gitti
    a student or Ankara-to or Istanbul-to go.PAST
    ‘A student went to Ankara or Istanbul’

The analysis developed in this paper finds a way to trace the acceptability differences between the existential quantifier and the existential modal back to the availability of free-choice inferences associated with them.\(^10\)

\(^{10}\) There is another prediction here. Namely, \( \text{exh}(\exists x(Px \lor Qx)) \) will block \( \text{exh}(\exists x(Px \lor Qx)) \). Consider the following logical forms (the first one is calculated in Fox, 2007)

(iii) \( \text{exh}(\exists x(Px \lor Qx)) \vdash (\exists x(Px \lor Qx) \land \neg(\exists x(Px \lor Qx))) \)

(iv) \( (\exists x (Px \lor Qx)) \leftrightarrow \exists x (Px \lor Qx) \)

The first proposition is stronger. If \( \text{exh}(\exists x(Px \lor Qx)) \) is ruled out, then that it should not be possible to continue the sentence in (43) one with a sentence that corresponds to the proposition \( \text{exh}(\exists x(Px \lor Qx)) \).

(43) Bir öğrenci ya Ankara’ya ya İstanbul’a gitti. Bir öğrenci Ankara’ya ve İstanbul’a gitti.
    ‘A student went to Ankara or Istanbul. A student went to both Ankara and Istanbul’
3. The complex conjunction in the context of negated universal modal

In this section, we test another prediction of the current proposal. This time, we will be concerned with the properties of simple conjunction ve ‘and’ and complex conjunction hem...hem... in Turkish. Simple and complex here, again, refers to the number of the morphemes involved in the expression of the conjunction.

(44) a. Ekin dondurma ve çikolatalı puding yemedi
   Ekin ice-cream and chocolate pudding eat.NEG.PAST.3sg
   ‘Ekin ate neither ice cream nor chocolate pudding’

b. Ekin hem dondurma hem çikolatalı puding yemedi
   Ekin and ice-cream and chocolate pudding eat.NEG.PAST.3sg
   ‘It is not the case that Ekin ate both ice cream and chocolate pudding’

What we observe is that the sentence in (44)a is strengthened from ~(p&q) to ~p&~q. The same is not true with the second sentence. The total meaning associated with the second sentence is ~(p&q)&(p∨q). Fox (2007) has argued that the wide scope conjunctive readings of the negated universal modals is comparable formally to the free-choice effects associated with the existential modals (see also Szabolcsi and Haddican 2004 for a discussion in the context of homogeneity).

(45) Ekin’in odasını toplamasına ve bulaşıkları yıkamasına gerek yok
   Ekin room.her clean and dish.PLU wash necessary NEG
   ‘Ekin is not required to clean her room and she is not required to wash the dishes’

Basic Meaning: ~□(p&q) ↔ ◊~(p&q) ↔ ◊(~p∨~q)
Free Choice-type inference: ◊~p & ◊~q

More specifically, Fox has shown that the free-choice reading can be derived with the second layer exhaustification.11 We observe that the complex conjunction does not give this free-choice type reading.

(46) Ekin’in hem odasını toplamasına hem bulaşıkları yıkamasına gerek yok
   Ekin and room.her clean and dish.PLU wash necessary NEG
   ‘Ekin is not required to clean her room and she is not required to wash the dishes’

gerek yok
necessary NEG

Basic Meaning: ~□(p&q) ↔ ◊~(p&q) ↔ ◊(~p∨~q)
Inference: □(p∨q)

There is something weird about this continuation although calling it unacceptable does not seem right. I point to two complications. There is strong specificity effect (a specific student) associated with the existential quantifier in an argument position. I find it hard to avoid the effect and it is unclear to me what role it plays in the calculation of the entailments. Secondly, assume that Spector’s analysis of PPI-hood is general. That is, for any PPI, there is the requirement that it occurs in the scope of an exh operator. If so, the logical form, (∃x (exh (Px ∨ Qx))), might be ruled out on independent grounds given that bir in Turkish and some in English are PPIs.

11 for calculations, see Fox, 2007. I avoid the repetition of Fox’s paper here.
If we make the assumption that we have made for complex disjunction, the absence of the homogeneity-type effects with the complex conjunction follows immediately.

(47) Condition on Turkish complex conjunction

Hem...hem... must occur in the scope of an *exh* operator.

We have a problem, though. We expect the complex conjunction expressions to be unacceptable (in the same way as the complex disjunction expressions are). This is not true. The sentences with the complex conjunction are not judged to be unacceptable. However, they clearly have a *metalinguistic* feel to them. Indeed, an approximation to the meaning of sentence in (46) is that *one cannot/should not say that Ekin must both clean the room and wash the dishes*. To explain this anomaly, I stipulate a condition of the following kind:

(48) Violations of Constraints on the Distribution of *exh*

An ungrammatical sentence S, in which an economy contraint is not obeyed, is associated with one of the following judgments:

i. The speaker judges S to be unacceptable
ii. The speaker judges S to be metalinguistic

Perhaps, we observe in English that PPIs gives rise to metalinguistic feel rather than unacceptability in the context of negation. Szabolsci (2004) notes that even though the determiner *some* appears to be a PPI, it is licensed under a clausemate negation if it is in a denial context.

(49) He found something.
Wrong! He DIDn’t / DID NOT find something. not > some

PPIs are assumed to be unacceptable in the scope of negation; however, it seems that it is possible to get a metalinguistic feel rather than unacceptability.

4. Conclusion

Chierchia et al. (2012) suggests that the dispreference for deriving implicatures in Downward Entailing environments can be traced back to some type of Strong Meaning Hypothesis, discussed by various scholars (Dalrymple et al. 1998, Beck 2001 a.o). They consider two possibilities for how such a statement should be formulated: a strong version and a weak version. The proposal made in this paper for the Strong Meaning Hypothesis has the property that it is stronger than the weak version but weaker than the strong version.
On the complex connectives in Turkish

References


İsa Kerem Bayırlı
isakerem@gmail.com
Feature domains and lexically conditioned harmony in Turkish

Jennifer Bellik

UC Santa Cruz

1. Introduction

Walker (2012) describes vowel harmony as follows: “In vowel harmony, the vowels in a domain, such as the word, systematically agree, or ‘harmonize’, in some phonological property.” Intuition suggests that this domain-level harmony be represented with a domain-level specification of the shared phonological property. This intuition is formalized in feature-spreading representations of vowel harmony, such as autosegmentalism (e.g., Clements and Sezer 1982), as well as analyses situated in Optimality Theory (Prince and Smolensky 1993) that employ constraints such as \textsc{Align} (Kirchner 1993, among others) or \textsc{Spread} (Kimper 2011).

Domain-level feature representations are formalized even more directly in Optimal Domains Theory (Cole and Kisseberth 1994), Span Theory (McCarthy 2004, O'Keefe 2007), and Smolensky's (2006) headed feature domains. In these theories, Gen constructs feature domains which incorporate multiple segments. A feature domain takes its value from its head (some segment in the domain); all the segments in a domain must realize the domain's feature value.

Though feature-spreading and feature-domains both use featural structures that transcend the segment, these larger structures still depend on an individual segment: the head of the domain, or the anchor for the spreading feature. This segment-dependence predicts that the value of harmony can always be traced to the value of a particular segment or segments. This paper examines a class of Turkish words which violate this prediction. The words of interest require front suffixes, and yet they contain no segment that can be a plausible trigger for front harmony. Some examples appear in (1).

(1) *Turkish front harmony without a front trigger segment*

<table>
<thead>
<tr>
<th>Nom.</th>
<th>Dative</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. dikkat → dikkat-e, *dikkat-a</td>
<td>'attention'</td>
<td></td>
</tr>
<tr>
<td>b. harf → harf-e, *harf-a</td>
<td>'letter'</td>
<td></td>
</tr>
<tr>
<td>c. rab → rabb-e, *rabb-a</td>
<td>'God'</td>
<td></td>
</tr>
</tbody>
</table>

© 2018 by Jennifer Bellik
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyildiz (eds.): Tu+1, 17–27.
GLSA Amherst.
Unlike the rest of the Turkish harmony system, the class of words exemplified in (1) has received little attention. Previously unnoticed is the fact that the vowel failing to trigger harmony is always /a/. There is no word like *hurfl-ler to correspond to harfl-ler. The specialness of /a/ for this group of words is surprising given that /a/ is a normal participant in harmony for the vast majority of the Turkish lexicon. That is, /a/ only behaves as transparent in a small group of roots. I refer to this behavior as **lexically conditioned transparency**.

This paper proposes an analysis of lexically conditioned transparency using **FEATURE DOMAIN THEORY (FDT)**. FDT extends Smolensky’s (2006) headed feature domains, but innovates by positing feature domains that are specified in the input to phonology and are **independent** of individual segments. This extension connects FDT to gesturally-grounded models of phonology like Articulatory Phonology (Browman and Goldstein 1993), and enables FDT to provide a unified account of harmonic, disharmonic, and exceptional roots in Turkish. The paper is organized as follows: §0 describes the regular pattern of Turkish backness harmony, then presents the problem and the previous autosegmental account; §0 presents an analysis of lexically conditioned harmony using Feature Domain Theory; §4 provides an account of the specialness of /a/ in Turkish lexically conditioned transparency; and §5 concludes.

### 2. Harmony and disharmony in Turkish

All eight vowels in the Turkish vowel inventory participate in backness harmony, alternating with the vowel that they match in for [high] and [round]. Suffixes harmonize in backness with the nearest root vowel, whether the vowels in the root are front as in (2) a, back as in (2) b, or both as in (2) c.

(2) **Normal backness harmony (plural suffix /lEr/ is realized as [ler] or [lar])**:

a. gündüz + lEr → gündüz-ler ‘daytimes’

b. ayı + lEr → ayı-lar ‘bears’

c. kitap + lEr → kitap-lar ‘books’

The topic of this paper is a group of roots (3) in which a final /a/ fails to trigger back harmony—instead, these roots requires front suffixes, and also epenthetic front vowels where epenthesis is required (e.g. (3) j,k). The /a/ thus behaves as transparent, even though elsewhere in the lexicon /a/ triggers back harmony.

(3) **Roots that fail to trigger harmony**

<table>
<thead>
<tr>
<th>Nom.</th>
<th>Dative</th>
<th>Gloss</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>infilak</td>
<td>infilak-e, infilak-a</td>
</tr>
<tr>
<td>b.</td>
<td>helak</td>
<td>helak-e, *helak-a</td>
</tr>
<tr>
<td>c.</td>
<td>emlak</td>
<td>emlak-e, *emlak-a</td>
</tr>
<tr>
<td>d.</td>
<td>istimlak</td>
<td>istimlak-e, *istimlak-a</td>
</tr>
<tr>
<td>e.</td>
<td>dikkat</td>
<td>dikkat-e, *dikkat-a</td>
</tr>
</tbody>
</table>

---

1 I employ Turkish orthography throughout this paper. Turkish orthographic symbols mostly coincide with IPA symbols, but there are a few differences: ö = /ø/, ü = /y/, ı = /ɯ/, c = /dʒ/, ç = /tʃ/, ş = /ʃ/.
Several dozen words, mainly ending in /t/, /k/ or a cluster containing /r/, exhibit the same behavior as the examples above. In every case, the final vowel in the word is /a/.

The existence of these back roots that require front suffixes is noted in Lewis (1967) and Underhill (1976) as an exception to vowel harmony. Both note that all such words are borrowings from Arabic, and ascribe the requirement for front suffixes to the properties of the Arabic consonants involved. This is plausible as a diachronic explanation but does not explain the synchronic representation of the exceptional words, since modern Turkish does not exhibit a phonetic distinction between front and back consonants (except for /k g l/). Lewis (1967) implies that these words are exceptional because they are unassimilated—in modern terms, they belong to a distinct cophonology. However, no independent property picks out the words in which /a/ is transparent, making a cophonologies account unprincipled.

The previous analysis of these roots is due to C&S, who model harmony as the spreading of [+/- back] features from underlyingly specified (“opaque”) segments to underlyingly unspecified segments, according to an association convention (left-to-right, one to one, …). Directly extending this representation to consonants, they say that any consonant can be underlyingly marked as [-back], and then trigger front harmony on suffixes. This analysis is problematic because it implies that any consonant in Turkish can occur in three varieties: [-back], [+back], or unspecified, even though for consonants other than /l k g/, these three variants always sound exactly the same. And for all consonants but /l/, all three varieties sound exactly the same at the end of a word, which is precisely the environment where the variety needs to make a difference. In addition, though disharmonically front suffixes can occur following a wide variety of consonants, they occur after only one vowel: /a/. Under the consonant-driven analysis, this remains a suspicious accident.

The fact that all the exceptional words have /a/ for their last vowel suggests an approach in which the /a/ itself has a [-back] that triggers front suffixes. But since /a/ in these words is not audibly more front than in other words, an /a/-based approach shares the problems of the consonant-based account, albeit with only one segment occurring in [+back] and [-back] variants that are phonetically indistinguishable.

This shortcoming is not specific to an autosegmental approach. As discussed in the introduction, current theories of vowel harmony always require a segment as a harmony trigger. But the exceptional cases discussed here lack an audibly front segment to trigger the required front harmony on suffixes. In some cases, a front segment appears earlier in the word, but the most local trigger is back (dikkat); in other cases, there is no front segment in the word at all (harf). Consequently, any account that tries to pin the frontness
of the suffixes to a particular segment in the word will lack phonetic grounding. To avoid this pitfall, a segment-independent model of harmony is necessary.

3. Proposal: Feature Domain Theory

Nothing in the surface phonology uniquely picks out the words that are exceptions to harmony in Turkish. Instead, a theory that accounts for the exceptional behavior of these roots must make reference to their underlying representations. However, these posited underlying representations should not make claims about segmental feature make-up that are not reflected in surface phonology.

An account of these exceptions to vowel harmony should capture the intuition that something about these particular words requires them to take front suffixes – not a characteristic of any of their segments in isolation. This intuition accords with the observation that harmony is a characteristic of the word: the requirement of harmony is that all the vowels in a word should agree in backness. Evidence from psycholinguistic (Harrison and Kaun 2001, Kabak et al. 2010) and articulatory (Boyce 1990) studies converges with the evidence of epenthesis and the distribution of vowels in the Turkish lexicon (Kabak and Weber 2013) to support the idea that harmony in Turkish acts as a word-level phenomenon. The theoretical representation of harmony should capture this by marking harmony at the word level, while at the same time remaining flexible enough to represent disharmonic words.

Domain-based theories of harmony couched in Optimality Theory meet these criteria. An example is Smolensky (2006), who represents harmony using headed featural domains. The basic idea is that featural domains are constructed by Gen, producing representations like those in (4). A feature domain's value (e.g., [+back] or [-back]) is determined by its head, a segment in it (underlined in (4)). Segments in a domain are required to realize that domain's feature value. Harmony is largely driven by the markedness constraint *HeAd. Since each domain must have a head, every domain incurs a *HeAd violation, and the number of domains per word is minimized in the optimal candidate.

(4) Turkish harmony with headed feature domains
   a. harmonic root: violates *Head minimally
      ayı +IEr → (ayı-lar)
   b. disharmonic root: violates *Head multiple times
      kitap+IEr → (k)(t)(plar)
   c. embedded domain: violates *Embed
      dikkat +IEr → (dikk(a)t-ler)

For Smolensky (2006), transparency results when segments occur in embedded feature domains, as in (4) c. A segment in an embedded domain realizes the feature value of the innermost domain. Embedding is driven by markedness considerations, since embedding violates *EMBED but can enable a larger domain to satisfy ALIGN without any segments in it violating featural co-occurrence constraints. However, the constraint ranking which is needed to obtain the transparent structure predicts that /la/ will always be transparent.
and will not have a front counterpart. In reality, though, /a/ is normally opaque (like all Turkish vowels), and alternates systematically with /e/ in suffixes.

The divergent behavior of kitap (which has the vowel sequence i-a and requires back suffixes) and dikkat (which has the same vowel sequence but requires front suffixes) indicates the need for either a different input structure or a different constraint ranking for these two types of words. A different constraint ranking is only available if kitap and dikkat belong to different co-phonologies, but this proposal seems suspect, as both words are loans from Arabic, there are no differences in stress assignment or clear segmental cues, etc. Therefore, a difference in input structure must account for the difference in output behavior.

In existing domain-based theories, however, feature domains are not present in the input. I therefore extend Smolensky’s theory to use headless feature domains— independent of segments and present in the input to phonology. I term this approach Feature Domain Theory (FDT).²

(5) Feature Domain Theory
For a feature F,
   a. every value of F is represented in phonology as an F-domain, in both the input and the output.
   b. F-harmony is the requirement that F-domains coincide with prosodic categories larger than the syllable—typically the word.
   c. Segments inherit the F-value of the F-domain that contains them. When one domain is embedded in another, the deepest F-domain’s F-value is realized in the output.

The central idea of FDT is that EVERY FEATURE IS A FEATURAL DOMAIN. Membership in an F-domain replaces segmental featural specification in a traditional theory of features. In a language without harmony, every feature is still a feature domain, but it happens to be a domain that coincides with a segment. So in a language like English, FDT’s feature representation is largely isomorphic to traditional featural specifications. Meanwhile, in a language exhibiting harmony along some feature, the domains for that feature will regularly span entire words.

As will be shown in §3.2, encoding feature domains in the input to phonology enables faithfulness to drive transparency in harf-ler and dikkat-ler, so that the full range of harmonic behavior in Turkish is accounted for with a single constraint ranking.

3.1 The regular pattern of Turkish backness harmony in FDT

For Turkish backness harmony, the relevant F-domains are backness domains. In a harmonic root, such as ayt ‘bear’, there is only one underlying backness domain. An alternating suffix like the plural marker -iLer has no backness domain of its own. But all segments must be fully specified in the output: Specify (6) is undominated. When the input contains underspecified material like iLer, then, either an existing feature domain can be expanded, or a new feature domain can be inserted. Expansion of an existing

² Thanks to Junko Ito for suggesting this name.
domain results in harmony and incurs a violation \(*\text{EXPAND} (7)\); insertion of a new domain could produce disharmony, and violates \text{DEP-FD}. Since suffixes harmonize, \text{DEP-FD} must outrank \(*\text{EXPAND}.

Also, since harmony applies within roots, we need a constraint that penalizes the presence of multiple backness domains, \*\text{FEATURE DOMA}\text{IN(BACK)} (9). Every surface form violates \*\text{FD}, though, so \*\text{FD} must also be dominated by \text{SPECIFY}, for the ranking in (10).

(6) \text{SPECIFY}: Every segment must be specified in the output of phonology.

(7) \*\text{EXPAND}: Don’t expand a backness domain.

(8) \text{DEP-FD(back)}: Assign a violation for every backness domain in the output that has no correspondent in the input.

(9) \*\text{F-DOMA}\text{IN(back)} = \*\text{FD}: Assign a violation for every backness domain.

(10) \text{SPECIFY, DEP-FD} \gg \*\text{FD, EXPAND}

(11) \text{Incorporating a suffix into the existing F-domain avoids violating DEP.}

<table>
<thead>
<tr>
<th></th>
<th>(/(Eyl)B +ler/)</th>
<th>\text{SPECIFY}</th>
<th>\text{DEP(FD)}</th>
<th>*\text{EXPAND}</th>
<th>*\text{FD}</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>(ayl-\text{ar})B\</td>
<td>***</td>
<td>*</td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>(ayl)B -\text{lar})B\</td>
<td>*!</td>
<td>**</td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>(ayl)B -ler\</td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

In a disharmonic root like kitap ‘book’, there are two contrasting backness domains in the input: \(/(kI)F (tEp)B\). Since disharmonic roots surface faithfully, faithfulness to underlying featural domains must outweigh the pressure to harmonize within roots – \*\text{FD} must be dominated by \text{MAX-FD}: “Assign a violation for every FD in the input that has no correspondent in the output.” If \*\text{FD} were to outrank \text{MAX-FD}, all words would be harmonic, because extra backness domains would be deleted.

When multiple domains are present, underspecified suffixes are incorporated into the later harmonic domain, since this minimizes violations of \*\text{EXPAND}.

(12) \text{Suffixes are incorporated into the nearest harmonic domain}

<table>
<thead>
<tr>
<th></th>
<th>(/(kI)F (tEp)B +ler/)</th>
<th>\text{SPECIFY}</th>
<th>\text{DEP(FD)}</th>
<th>\text{MAX(FD)}</th>
<th>*\text{FD}</th>
<th>*\text{EXPAND}</th>
</tr>
</thead>
<tbody>
<tr>
<td>a.</td>
<td>(/(kI)F (taplar)B\</td>
<td>**</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b.</td>
<td>(/(kI(tap)B ler)F\</td>
<td>**</td>
<td>*<em><strong>!</strong></em></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c.</td>
<td>(/(kitepler)F\</td>
<td>**</td>
<td>*<em><strong>!</strong></em></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
3.2 Apparent harmony failure as lexically-conditioned transparency

On the surface, dikkat looks like it should have the same structure as kitap: a front domain containing the front vowel, followed by a back domain containing /a/. However, this structure predicts that dikkat will behave like kitap and take back suffixes. Rather, dikkat requires an input containing an embedded domain. Such an input structure will allow FAITH to drive transparency.

The failure to phonetically realize a feature due to conflicting demands of multiple governing featural domains is anticipated and penalized by *EMBED (13) (Smolensky 2006). *EMBED is outranked by faithfulness constraints MAX(FD), Dep(FD), and *CONTRACT (14).

(13) *EMBED: Assign a violation for every segment contained in multiple domains.

(14) *CONTRACT: Don't remove segments from a featural domain.

*EMBED is violated by the /a/ in harf or dikkat, revealing that it must be ranked below the faithfulness constraints that preserve embedded featural domains.

(15) \( F\text{AITH}(FD) >> *\text{EMBED} \)

<table>
<thead>
<tr>
<th></th>
<th>SPECIFY</th>
<th>Dep(FD)</th>
<th>MAX(FD)</th>
<th>*CONTRACT</th>
<th>*EMBED</th>
<th>*EXPAND</th>
<th>*FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (dik(kat)B)F</td>
<td>***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>b. (dik)F (kat)B</td>
<td>!***</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>**</td>
</tr>
<tr>
<td>c. (dikket)F</td>
<td>!</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>*</td>
<td></td>
</tr>
</tbody>
</table>

Suffixes must be incorporated into the nearest featural domain, not an embedded featural domain, both because of *EXPAND and because of *EMBED. Pulling a suffix into an embedded domain, as in (16)b, results in twice the number of *EXPAND violations as pulling it into the outermost domain as in (16)a.

(16) *Expand prevents suffixes from being pulled into embedded domains.

<table>
<thead>
<tr>
<th></th>
<th>SPECIFY</th>
<th>F\text{AITH}(FD)</th>
<th>*EMBED</th>
<th>*EXPAND</th>
<th>*FD</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (dlk(kEt)B)F +E/</td>
<td></td>
<td>***</td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
<tr>
<td>b. (dik(kata)B)F</td>
<td>****</td>
<td></td>
<td>*</td>
<td>**</td>
<td></td>
</tr>
</tbody>
</table>

The losing candidate (dik(kata)B)F is harmonically bounded by the winning candidate, showing that embedding will always result in disharmony between the embedded vowel and any suffixes.
Introducing underlying embedded domains, then, allows the transparency of /a/ in certain Turkish words to fall out naturally from the previously defined constraint set. FDT can account for harf-ler and dikkat-ler where other domain-based theories could not, because in FDT, domains themselves are targets for faithfulness since they are present in the input, not just constructed by Gen.

This same constraint set and input representation also accounts for the apparently disharmonic epenthesis in words like kabir ~ kabr-e ’tomb (+dat)’, but I do not present the tableaux here for reasons of space. It remains to be explained, however, is why only /a/ is able to be transparent in Turkish—the task of the next section.

4 Transparent /a/ and its cross-linguistic implications

Formally, the generalization that lexically-conditioned harmony always involves an embedded /a/ can be accounted for simply with the constraint *EMBED[-LOW] in (17).

(17)  *EMBED[-LOW]: Assign a violation for every segment specified [-low] that contained in two backness domains.

(18)  *EMBED[-LOW] >> *EMBED

The ranking in (18) captures the fatal markedness of embedding a high or mid vowel in backness domains in Turkish. Since *EMBED[-low] is unviolated, we can conclude that it is undominated. This ranking yields the desired result that only the low vowel /a/ is able to occur in embedded backness domains, as illustrated in (19), because in Turkish, the only transparent vowel is /a/, and the only low vowel is also /a/.

(19)  Tableau for hypothetical /(h(U)Brf)/

<table>
<thead>
<tr>
<th></th>
<th>*(U)BfrF</th>
<th>*EMBED[-low]</th>
<th>MAX[round]?</th>
<th>FAITH(BD)</th>
<th>*EMBED</th>
<th>*EXPAND</th>
<th>*FD</th>
<th>IDENT[low]</th>
<th>MAX[round]?</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. (h(a)BfrF)</td>
<td></td>
<td></td>
<td>***</td>
<td>*</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>b. (hürf)F</td>
<td></td>
<td>*!</td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>c. (h(u)BfrF)</td>
<td>*!</td>
<td></td>
<td>*</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

If *EMBED[-low] and MAX(round) outrank MAX(Backness Domain), an input embedded domain containing a high vowel will be deleted in the output, as shown in (19)b. This incurs a Max(FD) violation but produces a harmonic, entirely front word. On the other hand, if *EMBED[-low] does not dominate FAITH(Backness Domain) but does dominate IDENT constraints governing height and rounding, then the embedded vowel would instead be changed to become a low vowel to avoid violating *EMBED[-low]. This is shown by candidate (a). Thus, adding *EMBED[-LOW] as an undominated constraint in the Turkish constraint system enables FDT to capture the generalization that only /a/ is allowed to be transparent in Turkish.
There are both perceptual and articulatory reasons for \*EMBED(BACK)[-LOW]. Although transparent vowels are non-participants in harmony phonologically and acoustically, they still participate articulatorily to some degree (Gafoos and Dye 2011). A transparent vowel must still be recognizable acoustically even when its articulation has been distorted by the surrounding context, and so only perceptually stable vowels (Stevens 1989) may be transparent. Since /a/ is perceptually stable, it is a good candidate for transparency—a perceptual motivation for a constraint like \*EMBED(BACK)[-LOW]. In addition, since low vowels are less contrastive for backness than high vowels, it is less taxing articulatorily to produce i-a-i than i-u-i. Therefore a disharmonic i-a-i sequence will be perceptually and articulatorily more similar to a harmonic i-a-i sequence than a disharmonic i-u-i sequence will be to a harmonic i-ü-i sequence. Lastly, /a/ occurs in a relatively sparse part of the Turkish vowel space, meaning it is less confusable with the other phonemes. /a/ would have to raise as well as front or round in order to be perceived as one of the other phonemes. (Even Turkish [æ] is higher than /a/ and is described by some as a low mid vowel.) In contrast, /i/ would be a poor candidate for transparency in Turkish since there are three vowels that it differs from only by one feature (/ı/ in backness, /ü/ in rounding, and /el/ in height).

The constraint \*EMBED(BACK)[-LOW] may seem surprising, given that cross-linguistically, /a/ is uncommon as a systematically transparent vowel in backness harmony, while /i/ and /el/ are very common (Kramer 2003). But systematic transparency is driven by markedness and corresponds to gaps in the vowel inventory (Kiparsky and Pajusalu 2003), while lexically-conditioned transparency is driven by faithfulness, so differences in their patterning are not so unexpected.

5. Conclusion

Motivated by a pattern of lexically conditioned transparency in some Turkish roots, this paper proposes Feature Domain Theory. FDT extends the theory of headed feature domains (Smolensky 2006). Headed feature domains are only targets for markedness constraints, not faithfulness, since they are entirely built by Gen. FDT innovates by proposing underlying, unheaded featural domains. Since FDT’s feature domains are present in the input, they are targets for faithfulness as well as markedness. Thus, exceptional transparency as in harf-ler can be captured by using a marked structure (embedding) in the input. Normal harmonic processes remain in force. But since FAITH preserves embedding, the suffix does not harmonize with the linearly-adjacent but embedded /a/. Instead, it harmonizes with the outermost domain, which is [-back]. This is lexically-conditioned transparency. This structural analysis accounts for both regular harmony and apparent exceptions using the same constraint ranking and representational mechanisms.

References


Subject marking and scrambling effects in Balkar nominalizations

Tatiana Bondarenko
Lomonosov Moscow State University

1. Introduction

In this paper I analyze the nominative/genitive alternation of subject marking in Balkar nominalized clauses (NCs):

(1) устаз сабий-и / сабий-ини аса-ран-ы-ы эшит-ти
teacher child-3.NOM/ child-3-GEN eat-NMN-3-ACC hear-PST
‘The teacher heard that (someone’s) child had eaten (someone’s) apple.’

Despite the fact that there are no noticeable interpretative differences between the nominalizations with nominative and nominalizations with genitive subjects, there is clear evidence that these nominalizations involve different syntactic structures. One piece of evidence comes from scrambling effects: it is possible to scramble direct objects of nominalizations with nominative subjects over the subject of nominalization (2) or over the matrix subject (3), but this kind of movement is impossible out of nominalizations with genitive subjects (4)-(5).

* I am grateful to the audience at the Workshop on Turkish, Turkic and the languages of Turkey (UMass, Amherst, November 21-22, 2015) for valuable discussion. Special thanks to the feedback of Sergei Tatevosov, Pavel Grashchenkov and all the other members of our Balkar seminars at Lomonosov Moscow State University. Most of all, I am indebted to Ekaterina Lyutikova whose comments and suggestions encouraged me to make considerable refinements to this paper. Data for this study have been collected during the fieldtrip to Verxnjaja Balkarija (Kabardino-Balkar Republic, Russian Federation) conducted by the Department of Theoretical and Applied Linguistics, Faculty of Philology, Lomonosov Moscow State University, in 2013. I would like to express deep gratitude to the native speakers of Balkar for their invaluable help. The study has been supported by Russian Science Foundation (grant # 16-18-02081).

1 I use subject nouns in the possessive declension throughout the paper, because in the non-possessive declension the case markers of nominative and genitive coincide with accusative: genitive looks the same as marked accusative, and nominative looks the same as unmarked accusative.

© 2018 by Tatiana Bondarenko
Faruk Akkuş, Isä Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 27–41.
GLSA Amherst.
In contrast to direct object scrambling, scrambling of subjects is allowed out of both types of nominalizations:

(6) sabij-i-ni fatima ata-sy-ny maSyna-sy-n buz-Ran-y-n bil-di child-3-GEN Fatima father-3-GEN car-3-ACC crash-NMN-3-ACC know-PST
‘Fatima found out that (someone’s) child smashed the father’s car.’

(7) dušman-i ustaz šaxar-i-n cac-šan-i-n bil-di enemy-3-NOM teacher city-3-ACC destroy-NMN-3-ACC know-PST.3SG
‘A teacher found out that (someone’s) enemy destroyed (someone’s) city.’

The observed correlation between the subject marking in nominalizations and the extractability of direct objects suggests that there are some syntactic differences in the make-up of nominalizations with nominative and genitive subjects which underlie the alternation. This brings up the question of whether it is possible to account for the scrambling phenomena in Balkar nominalizations under the previously proposed theories of subject case licensing: subject case licensing dependent on tense (Chomsky 1981, Lyutikova & Grashchenkov 2008) and subject case licensing dependent on phi-feature agreement (Chomsky 1995, Kornfilt 1984, Kornfilt 2003, Miyagawa 2011). In section 2 of this paper I will address the question of whether subject case licensing in Balkar nominalizations is dependent on the functional categories of the tense-aspect domain, while

---

2 Both types of scrambling are driven by information structure. Interpretational effects associated with scrambling are irrelevant for the line of reasoning I develop below and will be ignored throughout the paper.

3 Whether the subject case is licensed by TAM features or by phi-features seems to be parameterized across languages (Iatridou 1993, Ura 2000, Lavine & Freidin 2002).
Subject marking and scrambling effects in Balkar nominalizations

in section 3, I will consider the question of whether the nominative/genitive alternation depends on the properties of agreement between nominalizations and their subjects.

Yet another issue is how other properties of these nominalizations are related to subject case licensing. I will present some properties that the two nominalizations have in common in section 2 while in section 4, I will address several properties with respect to which they differ. In section 4, I will argue that the differences between nominalizations with nominative subjects and nominalizations with genitive subjects in Balkar have a structural source: only the former nominalizations have a CP layer in their functional structure. I argue that this single structural difference explains all the different properties the two nominalizations exhibit: subject case, scrambling possibilities, number agreement, wh-words licensing and binding effects. In my analysis of Balkar nominalizations, I suggest that C (when it is present) licenses the nominative case on the subject, while D (in the absence of C) licenses the genitive case. In other words, while some languages have been shown to employ D-licensing (for example, Dagur see Hale 2002) or C-licensing (for example, Turkish see Kornfilt 1984, Kornfilt 2003) in the embedded contexts, Balkar can employ both.4

2. Does licensing of NOM/GEN depend on the functional categories of the tense-aspect domain?

There have been different views with respect to whether the functional categories of the tense-aspect domain play a role in licensing subject case (Chomsky 1981, Kornfilt 2003, Gülsat Aygen 2004). It is evident that in Balkar nominalizations tense is not related to licensing subject case, because nominalized clauses with nominative subjects and with genitive subjects don’t differ in their (impooverished) tense specification. Both nominalizations have the same two allomorphs: ‘ryR’ for future interpretation, ‘Ran’ for non-future interpretation.

(8) ol bala-sy/bala-sy-ny busaRatda alma-sy-n aSa-Ran-y-n

That 3.NOM/child-GEN now apple-3-ACC eat-NMN-3-ACC
ajt-a-dy
say-IPFV-3SG
‘He is saying that (someone’s) child is eating (someone’s) apple now.’

(9) ol bala-sy/bala-sy-ny tUnene alma-sy-n aSa-Ran-y-n

That 3.NOM/child-GEN yesterday apple-3-ACC eat-NMN-3-ACC
ajt-a-dy
say-IPFV-3SG
‘He is saying that (someone’s) child has eaten (someone’s) apple yesterday.’

(10) * ol bala-sy/bala-sy-ny tambla alma-sy-n aSa-Ran-y-n

That 3.NOM/child-3-GEN tomorrow apple-3-ACC eat-NMN-3-ACC
ajt-xan-dy
say-PFCT-3SG

4 Miyagawa (2011) proposes a similar analysis of nominative/genitive alternation in Japanese relative clauses (“ga/no Conversion”): C is responsible for nominative case licensing, and D – for genitive.
In (8)-(9) it is shown that nominalizations with the ‘Ran’ suffix are compatible with interpretations where the event described by the nominalization co-occurs or precedes the event described by the matrix verb. The ungrammaticality of (10) indicates that these nominalizations cannot describe an event that follows the event described by the matrix verb, while (11) shows that this interpretation obtains in nominalizations with the ‘ryR’ suffix. As we see from (8)-(11), there are no differences between nominalizations with nominative subjects and nominalizations with genitive subjects with respect to availability of temporal interpretations; therefore, subject case licensing is not dependent on tense specification of the nominalized clause.

The two nominalizations have a number of other properties in common. They exhibit the full argument structure of the verb and do not display the transitivity restriction (which is present in structures with genitive subjects in Japanese see Harada 1971, Watanabe 1996, Miyagawa 2011): overtly marked accusative object can intervene between the subject and the nominalized verb (1). Both nominalizations can include derivational morphemes; for example, passivized verbs can be nominalized:

(11) ol bala-sy/bala-sy-ny tambla alma-sy-n aSa-ryR-y-n
    that child-3.NOM/child-3-GEN tomorrow apple-3-ACC eat-NMN-3-ACC
    ajt-xan-dy
    say-PFCT-3SG
    ‘He has said that (someone’s) child will eat (someone’s) apple tomorrow.’

Moreover, both nominalizations can include negation in their functional make-up:

(14) fatima sabij-i /sabij-i-ni alma-sy-n aSa-ma-Ran-y-n
    Fatima child-3.NOM /child-3-GEN apple-3-ACC eat-NEG-NMN-3-ACC
    eSit-ti
    hear-PST
    ‘Fatima heard that (someone’s) child has not eaten (someone’s) apple.’

The ability to host negation markers and to co-occur with temporal adverbs ((8)-(9), (11)) suggests that in both nominalizations the amount of structure that is nominalized is not smaller than TP. The only verbal morpheme that cannot occur in nominalizations is the question marker:

(15) * fatima sabij-ler-i /sabij-ler-i-ni Saxar-Ra bar-Ra-ny-lar-y-n
    Fatima child-PL-3.NOM /child-PL-3-GEN city-DAT go-NMN-Q-PL-3-ACC
    sor-du
    ask-PST
    Int. reading: ‘Fatima asked whether (someone’s) children have gone to the city.’

In this section I have shown that nominalizations with nominative subjects and nominalizations with genitive subjects share a number of properties and are at least TP-level nominalizations. Most importantly, though, subject case marking of these nominalizations does not hinge upon their tense specification.

3. Does licensing of NOM/GEN depend on agreement?

A natural question then arises whether subject case licensing could be related to the differences in phi-feature agreement between subjects and corresponding nominalizations. At first sight, there does not seem to be any differences between the agreement with nominative and with genitive subjects: in both cases nominalizations display the same possessive markers that nouns in a possessive construction take\(^5\) (cf. (16) and (18), (17) and (19)).

(16) taryx-\textit{ym}  
story-\textit{1SG}  
‘my story’

(17) bala-\textit{Ryz-Ra}  
child-\textit{2PL-DAT}  
‘to your (pl) child’

\(^5\) Whether “nominal” agreement markers (i) are completely distinct from verbal ones is an unsettled question. There are two verbal agreement paradigms in Balkar (ii); the 1\textsuperscript{st} set of markers is used in the present and future tenses, perfect and habitual, while the 2\textsuperscript{nd} one is used in the past tense, in conditionals and in imperative forms. Verbal agreement with 3 person subjects is optional both in terms of person agreement and number agreement.

\begin{itemize}
  \item \textit{Nominal agreement markers}
  \begin{tabular}{|c|c|c|}
    \hline
    & Sg & Pl \\
    \hline
    1 & -(y)m & -(y)byz \\
    2 & -(y)N & -(y)Ryz / -(i)giz \\
    3 & -(s)y & \\
    \hline
  \end{tabular}
  \item \textit{Verbal agreement markers}
  \begin{tabular}{|c|c|c|}
    \hline
    & Sg & Pl \\
    \hline
    1 & -ma & -byz \\
    2 & -sa & -syz \\
    3 & -(dy) & -(dy)-(la) \\
    \hline
  \end{tabular}
  \begin{tabular}{|c|c|c|}
    \hline
    & Sg & Pl \\
    \hline
    1 & -(y)m & -(y)q \\
    2 & -(y)N & -(y)Ryz / -(i)giz \\
    3 & -(dy) & -(dy)-(la) \\
    \hline
  \end{tabular}
\end{itemize}

As can be observed from the tables ((i)-(ii)), 1Sg and 2 person markers of the nominal paradigm are identical to the markers of the 2\textsuperscript{nd} set of verbal agreement markers, while 1Pl marker of the nominal paradigm is identical to the corresponding marker of the 1\textsuperscript{st} set of verbal markers. The only marker in the nominal paradigm that does not have a verbal counterpart is 3\textsuperscript{rd} person marker (’(s)y’). Thus, it might be the case that agreement patterns of Balkar are best analyzed not in terms of verbal – vs – nominal split, but in some other manner.
‘The mother found out that I have eaten porridge.’

‘The grandfather was surprised that you (pl) have eaten porridge.’

But while person agreement\(^6\) is the same in both nominalizations and is identical to the agreement in the nominal paradigm, there are peculiar differences in number agreement which are reflected in the use of third person plural marker ‘lar’. This marker occurs both on nouns and on verbs with the following difference: it conveys an interpretable number feature in the former case ((20)-(23)) and an uninterpretable number feature in the latter ((25)-(28)). I assume that nouns always bear an interpretable number feature; while the plural value of this feature is realized overtly by ‘lar’, the singular value has a null realization. I also assume that agreement between possessors and possessees is obligatory in Balkar: whenever a possessor is present, the possessee agrees with it. However, there is only one available morphological slot for realization of number features: the structure in (24), where one instance of lar denotes the plurality of a possessee while the other one is an agreement morphology triggered by the plurality of the possessor, is unavailable in Balkar, and, as far as I know, in other Turkic languages. Therefore, the two compete for the same morphological slot. When the plural marker occurs on possessees as in ((21),(23)), it denotes plurality of possessees and is never interpreted as denoting plurality of possessors. I suggest that this is the case because of the competition of the two number features, the interpretable number of the possessee and the uninterpretable number of the possessor for a single slot. The interpretable one wins and gets realized, as in (23).

---

\(^6\) Here by “person agreement” I mean agreement markers which are specified for person features (including cumulative 1PL and 2PL markers).
Subject marking and scrambling effects in Balkar nominalizations

(23) sabij-ler-i-ni kitab-lar-y  
child-PL-3-GEN book-PL-3  
‘children’s books’/*‘children’s book’

(24) * sabij-ler-i-ni kitab-lar-lar-y  
child-PL-3-GEN book-PL-PL-3  
‘children’s books’

The plural marker (‘lar’) on verbs is a realization of an uninterpretable number feature (it does not denote plurality of events, (26)) which is valued through the Agree operation with the subject ((25)-(28)). Crucially, this type of agreement is optional: it can be absent on verb even when the subject displays plural marking (27).

(25) sabij-i tau-Ra Orle-gen-di  
child-3.NOM mountain-DAT climb-NMN-3SG  
‘(Someone’s) child climbed the mountain.’

(26) * sabij-i tau-Ra Orle-gen-di-le  
child-3.NOM mountain-DAT climb-NMN-3SG-PL  
Int. reading: ‘(Someone’s) child climbed the mountain several times.’

(27) sabij-ler-i tau-Ra Orle-gen-di  
child-PL-3.NOM mountain-DAT climb-NMN-3SG  
‘(Someone’s) children climbed the mountain.’

(28) sabij-ler-i tau-Ra Orle-gen-di-le  
child-PL-3.NOM mountain-DAT climb-NMN-3SG-PL  
‘(Someone’s) children climbed the mountain.’

Clausal nominalizations are not expected to have interpretable number features (Alexiadou et al. 2010)

7, and this is borne out by both Balkar nominalizations: they cannot denote plurality of events when they receive plural marking ((30), (34)). But the two nominalizations differ with respect to the optionality of number agreement. The number agreement (‘lar’) in nominalizations with nominative subjects follows the verbal pattern in ((25)-(28)): the uninterpretable number feature (number of the nominalization’s subject) is optionally realized on the nominalization ((29)-(32)):

(29) men a-ny sabij-i tau-Ra Orle-gen-i-n  
1SG that-GEN child-3.NOM mountain-DAT climb-NMN-3-ACC  
bil-di-m know-PST-1SG  
‘I found out that his child climbed the mountain.’

Alexiadou et al. (2010) observe that nominalizations which have verbal projections above AspP cannot have interpretable number; it is not possible for them to denote plurality of events.
The number agreement in nominalizations with genitive subjects ((33)-(36)) shows a different pattern: the number feature on these nominalizations is still uninterpretable (34), but agreement is obligatory and the agreement marker cannot be omitted (35).

(33) ustaz sabij-i-ni bir zat da oqu-ma-Ran-ya-n bil-di teacher child-3-GEN one.thing.NOT read-NEG-NMN-3-ACC know-PST
‘The teacher found out that (someone’s) child hasn’t read anything.’

(34) * ustaz sabij-i-ni bir zat da oqu-ma-Ran-lar-ya-n bil-di teacher child-3-GEN one.thing.NOT read-NEG-NMN-PL-3-ACC know-PST

(35) * ustaz sabij-ler-i-ni bir zat da oqu-ma-Ran-ya-n bil-di teacher child-PL-3-GEN one.thing.NOT read-NEG-NMN-3-ACC know-PST

(36) ustaz sabij-ler-i-ni bir zat da oqu-ma-Ran-lar-ya-n bil-di teacher child-PL-3-GEN one.thing.NOT read-NEG-NMN-PL-3-ACC know-PST
‘The teacher found out that (someone’s) children haven’t read anything.’

What might be the reason for the difference in number agreement between the two nominalizations? I propose that nominalizations with nominative subjects display verbal number agreement, while nominalizations with genitive subjects exhibit nominal number agreement which is the same as in (20)-(23). As suggested above, in nominal possessor constructions agreement is obligatory, but the morphological component chooses to realize interpretable number features of possessors instead of the uninterpretable features of possessors. Since clausal nominalizations do not have interpretable number features, we expect uninterpretable number features to realize if the agreement is nominal. And that is exactly what we see in nominalizations with genitive subjects ((33)-(36)). On the other hand, number agreement between subjects and verbs is optional (27), and we expect to see
the same optionality of subject-nominalization agreement if it is verbal. As I have demonstrated (31), this expectation is borne out for nominalizations with nominative subjects.

In this section I have shown that the two nominalizations differ with respect to agreement with their subjects: while nominalizations with nominative subjects display verbal number agreement, nominalizations with genitive subjects exhibit nominal number agreement with a minor reservation that they do not have their own interpretable number. However, this difference on its own is not sufficient to explain the scrambling possibilities we observed in the first section: different agreement will not derive the scrambling effects if the left periphery of two nominalized clauses is identical. In the next section I will relate the difference in number agreement to scrambling effects and other properties which distinguish the two nominalizations from each other.

4. C-licensing – vs – D-licensing, agreement and scrambling effects

The idea that phi-feature agreement occurs at a phase level (CP, vP, DP⁸), (Chomsky 2005, Boeckx 2003, Miyagawa 2005), naturally explains why D and C become the locus of subject case licensing (Miyagawa 2011): the phi-features are only introduced into the derivation by these phase. Both D-licensing (Saito 1983, Hale 2002, Miyagawa 1993, Miyagawa 2008, Miyagawa 2011) and C-licensing (Watanabe 1996, Hiraiwa 2001, Kornfilt 2003, Kornfilt 2008) have been proposed as the mechanisms of licensing subjects in embedded contexts; and C-licensing has been proposed for licensing both nominative and genitive subjects (Watanabe 1996, Hiraiwa 2001). In this section I will argue that Balkar employs C-licensing in nominalizations with nominative subjects and D-licensing in nominalizations with genitive subjects, and that this difference can explain the other properties in which the two nominalizations differ.

I propose that nominalizations with nominative subjects are nominalized CPs, while nominalizations with genitive subjects are DPs without the C projection in their functional make-up (D immediately takes TP as its complement). This is supported by several similarities between CPs and nominalizations with nominative subjects on one hand, and between DP⁹s and nominalizations with genitive subjects on the other hand. First, scrambling of direct objects out of CPs ((36)-(37)) is possible just like in nominalizations with nominative subjects ((2)-(3)), and unlike nominalizations with genitive subjects ((4)-(5)):

(37) ustaz a-ny surat-y-n sabij-i iSle-gen-di dep teacher that-GEN picture-3-ACC child-3.NOM draw-NMN-3S COMP ojla-dy think-PST

‘The teacher thought that it was (someone’s) CHILD that drew his picture.’

---

⁸ I assume that DP is also a phase. See (Chomsky 2001, Svenonius 2004, Dikken 2007, Ott 2009) for the relevant discussion.
⁹ I assume the Universal-DP Hypothesis that implies that DPs are present in all languages, but that not all noun phrases are DPs within the languages (Pereltsvaig 2007, Lyutikova & Pereltsvaig 2015).
Nominalizations with genitive subjects behave like DPs with respect to scrambling. No material can be extracted from DPs apart from the genitive possessor ((39)-(40)); the genitive possessor can be scrambled out and, for example, become separated from the possessee noun by clausal material, e.g., by the temporal adverb of the clause (41).

The pattern we observe with DPs is identical to that of nominalizations with genitive subjects ((4)-(6)): only genitive subjects can be extracted out of nominalizations (6); no other material can scramble out ((4)-(5)).

Second, both nominalizations with nominative subjects and CPs can host wh-words in their structure which are licensed by the question marker on the matrix predicate\(^{10}\); attempts to license wh-words inside nominalizations with genitive subjects lead to ungrammaticality (44).

---

\(^{10}\)This fact itself supports my proposal that nominalizations with nominative subjects have a CP layer in their structure under the assumptions that wh-words undergo movement at LF (Huang 1982), that noun phrases are islands for extraction (see (39)) and that wh-words move through the specifiers of C projections: if nominalizations with nominative subjects did not have a CP layer, wh-words in (43) wouldn’t be able to move out of the nominalization and get interpreted in the matrix clause. Thus, the ungrammaticality of (44) is predicted under my analysis which suggests that nominalizations with genitive subjects do not involve CP.
Third, both CPs and nominalizations with nominative subjects constitute the same binding domain with respect to binding of reflexives, which is different from the binding domain of nominalizations with genitive subjects. There is a reflexive pronoun ‘kesi’ which can participate in long-distance binding relations and be bound by the subject of a matrix clause. While CPs and nominalizations with nominative subjects are transparent for the binding of the simple reflexive ‘kesi’ (it can be bound by the subject of the matrix clause), (45)-(46)), nominalizations with genitive subjects do not allow the material inside them to participate in long-distance binding relations (the simple reflexive cannot be bound by the matrix subject) (47):

(45) ustaz soxta-sy kesi-n iSle-gen-di dep ojla-dy
   teacher student-3.NOM self-ACC draw-NMN-3SG COMP think-PST
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – OK
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – OK

(46) ustaz soxta-sy kesi-n iSle-gen-i-n ojla-dy
   teacher student-3.NOM self-ACC draw-NMN-3-ACC think-PST
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – OK
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – OK

(47) ustaz soxta-sy-ny kesi-n iSle-gen-i-n ojla-dy
   teacher student-3-GEN self-ACC draw-NMN-3-ACC think-PST
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – OK
   ‘The teacher, thought that his student$_t$ drew himself$_t$.’ – *

In other words, nominalizations with nominative subjects exhibit CP-like behavior with respect to reflexives’ binding, while nominalizations with genitive subjects are different in this respect.

There is further evidence which suggests that nominalizations with genitive subjects are DP$^{11}$s: they can contain demonstratives:

(48) ustaz a-ny soxta-sy-ny maSina-sy-n buz-Ran-y-n
    teacher that-GEN student-3-GEN car-3-ACC break-NMN-3-ACC
    bil-di
    know-PST
    ‘The teacher found out about that breaking of the car by the student.’

In (48) the demonstrative ‘any’ can be interpreted as a modifier of the whole nominalization$^{12}$, which I take as evidence for the presence of D projection in the structure of the nominalization.

So far we have seen that nominalizations with nominative subjects are CP-like with respect to such properties as direct object scrambling possibilities, ability to host wh-
phrases and reflexives that can enter into long-distance binding relations, while nominalizations with genitive subjects behave in a different manner and are DP-like with respect to scrambling and the ability to host demonstratives. These differences between the two nominalizations can be naturally connected with the difference in number agreement under the proposed analysis, which suggests that only nominalizations with nominative subjects have a CP layer in their structure. If it is C that introduces verbal phi-features into the derivation (by being a phase head), then it is expected that verbal agreement is possible only when C is present in the structure, and is impossible otherwise. However, the C under consideration is a special case, because it is nominalized. I propose that in configurations with a nominalized C some of its phi-features can be overridden by the phi-features of the nominalizing head. In case of the Balkar nominalization, the person feature is the one being overridden: as we have seen in section 3, in nominalizations with nominative subjects person agreement seems to be nominal. But crucially, the presence of the verbal number agreement in nominalizations with nominative subjects reveals that the C projection is present in the structure and that its number feature is retained and transmitted to T (Chomsky 2008), which can then act as a probe and attract the subject of nominalization to its specifier for the purposes of agreement, valuing its case feature nominative. The proposed structure for nominalizations with nominative subjects is presented in (49).13

(49)   Nominalizations with nominative subjects

\[\text{NP/DP} \quad \begin{array}{c}
\text{N/D} \\
\text{CP} \quad \text{N/D} \\
\text{C} \\
\text{TP} \quad \text{C} \quad \text{[u\#]} \\
\text{SUB} \quad \text{TP} \quad \text{T} \quad \text{[u\#]} \\
\text{vP} \quad \text{v} \quad \text{SUB} \quad \text{v} \\
\end{array}\]

number feature transmission

13 I will leave unresolved the issue of whether nominalizations with nominative subjects are NPs or DPs, because I have no evidence that would argue in favor of one possibility over another. These nominalizations could be also thought of as KPs (see Bittner & Hale).
I argue that in nominalizations with genitive subjects there is no C projection. This immediately explains the absence of any verbal agreement between the nominalization and its subject: since C introduces phi-features into the derivation, there is no source of verbal phi-features in the absence of C. Consequently, T does not have phi-features, cannot act as a probe, enter into the Agree relation with the subject and value its case feature nominative. The subject with an unvalued case feature remains available for further interactions and enters into the Agree relation with D. This results in nominalization displaying the nominal agreement and in valuing subject’s case feature genitive. In this way, the existence/absence of CP in the functional make-up of nominalizations determines whether verbal agreement can or cannot be present.

Scrambling properties of the two nominalization directly follow from the proposed structures. In nominalizations with a CP layer (49) nominative subjects remain in the Spec, TP position. Thus, these nominalizations contain an escape hatch (Spec, CP – A’-position) through which direct objects can be scrambled into the matrix clause (3). Direct objects can also stop directly in the Spec, CP position of the nominalized clause (2). There is no such escape hatch in the functional make-up of nominalizations with genitive subjects: DP is a phase, and Spec, DP is an A-position to which subjects move in order to get their case valued. Hence, under the proposed analysis it is predicted that scrambling of direct objects to the left periphery of nominalizations with genitive subjects and into the matrix clause should be impossible: there is no position through which such movements would take place. Note that the possibility of genitive subjects’ scrambling out of such nominalizations is also predicted: being in the specifier of a phase (DP), these subjects can move out to the left periphery of the matrix clause (6) just like genitive possessors can be extracted outside noun phrases (41).

---

14 I will not address the issue of how person agreement works in Balkar nominalizations (see footnote 4). With the stipulation that it does not require the movement of nominative subjects to positions higher than Spec, TP, it does not affect my analysis.
5. Conclusion

In this paper I proposed an analysis of nominative/genitive alternation in Balkar nominalized clauses. I have argued that nominalizations with nominative subjects and nominalizations with genitive subjects project distinct syntactic structures: only the former have a CP layer in their functional make-up. I have shown that this single difference in the functional structure of the two nominalizations can derive various discrepancies between them: scrambling possibilities and nature of number agreement. Besides, under the CP-analysis the parallelism between nominalizations with nominative subjects and finite CPs as to their ability to host wh-words and to allow of long-distance binding of reflexives comes out with no effort at all. There have been proposed two types of subject licensing operative in different languages: C-licensing and D-licensing. In this paper I have argued that subjects of Balkar nominalized clauses employ both mechanisms: C licenses nominative subjects, while D licenses genitive ones.

References


Tatiana Bondarenko 
t.i.bond@yandex.ru
1. Introduction

In this paper, I analyze the distribution and form of auxiliary *be* in North Azeri (Turkic), based on which I go onto discuss a few related issues. Centrally, I demonstrate that auxiliary patterns in North Azeri provide evidence for a theory like that expressed in Bjorkman (2011), in which auxiliary *be* is inserted to realize features that are structurally stranded from a verbal element. For North Azeri, I show that when certain projections intervene between V⁰ and T⁰, auxiliary *be* is inserted to support T⁰. However, due to substantial allomorphy of copulas to the features of T⁰, the morpho-syntactic regularity of auxiliary insertion in North Azeri is not straightforwardly surface-apparent.

(1-3) below give some preliminary data. In all these examples we see aspect marking on the verb, and, I argue, some form of *be* supporting tense morphology:

(1) Past tense auxiliary

mān gat-adzāy [i]-di-m
1SG run-PROS [BE]-PST-1SG
'I was going to run.'

(2) Present tense auxiliary

sān jat-adzāy [∅]-s-an
2SG sleep-PROS-[BE]-PRES-2SG
'You (sg.) are going to sleep.'

(3) Nominalized clause auxiliary

[ o-nun je-jir [o]-y-ęp-u ] halva
[ 3SG-GEN eat-IMPV [BE]-NFUT-3SG ] halva
‘the halva that he/she is/was eating’

*Thanks to Samir Karimov for all North Azeri data, which was elicited in 2013-2014 at the University of Minnesota. All data is from North Azeri unless otherwise indicated. Thanks to the feedback of Claire Halpert, Hooi Ling Soh, and Tim Hunter on previous editions of this work, and more recently, David Pesetsky, Norvin Richards, Sabine Iatridou, Ömer Demirok, and Isa Bayırlı. I transcribe North Azeri in IPA with the following modifications: [ə] = low front vowel, [a] = low back vowel, [i] = mid front rounded vowel, [r] = back unrounded vowel, [r] = rhetic tap. The abbreviations used in North Azeri glosses are: ACC = accusative, AOR = aorist, DAT = dative, GEN = genitive, IMPV = imperfective, NFUT = non-future, PL = plural, PRES = present, PRF = perfect, PROS = prospective, PST = past, SG = singular.

© 2018 by Colin Davis
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 43–56.
GLSA Amherst.
We see three allomorphs of the copula in the above examples (i, ol, -∅) and these copular forms have further complications that render the underlying morpho-syntactic consistency of the language unclear on the surface. I argue, however, that when such factors are controlled for, the underlying principles at work are regular. Namely, whenever intervening heads like Asp(ect)⁰ interrupt V⁰ to T⁰ movement, T⁰ is supported by auxiliary be.

I go on to argue that the facts about copular allomorphy in North Azeri provide evidence for a theory in which allomorphic conditioning is structurally constrained. (Bobaljik 2012). That is, the North Azeri copula only suppletes when structurally local to a T⁰ bearing relevant features. Allomorphic conditioning cannot be triggered over unbounded distance.

Finally, I focus on one particular case of auxiliary be. In the first part of the paper, I argue that when the null present tense T⁰ requires auxiliary support, it takes an auxiliary be that is itself silent, as in (2) above. What does it mean for an auxiliary, intuitively a support element, to be phonologically null, and support an element that is itself null? I suggest that this configuration is evidence that auxiliary be is not reducible to a requirement of the PF interface. The auxiliary is arguably not motivated by syntax proper or LF either. Not being reducible to pure syntax or the interfaces, auxiliary insertion acts like an operation endemic to a separate morphological component of the grammar (Harley & Noyer 1991), providing independent evidence for such a component.

1.1 Background on North Azeri

First, some background. Being Turkic, North Azeri is head-final, has pro-drop, and has a fair degree of agglutinative morphology. The North Azeri verbal complex hosts aspect, modality, tense, and agreement morphology:

(4) män gaʃ]-ir-∅-di-m
    1SG run-IMPV-BE-PAST-1SG
    ‘I was running.’

I assume that the order of the units of verbal inflection reflects a hierarchy of corresponding functional projections. (Baker 1985) I claim the clausal structure in (5) for North Azeri. While I do not literally take aspect and modality to compete for the same syntactic position, treating these as occupying the same position is sufficient for the analysis at hand.

(5) [[ V⁰ ] Asp(ect)/Mod(al)⁰ ] T⁰ ]

Though I assume at least v/voiceP dominating VP, I abstract away from this in what follows, using V⁰ to refer to a complex head of at least V⁰+v⁰. While all clauses contain tense morphology, aspect/modality morphology is optional. For simplicity I assume that Asp/ModP is absent when no corresponding morphology is present. The table in (6) below shows the basic tense/aspect/modality morphology of North Azeri:¹

¹Distributional facts actually suggest a dedicated projection for the perfect, between Asp/Mod⁰ and T⁰. Also, I gloss over the fact that perfects are not aspects nor modals, but these details are not relevant to the
Auxiliaries in North Azeri and some related issues

(6) **North Azeri TAM**^2^  

<table>
<thead>
<tr>
<th>Aspect/Modality</th>
<th>Tense</th>
</tr>
</thead>
<tbody>
<tr>
<td>-(j)Ar</td>
<td>-Θ = Present</td>
</tr>
<tr>
<td>-mAII</td>
<td>-DI = Past</td>
</tr>
<tr>
<td>-(j)Ir</td>
<td>-DIG = Non-future</td>
</tr>
<tr>
<td>-(j)Ib</td>
<td>-DIG = Non-future</td>
</tr>
<tr>
<td>-(j)Ad³AG</td>
<td>-DIG = Non-future</td>
</tr>
</tbody>
</table>

Main clauses and non-nominalized embedded clauses use the present or past tense, while nominalized embedded clauses (NCs) use only the non-future tense -DIG. I hypothesize that -DIG represents a defective T^0^ (Chomsky 2001, Miyagawa 2012) which is featurally and thus semantically impoverished. Like those of Turkish, North Azeri NCs have genitive subjects and use agreement morphology from the nominal paradigm, otherwise used in possesive constructions where a possessum agrees with the genitive possessor. The details of NCs are not important here, though a few will appear throughout the paper.\(^3\)

With the background out of the way, in the next section I get into the details of the auxiliary data, which also entails a discussion of copulas in North Azeri generally.

2. Copulas, auxiliary and otherwise

In this section, I survey a number of configurations in North Azeri which I argue represent a very regular morpho-syntax, which morpho-phonological idiosyncrasies obscure.

First, I show that whenever an Asp/ModP sits between VP and TP, an auxiliary copula is inserted to host tense morphology. A straightforward auxiliary context is NCs, where when Asp/Mod^0^ is present, a copular form ol arrives to support tense (-duy), as in (7-8):

(7)  
\[
\begin{array}{ll}
\text{[ o-nun je-mif * (ol)-duy-u ] halva} \\
\text{[ 3SG-GEN eat-PRF BE-NFUT-3SG ] halva} \\
\end{array}
\]

‘the halva that he/she has/had eaten’

(8)  
\[
\begin{array}{ll}
\text{[ o-nun je-jad³aj * (ol)-duy-u ] halva} \\
\text{[ 3SG-GEN eat-PROS BE-NFUT-3SG ] halva} \\
\end{array}
\]

‘the halva that he/she is/was going to eat’

While non-nominalized clauses do not require an auxiliary copula, they optionally use the copular stem i as an auxiliary in the past tense when there is also Asp/Mod^0^, as in (9-10).

points of the paper. The -(j)Ib allomorph of the perfect is triggered by non-1st person subjects. (Authier 2010) The morpheme -mi/-(j)ib which I’ve labeled the perfect also has an inferential evidential reading, a function typical of the Turkish equivalent -mİ. (Göksel & Kerslake 2005) In North Azeri, the evidential reading is quite marked, the perfect reading having become the default, as Schöning (2006) and Öztopçu (2003) observe.

^2^Following the terminology of the Turkish equivalent, I refer to -(j)Ar as the ‘aorist’ (AOR) though this label does not really match the semantics involved.

^3^See Davis (2015) for more on North Azeri NCs.
The auxiliaries ol and i have the same distribution in their respective contexts. Both are ungrammatical if there is only tense, and no Asp/Mod⁰ morphology, as in (11-12):

(11) [ mäm-im je (*ol)-duy-um ] halva
     [ 1SG-GEN eat BE-NFUT-1SG ] halva
     ‘the halva that I eat/ate’

(12) män je (*i)-di-m
     1SG eat BE-PST-1SG
     ‘I ate.’

Why is auxiliary i optional while auxiliary ol is obligatory? Looking at standard past tense copular constructions, we see two copular allomorphs in free variation, i and -j. The -j variant deletes when following a consonant, which we can see when comparing copular constructions with vowel final and consonant final predicates, as in (13) and (14). In the former, there is no reason to delete the copula, which surfaces as i or -j. In the latter, the consonant-final predicate creates conditions that will result in -j deleting, but i which is not subject to those deletion conditions can persist on the surface.⁵

(13) män xästä i/-j/*-∅-di-m
     1SG sick BE-PST-1SG
     ‘I was sick.’

(14) män êçözül i/*-j/-∅-di-m
     1SG pretty BE-PST-1SG
     ‘I was pretty.’

With one exception, Asp/Mod⁰ morphemes in North Azeri end in a consonant. As an auxiliary supporting tense morphology occurs just to the right of Asp/Mod⁰ marking, that auxiliary will be adjacent to any final consonant of the Asp/Mod⁰ morpheme. Therefore in such contexts if there is an auxiliary -j, it will delete. The exception is the vowel-final modal -m ÄII, where as expected an auxiliary -j does not delete, as in (15):

(15) sän džet-mäli-[ ]-di-n
     2SG go-MOD-BE-PAST-2SG
     ‘You (sg.) needed to go.’

⁴This example in its grammatical form would in fact be pronounced je-diij-im due to vowel harmony.
⁵Kelepir (2001) makes a similar claim of the Turkish copula -y-, which I have drawn from in analyzing North Azeri.
In summary, the auxiliary $i$ in past tense clauses merely appears optional because it has a free variant -$j$ which, for phonological reasons, usually deletes in auxiliary contexts. So far, I’ve demonstrated the presence of an auxiliary in past tense non-nominalized clauses as well as NCs. In the next section, I argue for the presence of auxiliaries in present tense clauses as well, the other sort of non-nominalized clause.

### 2.1 The silent present tense auxiliary

The evidence for this silent auxiliary comes from stress placement. As a point of comparison, Turkish typically has word-final stress, but Kornfilt (1996) argues that when a word contains a copular morpheme, stress shifts to precede the copula. Similarly, stress in North Azeri is also typically word-final, as (16) shows with a simple past tense verb form with no Asp/Mod$^0$ morphology.\(^6\)

\[(16) \quad \text{jat-} \quad \text{di-n} \]
\[
\text{sleep-PST-2SG} \\
\text{‘You (sg.) slept.’}
\]

However, in single-word copular verbal complexes, as in (17-18), stress precedes the copula, shifting onto the predicate. In (17) we see that the copula is zero in the present tense, as is cross-linguistically common. (Kornfilt 1996, Payne 1997) In (18) we see an overt copula -$j$ which we’ve seen before in past tense contexts.

\[
\begin{align*}
(17) & \quad \text{sən} \quad \text{täla}\-\quad \text{bə}-\quad \text{-} \quad \text{-} \quad \text{sən} \\
& \quad \text{2SG student-}\text{BE-}\text{PRES-2SG} \\
& \quad \text{‘You (sg.) are a student.’} \\
(18) & \quad \text{o} \quad \text{xäs}\-\text{tä-j-di-}\text{-} \\
& \quad \text{3SG sick-}\text{BE-}\text{PST-3SG} \\
& \quad \text{‘He/she was sick.’}
\end{align*}
\]

A parallel fact is that in present tense verb forms with Asp/Mod$^0$ like (19-20), stress shifts onto the Asp/Mod$^0$ morphology, unlike the word-final stress in verbal complexes without such morphology like (16). I infer that the present tense zero copula which we saw in (17) appears as an auxiliary in such verb forms, supporting the silent present tense, and shifting stress onto Asp/Mod$^0$, as that morpheme directly precedes the copula:

\[
\begin{align*}
(19) & \quad \text{ja’t-r-} \quad \text{dəay-} \quad \text{-} \\
& \quad \text{sleep-}\text{IMPV-}\text{BE-}\text{PRES-1SG} \\
& \quad \text{‘I sleep/am sleeping.’} \\
(20) & \quad \text{sən} \quad \text{jat-a} \quad \text{dəay-} \quad \text{-} \quad \text{-} \quad \text{sən} \\
& \quad \text{2SG sleep-}\text{PROS-}\text{BE-}\text{PRES-2SG} \\
& \quad \text{‘You (sg.) are going to sleep.’}
\end{align*}
\]

Following this analysis, the sequence of morphemes in (19-20) is exactly the same as that of auxiliary constructions seen already, in past tense clauses and NCs. In all if we have a verb with Asp/Mod$^0$ marking, there is an auxiliary be carrying tense morphology. It appears that the underlying structure is precisely the same across all the constructions reviewed, then, but details of allomorphy and phonology obscure this underlying regularity. Similar auxiliary phenomena have been discussed for Turkish matrix clauses. (Kornfilt

\(^6\)Stress is represented with the IPA convention of the symbol ‘⟨⟩’ preceding a stressed syllable.
1996, Kelepir 2001) However, analogous phenomena in NCs have been analyzed as occurring for different reasons than auxiliaries in non-nominalized clauses. (Göksel 2001, 2003) I claim that in North Azeri, all the auxiliaries seen here are fundamentally the same, only superficially differing in morpho-phonology.

Further, we’ve seen a regularity in the environments that trigger certain copular forms. Both auxiliary copulas and copular main verbs are subject to the same rules of phonological exponence, in that they are tense-sensitive. To formalize this regularity, I use the framework of Distributed Morphology (Halle & Marantz 1993, Harley & Noyer 1991) in which syntactic terminals are assigned phonological information post-syntactically, based on rules of contextual Vocabulary Insertion (VI). The following set of VI rules, where the biconditional arrow relates an underlying phonological form to a syntactic context, captures the facts about present and past tense copular forms in North Azeri:

\[(21) /i/ \lor /\od/{\leftrightarrow} \begin{bmatrix} \_, +\text{PST} \end{bmatrix}\]

\[(22) /\od/ \leftrightarrow \begin{bmatrix} \_, +\text{PRES} \end{bmatrix}\]

We also saw that in NCs the auxiliary has the form ol. In what follows, I argue that ol is the elsewhere form of the copula that occurs when neither of the above rules is able to apply.

2.2 An account of the auxiliary

In this section I give an account of auxiliary copulas which will contextualize the discussion of allomorphic locality, and inform the analysis of the present tense auxiliary in the latter part of the paper. In analyzing similar facts about Turkish, Kelepir (2001) claims that when an intervening AspP blocks the typical V^0 to T^0 movement, a copula is inserted at T^0 to check an assumed [Verbal] feature, yielding configurations like (23):

[Diagram of syntactic structure with AspP and V^0, showing movement and copula]

Kelepir’s evidence for this interruption of movement in Turkish comes from clausal coordinations with what is termed suspended affixation. (Kornfilt 1996, Lewis 1975) Such coordinations have two verbs with Asp/Mod^0 morphology, and one instance of tense scoping over the verbal coordination. North Azeri has these too, as in (24-26):
Applying the analysis of Kelepir for Turkish, such constructions involve an Asp/ModP coordination, out of which no \( V^0 \) moves high as \( T^0 \), because such movement would result in a Coordinate Structure Constraint violation. (CSC, Ross 1967) Rather, no \( V^0 \) moves higher than its local Asp/Mod. Further head movement of that head-complex to \( T^0 \) would need to be Across-The-Board (ATB) in order to not violate the CSC, but such movement is not happening here. ATB movement involves two identical elements in each conjunct moving to a higher position and coalescing as a single element, and in (24-26) we clearly see two separate syntactically low instances of the coordinated verb.

In contrast, when there is no Asp/Mod, suspended affixation is impossible, as is expected if \( V^0 \) must move out of VP. (27) demonstrates. If there is no Asp/Mod, and the CSC prevents movement of \( V^0 \) to \( T^0 \), \( V^0 \) is stuck in VP if ATB movement is not available. I suggest that this is the cause of the ungrammaticality of (27). Notice in (27) that auxiliary insertion does not save the construction. This shows that ungrammaticality here is not reducible to \( V^0 \) failing to move to \( T^0 \) for \( T^0 \)'s own needs, but that \( V^0 \) itself must move.

I infer that as a general principle in North Azeri \( V^0 \) moves to \( T^0 \), but Asp/Mod blocks that movement when present. Thus examples like (24-26) do not violate the CSC, as there is no head movement out the coordination. If Asp/Mod blocks \( V^0 \) to \( T^0 \) movement, and we see auxiliaries at \( T^0 \) only when there is Asp/Mod, we can conclude that when \( V^0 \) does not make it to \( T^0 \), auxiliaries appear, as in the schema in (28):

![Diagram](image)

Bjorkman (2011) argues that auxiliary *be*, which is cross-linguistically common, arises post-syntactically to ensure that a functional head’s features are supported by a verbal el-
In other words, inflectional features require the presence of a V₀ element in order to be well-formed. The behavior of North Azeri appears to provide evidence for such an account. When V₀ and T⁰ are not local, tense requires a V₀, motivating auxiliary insertion.

### 2.3 Copular allomorphy and locality

I have shown at the beginning of section 2 that the copular allomorph in the past tense for both copular constructions and auxiliary constructions is /i/-/j/, though the latter variant usually deletes in auxiliary contexts. I have also argued in section 2.1 that the copula in both present tense constructions and copular constructions is null. We’ve also seen section 2 that in NCs, the auxiliary has the form ol.

A further fact is that copular constructions with Asp/Mod⁰ morphology always use the copular form ol, as in (29-30). The former is a present tense clause, while the latter is past tense, yet the copular main V₀ does not show allomorphy sensitive to that T⁰. Rather we see ol in both of these cases, where something intervenes between V₀ and T⁰.

(29) män xästä ol-muʃ-0-0-am
    1SG sick BE-PRF-BE-PRES-1SG
    ‘I have been/become sick.’

(30) män hänım ol-adjay-0-di-m
    1SG doctor BE/become-PROS-BE-PST-1SG
    ‘I was going to be/become a doctor.’

I argue that this ol is the elsewhere form of the copula, which occurs when a copula is not in a context sufficient to trigger its allomorphy. With this hypothesis in place, all the North Azeri facts show that the copula’s allomorphy is conditioned by the features of T⁰, but under certain conditions that allomorphy fails to apply.

When does copular allomorphy fail? When the copula is not local enough to T⁰, I argue. What is the locality condition? Bobaljik (2012) argues that an XP level between two syntactic elements blocks allomorphic conditioning between them, as in (31) where α and β are two syntactic objects in a potential allomorphy relationship:

(31) α . . . [X₀/\XP/ . . . β

The distribution of copular allomorphy in North Azeri provides evidence for a proposal of this nature. Based on what I argued above, we expect a copular main V₀ to move to T⁰ when there is no Asp/Mod⁰ in the structure to interfere with that movement, and therefore in such cases copular allomorphy sensitive to T⁰ should occur, and there is no XP level

---

7Bjorkman (2011) uses a framework where heads transmit inflectional features downward through a reverse Agree operation. Auxiliary be hosts features which fail to agree with and spell out on V₀.

8This topic is taken up in greater detail in Davis (2017), along with the puzzle of why in (29-30) there is both a be and become interpretation.
between \( V^0 \) and \( T^0 \) within the resulting head-adjunction structure. That allomorphy goes through in such scenarios is confirmed by (13), (14), (17), and (18) above.

I have argued that the presence of Asp/Mod\(^0\) blocks \( V^0 \) to \( T^0 \) movement, and when this interruption occurs, we predict based on the schema in (31) that a copular main \( V^0 \) cannot take allomorphy sensitive to \( T^0 \). This is because in such a structure Asp/ModP intervenes between \( V^0 \) and \( T^0 \), as in (32), where \( V^0 \) does not reach \( T^0 \):

\[
(32) \quad [ [ \ldots t_i ]_{VP} \ V^0 ]_{BE} ]_{Asp/Mod^0} \ ]_{Asp/ModP} \ ]_{T^0} \ ]_{TP}
\]

This prediction is borne out in (29-30) above, where we have Asp/ModP intervening between the copular main \( V^0 \) and \( T^0 \), and \( V^0 \) takes the elsewhere form \( ol \).

Finally, why does the auxiliary copula undergo allomorphy in present tense clauses like (2) or past tense clauses like (1), and yet the auxiliary has the form \( ol \) in NCs like (3)? I argue the NC \( T^0 -DIG \) is an instance of \( T^0 \) which is featurally impoverished, resulting in its underspecified interpretation. The lack of specific tense features like [+PAST] or [+PRESENT] also leaves \(-DIG\) unable to condition copular allomorphy. Therefore any copula in the local context of this \( T^0 \) cannot take anything but elsewhere allomorphy. While auxiliaries, as \( V^0 \) elements inserted directly at \( T^0 \), are inherently local enough to \( T^0 \) for allomorphy to occur, if the relevant features are absent, allomorphy fails anyway.

3. Silent auxiliaries and their motivation

In this section, I discuss the nature of the present tense, and go on to consider the present tense silent auxiliary. I’ve argued that in North Azeri there is evidence for a phonologically null auxiliary copula supporting the also null present tense. The primary evidence for this came from a parallel with stress irregularities in typical copular constructions. For example, in (17) and (18) we saw present and past tense predicative copular constructions. In the latter, we see an overt copula \( j \), and stress shifts to precede this copula. In the former, the copula is null due to the allomorphy facts about North Azeri, yet word stress shifts to a non-final position that is precisely preceding where we expect the copula to be, despite the fact that it is not phonologically overt.

There is also irregular word-medial stress in present tense verb forms with Asp/Mod\(^0\) marking like (19-20). I have argued that the irregular stress in these present tense verb forms with Asp/Mod\(^0\) morphology stems from the presence of a copula in the verbal complex supporting present tense morphology. Present tense morphology is null in this language, as is not cross-linguistically unusual, and furthermore the auxiliary copula supporting that tense morpheme is also null, as this is the copula’s realization when local to a present tense \( T^0 \). I have argued that this analysis brings all the North Azeri data together under a unified morpho-syntactic analysis. As a general principle, the presence of Asp/ModP prevents \( V^0 \) to \( T^0 \) movement, resulting in auxiliary be insertion at \( T^0 \). The irregular stress in present tense examples like (19-20) falls out from this, as the presence of auxiliary copulas within the morphological word results in stress shifts that we independently know to occur in the language, as in copular constructions like (17-18).
The presence of the auxiliary supporting the present tense $T^0$ entails that there is really a present tense $T^0$ there in the syntax. Alternatively, we might suppose that there is in fact no present tense $T^0$, thereby accounting for its nullness in that it could not be pronounced if it is not syntactically present. Under this view, present tense is a default interpretation provided pragmatically when there is no $T^0$ node. Such an analysis yields a relatively irregular syntax, where root clauses sometimes contain TP and sometimes do not. The analysis I have argued for maintains that TP is always present. If we do not have a present tense $T^0$, there is no reason to expect an auxiliary copula to ever appear supporting this $T^0$, and without an auxiliary copula we lose the explanation for the irregular stress in (19-20).

Additionally, look back at the suspended affixation constructions in (24-26). Example (26) has, at least in the interpretation, present tense scoping over two aspect marked verbs. The two verbal conjuncts in (26) which I have argued are an AspP coordination which is the complement of $T^0$, are not units that could ever stand alone as root clauses in this context where we have a 1st singular subject. While 3rd singular agreement morphology is null in North Azeri, 1st person agreement is not. The verbal conjuncts in (26) are therefore not units that could be well-formed as stand-alone elements in (26), and as such they are presumably coordinated under more structure, containing a head or heads that bear the 1st singular agreement morphology that we see in (26), at the right edge of the construction. If there is no present tense $T^0$ in the syntax, we might ask what higher head the coordination is the complement of, and what head bears that agreement morphology. Alternatively, if we simply suppose that there really is a present tense $T^0$, there is nothing curious about (26).

3.1 Null auxiliaries

Having argued that there is a present tense $T^0$, now I go on to consider what is entailed by the silent auxiliary that sometimes supports this null $T^0$. Bjorkman (2011) argues that auxiliary be is inserted post-syntactically in what are fundamentally well-formed syntactic structures. Namely, while the syntactic structures may be satisfactory in of themselves, there is a morphological well-formedness requirement that inflectional features have a local $V^0$ element. When no $V^0$ is sufficiently local, auxiliary be is inserted at the stranded feature. Bjorkman argues for this post-syntactic view of auxiliaries, rather than a view where auxiliary verbs are selected in syntax, because of auxiliary patterns that have a character of overflow, rather than selection by any particular functional element.

Bjorkman demonstrates the overflow pattern in languages like Latin, Arabic, and Ki-

nande. Put schematically, given two functional categories F and G, the presence of just F or G does not result in an auxiliary in the overflow pattern. Rather, it is only the combination of F and G that results in an auxiliary. The Latin examples in (33-35) demonstrate this scenario. In (33) the verb has perfect marking, and in (34) passive marking, with no auxiliary in either example. In (35) however, which combines the perfect and the passive, an auxiliary be appears:

$$(33) \quad \text{Puellae crustulum consumpserunt.}$$

\begin{align*}
girl-\text{PL.NOM} & \quad \text{small.pastry-ACC} \\
& \quad \text{eat-PL.PFV}
\end{align*}

‘The girls ate the little pastry.’
Auxiliaries in North Azeri and some related issues

(34) Crustulum consumitur.
small.pastry-NOM eat-PRES.PASS
‘The little pastry is (being) eaten.’

(35) Crustulum consumptum est.
small.pastry-NOM eat-PASS.PTCP be.3SG.PRES
‘The little pastry was/has been eaten.’ (Bjorkman 2011, pp. 27)

The intuition here is that no specific element can be singled out that selects for the auxiliary. Rather, the auxiliary is required when the presence of too many functional elements results in some, typically structurally higher, elements being stranded from V0 such that they require an auxiliary. That is, there is no single functional head that selects an AuxP, rather auxiliaries arise based on the configurations produced by syntax, without reference to what the specific elements of that configuration are.

If this view is correct, in that auxiliary be is a post-syntactic repair element not selected for by anything in the syntax proper, the conclusion is that auxiliaries are not relevant to the syntax itself. We might further ask whether there is a way to conceive of auxiliaries in terms of requirements of the interfaces. (Chomsky 2001, 2008, 2013 and many more.) Namely, we could appeal to the sensory-motor (SM) interface which is concerned with externalization, and the conceptual-intentional (CI) interface which is concerned with meaning. These interfaces are respectively fed by the syntactic representations phonological form (PF) and logical form (LF). Auxiliary be does not appear to introduce any additional semantics, but simply supports elements that themselves are semantically interpreted. This being the case, auxiliary be is irrelevant to any requirement of LF or the CI interface.

What about the SM interface and PF? Chomsky argues the SM interface is concerned with the externalization of language, that is to say, the encoding of the abstract hierarchical syntactic representation into something transmittable by the mouth, in the case of spoken language. Intuitively, then, processes occurring in response to PF requirements ought to relate to the optimization of the syntactic representation for externalization. Examples of this would be the linearization of hierarchical structure, and the insertion of phonological information so that the structure can be pronounced.9 The insertion of auxiliary be could potentially be reduced to some PF requirement of a given language that inflectional morphology be realized or pronounced local to a verbal element.

Consider the silent auxiliary scenario argued for in this paper, however. In this configuration, the element being supported is the phonologically null present tense T0, and due to rules of contextual allomorphy, the auxiliary be supporting this T0 is itself null. If auxiliary be and what it supports can both be phonologically inert, such a configuration demonstrates that auxiliary be cannot be attributed to any requirement of PF, if PF is strictly concerned with feeding the SM interface a phonologically interpretable, utterable, object.

This is so for two reasons. First, if PF requirements care about pronounceability and phonological well-formedness for the sake of externalization, how would such requirements be violated by an un-supported functional morpheme that is not pronounced? Such

9Assuming a Distributed Morphology style Late Insertion framework.
a morpheme ought to be invisible to requirements that reference pronounced material. Second, if auxiliary be were motivated by such a PF requirement, how would the presence of a phonologically empty auxiliary satisfy that requirement? In short, then, if auxiliary be is PF-motivated, why is the auxiliary inserted to support elements that are phonologically absent, and how can the auxiliary satisfy any PF requirement if it is itself also silent? If auxiliaries are post-syntactically inserted following Bjorkman, contribute nothing to semantic well-formedness, and do not necessarily contribute anything to phonological well-formedness either, then auxiliary be is evidently not motivated by any straightforward requirement of syntax, LF, or PF. The auxiliary and what it supports can of course be pronounced, but the fact that they need not be indicates that the auxiliary requirement is not fundamentally related to a condition on PF. If this is accurate, what is the nature of the requirement to which we should attribute the motivation for auxiliary be?

I see two directions to go from here. One would be to hypothesize that the PF representation can have requirements that do not reduce to optimization for the purpose phonological well-formedness, or externalization. That is, a language could require its PF representations to have a V₀ element local to inflectional features, such that when there is no local V₀, an auxiliary is inserted. In other words, PF might require as its input a particular sort of syntactic structure, in which inflectional features are local to verbs.¹⁰

Consider however that since this statement of the motivation for auxiliaries has nothing to do with any need of the SM interface, it would be equivalently valid to posit that this auxiliary requirement is in fact motivated by a condition that LF imposes on a syntactic structure. This is because if the auxiliary requirement is fundamentally irrelevant to SM and CI, and therefore also to PF and LF, there is no obvious basis from which to claim with any strength that the requirement should be imposed by one interface rather than the other. The auxiliary is irrelevant both to externalization and interpretation, so neither interface is intuitively a more likely candidate for the locus of the motivation for auxiliary insertion. This line of reasoning where PF or LF can have requirements that do not reduce to well-formedness for the interface they relate to is, therefore, not very informative, and weakens the theory of what the interfaces are and do.

A second path to take would be to state that the auxiliary requirement is truly not motivated by syntax proper, nor LF, nor PF. Rather, the auxiliary could be motivated by some language-specific post-syntactic morphological process, occurring in a component such as what Harley & Noyer (1991) term Morphological Structure. Here apply post-syntactic operations that delete features (Impoverishment), combine the features of multiple terminals (Fusion), split individual terminals apart (Fission) and other operations like Lowering which modify the output of syntax in constrained ways. Bjorkman (2011) in fact formalizes auxiliary insertion as an instance of Fission, where a head that is not sister to a V₀, bearing an inflectional feature, is split into a V₀ node and a terminal bearing the inflectional feature:

\[ [\text{x₀ UINFL:} \alpha] \rightarrow \text{V₀} + [\text{Infl UINFL:} \alpha] \]

where there is no V₀ already sister to x₀

(Bjorkman 2011, pp. 82)

¹⁰Thanks to Christopher Hammerly for this suggestion.
While nothing that I am claiming hinges directly on positing that auxiliary insertion is caused by a Fission operation, I suggest that auxiliary insertion indeed has the character of such a post-syntactic operation that is endemic to a separate morphological component. This is because the auxiliary requirement is not clearly reducible to a requirement of any other part of the grammar.

Following Bjorkman’s arguments about overflow auxiliary patterns, auxiliary be should not be understood as arising in the syntax, but rather post-syntactically. If we do not weaken the theory of the interfaces so as to state that PF or LF can have requirements that do not reduce to any well-formedness condition relating to externalization or interpretation respectively, then based on the facts about North Azeri, we should not claim that the auxiliary is motivated by the PF (or, of course, LF) interface. This being said, the auxiliary must be motivated by some other part of the grammar.

In this sense, then, the facts about auxiliaries in North Azeri are evidence that we really do need a post-syntactic component of the grammar which has its own (constrained) set of operations, as has been proposed in the Distributed Morphology literature already. It would be ideal if we could minimize the addition of special representational levels to our theory of grammar, however I currently have developed no other way to incorporate the auxiliary facts argued for in this paper. Future work should examine to what extent the phenomena invoked as post-syntactic morphological operations, like Fusion, Fission, and based on what I’ve said here, auxiliary insertion, can be abolished or reduced to something more principled or not.

4. Conclusion

In this paper I addressed several points, building off an argument about auxiliary verb phenomena in North Azeri. First, I argued that this language has a morpho-syntactically regular distribution of auxiliary be, which is obscured by morpho-phonological factors. Based on that discussion, I went on to argue that the distribution of allomorphy in North Azeri is evidence for a theory where allomorphic conditioning between two elements is structurally constrained. Finally I focused on the consequences of a particular sub-case among the auxiliaries, that of the present tense. After arguing that it is sensible to hypothesize that despite being null a present tense TP is truly present in the syntax, I considered the consequences of a null auxiliary element supporting another element which is itself phonologically null. I argued that as the motivation for auxiliaries is not reducible a purely syntactic requirement nor an interface requirement, and therefore we really may need a post-syntactic level of representation where such morphological operations apply.

References


1. Introduction

Turkey, especially Eastern Anatolia, displays a non-trivial linguistic diversity with languages belonging to numerous distinct genetic families: beside Turkish, Iranian languages (Zazaki and Kurmanji Kurdish), European languages (Romeyka and Armenian), Semitic languages (Arabic and Neo-Aramaic dialects in South-Eastern Turkey), and Caucasian languages (especially South Caucasian with Laz) are spoken in the area. Though the proportion of speakers of minority languages has generally significantly decreased since the beginning of the 20th century, these languages have been in a long-standing contact in the past and possibly have influenced one another. The possibility of a linguistic area in East Anatolia where unrelated languages would converge regarding their linguistic features has been mentioned in Matras (2010, p. 75–76), and then refuted in a recent paper by Haig (to appear). Building on various phonological and morphosyntactic features, Haig shows that there are rather two “areal epicenters”: the “southeastern Kurdish/NENA/Arabic ‘Mesopotamian’ region’”, and the “northern Turkic/Kartvelian/Armenian ‘Caspian/Caucasian’ region” (ibid).

This paper investigates divergences and convergences regarding relativization strategies in languages spoken in East Anatolia, an issue that has not been addressed in Haig’s paper. Our definition of relative clauses (henceforth RC) combines syntactic and semantic criteria: a RC is a subordinate clause that modifies a noun, and the modified noun (head noun) has a syntactic function in both the matrix clause and the relative one. The constructions singled out by this definition may vary according to numerous parameters, leading to different relativization strategies. RCs thus present an interesting situation because the diffusion of various features may be investigated. In this paper, I confine myself mainly to three variation parameters, i.e. the position of the RC with respect to the head noun, the finiteness of the verbal form in the RC, and the presence or not of a relativizer and accordingly its nature. Some more specific features such as the use of resumptive pronouns or the possibility of free RCs are considered as well, when information is available. When doing so, two clearly distinct areas appear, which interestingly overlap with the two areas identified in Haig’s paper: an area in the south...
where there is no real linguistic convergence between languages, and an area in the north where languages converge more or less.

The first part briefly presents the participial strategy of Turkish, the dominant language in Turkey nowadays, and its specific features. The second part describes the relativization strategies in minority languages spoken in the southern part of Eastern Anatolia and shows the absence of real convergence. The third part deals with minority languages spoken in the northern part of Eastern Anatolia: they all diverge from their genetic families and converge more or less regarding various features. Finally, the fourth part attempts to provide some explanations for these differences of behavior observed between languages in contact.

2. Turkish: Prenominal participial RCs

Turkish is the official language of Turkey and the majority of the population speaks Turkish. Turkish resorts to prenominal participial RCs as its main relativization strategy (ex. (1)), which is the common strategy for Turkic languages (see ex. (2) in Old Turkic, and ex. (3) in Chuvash, genetically the most distant of Turkic languages and spoken in Russia)\(^1\):

(1) **Standard Turkish**

Erik-ler al-diğ-im adam pazar-in baş-in-da
plum-PL-ACC take-PTC.POSS.1S man market-GEN head-POSS.3S-LOC
dur-uyor.
stand-PROG
‘The man I bought the plums from stands at the beginning of the market.’

(2) **Old Turkic** (Erdal 2004, p. 441)

[bo kişi-niŋ äöz-in yu-miš] suv
DEM person-GEN body-POSS.3SG.ACC wash-PTC water
‘the water (with) which this person washed his body’ (DhâSû 31)

(3) **Chuvash** (Ersoy 2010, p. 452)

[epir şit-ni şir]
PRO.1PL reach-PTC place
‘the place we reach’

This strategy can relativize all kind of syntactic functions, and generally does not resort to resumptive pronouns\(^2\). Note that the subject of the RC in Turkish is marked with the

---

\(^1\) For all examples, the RC is between square brackets, the head noun is underlined, and the relativizer if any is in bold.

\(^2\) The reflexive pronoun *kendi(si/ler)* may be used as a resumptive pronoun when relativizing syntactic functions very low on the hierarchy, but it is not very common (see (Aslı Gökşel and Kerslake 2005, p. 384) for some examples).
Relative clause strategies in languages of East Anatolia

genitive case, which is a common feature to several other Turkic languages (see ex. (2) in Old Turkic)³.

Unlike other Turkic languages however, the participle -GAn is mainly subject-oriented (or oriented toward a genitive possessor extracted from the subject position) in Turkish (and to a lesser extent in Azeri)⁴. Finally, free relative clauses (that is, without any head noun or a substitute) are possible:

(4)  
Standard Turkish


‘Ali gets angry with people speaking loudly on the phone.’

The participle thus takes the nominal marks that would normally bear the head noun, plural and dative in the example above.

3. **The southern part of Eastern Anatolia**

Besides Turkish, Iranian languages (Kurmanji and Zazaki) and Semitic languages (Arabic and Neo-Aramaic dialects) are spoken in South Eastern Anatolia. Though it is difficult to give a precise number of speakers for each of these languages, Iranian languages are by far the most widespread minority languages in Turkey, especially with Kurmanji Kurdish which displays several million of speakers (the estimation varies between 8 and 15 million (Öpengin and Haig, to appear)). Paul estimates the number of Zaza speakers in Southeastern Anatolia between 1.5 and 2 million (Paul 2009, p. 545).

Semitic languages are spoken in the South near the border with Irak and Syria, by much less speakers. 365 340 speakers were reported for Arabic in Turkey in the 1965 census (P. A. Andrews 1989, p. 148). The number of Neo-Aramaic speakers was perhaps up to 50 000 until fifty years ago according to the references given in P. A. Andrews (1989, p. 161); but most of them have emigrated the West since.

Iranian and Semitic languages both resort to a similar strategy, which diverges totally from the Turkish one, that is, finite postnominal RCs introduced by a complementizer or an invariable relativizer⁵.

---

³ Unlike other Turkic languages however, the possessive mark which refers to the subject of the RC is realized on the participle in Turkish, while it is usually realized on the head noun in other Turkic languages.

⁴ It can also occasionally relativize other functions in case the subject of the relative clause has a low degree of individuation and has minimal control over the event described by the verb; cf. Haig for more details (1998, p. 174–85).

⁵ Iranian and Neo-Aramaic languages resort to a complementizer to introduce RCs (that is, an element that can introduce other kinds of subordinate clauses as well), while Arabic dialects resort to a simple relativizer (specific to relative clauses, and which is usually very similar or formally identical to the definite article).
When relativizing syntactic functions low on the hierarchy, both Iranian and Semitic resort to resumptive pronouns (e.g. ex. (5) where Lê is a contraction of the preposition li ‘in’ and the pronoun 3SG.F.OBL wê). Iranian and Semitic languages diverge only on a few minor points, such as the presence of a linker on the head noun for Iranian languages, or the circumstances for the omission of the relativizer/complementizer.

However, the resemblance between Iranian and Semitic cannot be accounted for by any convergence phenomenon, since exactly the same features are found in other Iranian and Semitic languages spoken outside Eastern Anatolia, as shown by the examples below. Persian is an Iranian language spoken outside Eastern Anatolia, as shown by the examples below. Persian is an Iranian language spoken outside Eastern Anatolia, as shown by the examples below.

Persian
un(ân) doxtar-i [ke (man) mi-xâh-am] in nist that girl-LK COMP I IPFV-want-1SG this is.not ‘This is not the girl whom I want’

Hebrew is a sister language of Aramaic spoken mainly in Israel (Hebrew and Aramaic both belong to the Northwest branch of the Semitic family):

Hebrew (Vaillette 2001, p. 305)
ha-veled, [še ráüiti (fotó)] the-boy, COMP saw.1SG him, ‘The boy that I saw.’

---

6 The complementizer may be omitted when the head noun is indefinite and/or when the RC is non-restrictive in Neo-Aramaic and Arabic dialects, while in Kurmanji Kurdish it can be omitted when relativizing the syntactic function of object.
And finally, Levantine Arabic, the Arabic dialect spoken in Lebanon, resorts to finite postnominal RCs introduced by a relativizer similar to the definite article, as do Arabic dialects spoken in South of Eastern Anatolia:

(11) Levantine Arabic (McLoughlin 2003, p. 63)

\[\text{PRO.3PL.M DEP-men REL} \text{ I.went to Beirut with car-POSS.3PL.M} \]

“They are the men in whose car I went to Beirut.’

All these languages can resort to resumptive pronouns as well when relativizing syntactic functions low on the accessibility hierarchy (see e.g. ḏoto ‘him’ in ex. (10)).

Thus, the shared features of Iranian and Semitic languages spoken in Southeastern Anatolia regarding relativization strategies cannot be considered as an instance of convergence, since they seem to be inherited. Moreover, the finite postnominal strategy is worldwide typologically very common (Creissels 2006, p. 223, 240 vol. 2); the similarity between Iranian and Semitic is thus most probably the result of likelihood. Besides, the prenominal participial strategy of Turkish diverges totally (prenominal position of the RC, non-finite verbal form, no relativizer, no resumptive pronouns). Therefore, overall no convergence or linguistic area is identifiable in Southeastern Anatolia with respect to relativization strategies.

4. The north part of Eastern Anatolia

The North part of Eastern Anatolia on the other hand shows a quite different picture. Various minority languages are spoken there beside Turkish: particularly Laz (a South Caucasian language), Homshetsi (a dialect of Eastern Armenian), and Romeyka (a Greek language). Interestingly these languages all diverge more or less from their respective families regarding relativization strategies. Besides, they all converge regarding at least one feature, the prenominal position of the RC.

4.1 Romeyka: Prenominal finite RCs

Romeyka designates the variety of Pontik Greek spoken by Muslim Greeks who remained in the province of Trabzon along the Black Sea after the population exchange with Greece in 1923. 4 535 speakers were reported in the 1965 census of Turkey (P. A. Andrews 1989, p. 145).

Romeyka resorts to finite prenominal RCs, which is a typologically uncommon combination: prenominal RCs are most often non-finite worldwide (Keenan 1985, p. 160, A. D. Andrews 2007, p. 208, inter alia). The relative clause is marked with a relativizer, which precedes the verb:

\[\text{The only sign of an eventual convergence phenomenon is the placement of the complementizer in Neo-Aramaic languages, which tends nowadays to attach enclitically to the head noun instead of proclitically to the first constituent of the RC, thus possibly patterning the placement of the ezafe (linker) in Kurmanji Kurdish (Cohen 2015). Rather than a direct influence of Kurmanji Kurdish, Gutman (to appear) suggests an areal preference for head-marking.}\]
Other Greek languages spoken outside Anatolia commonly resort to finite postnominal RCs, introduced either by a complementizer or a relative pronoun:

(13) *Modern Greek* (Holton, Mackridge, and Philippaki-Warburton 2012, p. 532)

O kathiyitís [pou mas ékane istoría] itan polí kalós
‘The teacher who taught us history was very good.’

(14) *Modern Greek* (Holton, Mackridge, and Philippaki-Warburton 2012, p. 533)

I sizítisi [tín opía kaname] prépi
‘The conversation which we had must remain between us.’

Thus Romeyka diverges from its genetic family, particularly regarding the position of the RC. Moreover, the construction it resorts to is typologically uncommon. Given the fact that surrounding languages (namely Turkish, Laz and Homshetsi) all resort to prenominal RCs (see section 2. above and sections 4.2 and 4.3 below), it is conceivable that the prenominal position is the result of an areal influence. Note that interestingly, speakers of Pontik Greek who went back to Greece after the population exchange now resort to postnominal RCs (Drettas 1997, p. 347–57). A similar situation is reported for Cappadocian and Pharasiot Greek (two other dialects of Asia Minor Greek which were spoken more in the West in the center of Turkey), which used to resort to prenominal RCs and whose speakers nowadays settled in Greece resort to both, prenominal and postnominal RCs (Bağrıaçık 2015).

### 4.2 Homshetsi: Prenominal participial RCs

Hemshinli are Armenians settled in Artvin and Rize provinces (along and near the Black Sea). Nowadays only Hemshinli of Artvin keep speaking Homshetsi. The number of speakers is estimated at 26 000 (Simonian 2007, p. xxi). Homshetsi is considered as a dialect of Western Armenian, tough there is no mutually intelligibility between both (Vaux 2007, p. 257). Homshetsi is probably the most convergent with Turkish regarding relativization strategies: it resorts to prenominal participial relative clauses.

---

8 The postnominal relative pronoun strategy (which was the common one in Ancient Greek) is more specific to formal language and/or when relativizing syntactic functions low on the accessibility hierarchy for Modern Greek (Holton, Mackridge, and Philippaki-Warburton 2012, p. 532).

9 A similar situation is reported for Cappadocian and Pharasiot Greek (two other dialects of Asia Minor Greek which were spoken more in the West in the center of Turkey), which used to resort to prenominal RCs and whose speakers nowadays settled in Greece resort to both, prenominal and postnominal RCs (Bağrıaçık 2015).
Relative clause strategies in languages of East Anatolia

(15) (Dumézil 1964, p. 19)  
[šād  paa  unn-oɣ]  marte  
many money have-PTC man  
‘the man who has a lot of money’

(16) (Dumézil 1964, p. 19)  
[im  des-aj]  marte-s  
PRO1SG.GEN see-PTC man-POSS.1SG  
‘the man I saw/see’

(17) (Dumézil 1964, p. 19)  
[axčkone des-aj]  marte-s  
girl.DAT see-PTC man-POSS.1SG  
‘the man whose daughter I saw’

(18) (Dumézil 1964, p. 19)  
[c’e  xabr-aj]  marte-t  
PRO2PL.GEN talk-PTC man-POSS.2PL  
‘the man whom you are talking about’

By contrast, Eastern Armenian (spoken in Armenia) resorts to finite postnominal RCs introduced by relative pronouns as its main relativization strategy, which was also the case for Classical Armenian:

(19) Eastern Armenian (Dum-Tragut 2009, p. 479)  
larabalc’i-ner  ėl  k-an  [or-one’]  hamar  
Karabakhian-PL.NOM also exist-PTC.PRS which-PL.DAT POST  
Samvel-ė  heros  ė]  
Samvel.NOM-the hero.NOM he is  
‘There are also Karabakhians for whom Samvel is a hero.’

Interestingly, no mention of such a postnominal relative pronoun strategy is made in Dumézil for Homshetsi. Eastern Armenian also resorts to participial RCs, but as a secondary strategy which is restricted to the relativization of the subject and the object (Hewitt 1978, p. 129), while it can relativize various syntactic functions in Homshetsi (as seen in the examples (15) to (18)), exactly as it is the case for Turkish (see section 2). Another interesting fact is the genitive marking of the subject of the relative clause, similar to Turkish again (see ex. (16) and (18)).

---

10 This feature is also present in Eastern Armenian when the subject of the RC is a personal pronoun (Dum-Tragut 2009, p. 508), so Homshetsi does not diverge from Eastern Armenian with this respect. However it is worth noticing that Eastern Armenian itself has Turkic neighboring languages, Turkish on the West and Azeri on the East. The genitive marking of subjects of RCs is actually a feature that extends beyond Turkish borders and is found in various other non-related languages of the area (Gandon, in preparation).
4.3 Laz

Laz is a South Caucasian language spoken in the very North-East of Turkey along the Black Sea and near the border with Georgia. In the census of 1965, there were 26,007 persons declaring speaking Laz as a mother tongue and 59,101 as a second language in Turkey (P. A. Andrews 1989, p. 176). Laz may thus be considered as the most important minority language in Northeastern Anatolia nowadays. Laz mainly resorts to prenominal finite RCs, and to participial RCs as a secondary strategy. For both strategies, Laz diverges from the other South Caucasian languages with respect to various features. Some of these features are shared with other languages of the area (Turkish, Romeyka).

4.3.1 Prenominal finite RCs

The main relativization strategy of Laz is very similar to the one of Romeyka, that is, a prenominal finite RC (see ex. (20)), which is again typologically uncommon. Interestingly, Laz has been in a long standing contact with Pontik Greek (Drettas 2006).

(20) Laz of Pazar (Öztürk and Pöchtrager et al. 2011, p. 134)
[eni opşa na m-a-şk'urin-e-n] şuroni layç'i o-n
the most COMP O1-APPL-fear- TS-PRS.3SG animal.NOM dog COP-PRS.3SG
‘The animal that I am the most afraid of is the dog.’

Unlike Romeyka, Laz resorts to a complementizer instead of a simple relativizer. The position uses to be very similar, that is, the preverbal one. Note however that for the dialect of Arhavi the complementizer may also attach enclitically to one of the constituents preceding the verb if any (see Lacroix 2009, p. 750–54 for more details). This strategy may relativize a wide range of syntactic functions and does not make use of resumptive pronouns (gap strategy) (Lacroix 2009, p. 754–55). Unfortunately, I do not have information for Romeyka about these more specific features.

Among their main relativization strategies, South Caucasian languages commonly resort to two distinct strategies: postnominal finite RCs introduced by relative pronouns (almost absent in Laz (Holisky 1991, p. 419, p. 457, Lacroix 2009, p. 768–69)), and pre/(post)nominal RCs with a complementizer. The complementizer strategy is available in Mingrelian and in Georgian11 (it is not reported for Svan, Tuite 2004):

(21) Georgian (Nash 2002)
[nino rom imas-tan cxovrobs] me im kal-s vicnob
Nino COMP DEM.DAT-with he.lives I DEM woman-DAT I.know
‘I know the woman that Nino lives with.’

Though the appellation is similar (finite RC with a complementizer), the strategy of Laz actually differs from the ones found in Georgian and Mingrelian with respect to several

11 For Georgian, the complementizer strategy is reported to be more specific to the spoken language, while the relative pronoun strategy is more common to the formal/written language (Aronson 1972, p. 139; Hewitt 1987, p. 187; Hewitt 1995, p. 606; Harris 1992, p. 394).
features. Due to lack of space, I will confine myself here to a comparison with Georgian only, which is the best documented South Caucasian language.

(i) In Laz the RC is always prenominal while for Georgian the postnominal position of the RC is also possible:

(22) **Georgian** *(Hewitt 1987, p. 194)*

\[\text{vxedav im saxl-s, [zurab-i rom cxovrobs]}\]
\[\text{I see it.PRS that house-DAT Zurab-NOM COMP live.3SG.PRS}\]
‘I see the house where Zurab lives.’

Given the fact that languages of the area all resort to prenominal RCs, and that the combination of a finite verbal form with the prenominal position in typologically uncommon for RCs, an areal influence is worth considering here.

(ii) Laz allow free relative clauses with this strategy (that is, with no head noun and no substitute), while this does not seem possible with the complementizer strategy of Georgian (Georgian does display free RCs, but with the relative pronoun strategy):

(23) **Laz of Arhavi** *(Lacroix 2009, p. 759)*

\[\text{[si-na çk’om-i]-pe-κ va g-o-dzg-es-na…}\]
\[\text{2SG-COMP manger-AOR-PL-ERG NEG srI2-VAL1-rassasier-AOR.srI3PL-if}\]
‘Si ceux que tu as mangés ne t’ont pas rassasié…’ *(K.’72.137)*

Surprisingly, a finite verbal form thus takes nominal marks (plural and ergative in the example (23) given here). The fact that the verb takes the nominal marks of the head noun in case of free relatives is exactly the pattern noticed in Turkish: see ex. (4) of section 2. Thus once again an areal influence may be considered here.

(iii) Georgian resorts to resumptive pronouns when relativizing syntactic functions low on the hierarchy (see the demonstrative *imas* in the example (21)); which is not the case for Laz, which resorts to the gap strategy.

Interestingly again, this is in line with the Turkish participial strategy. Note however this time that the use of resumptive pronouns with prenominal RCs is anyway typologically not common *(Keenan 1985, p. 148–49, Dik 1997, p. 2:46, Creissels 2006, p. 239, p. 242 vol. 2, *inter alia*). Consequently the similarity between Laz and Turkish regarding this feature may just be the result of likelihood.

(iv) When the RC is prenominal, the head-noun must be introduced by a demonstrative in Georgian *(Nash 2002)*, which is not the case for Laz *(see ex. (20) (nor for Turkish)).
Finally, the form and the placement of the complementizer are different\(^\text{12}\). Note that some authors suggest a possible influence of the modal particle *na* of Pontik Greek in the origin of the complementizer *na* in Laz, see Drettas (2006) and Lacroix (2012) for two different scenarios.

### 4.3.2 Prenominal participial RCs

Beside the complementizer finite strategy, Laz also resorts to participial prenominal RCs as a secondary strategy. South Caucasian languages as well resort to participial prenominal RCs as a secondary strategy. However Laz again diverges from other South Caucasian languages with respect to at least two points:

First, South Caucasian languages display oriented participles, while this does not seem to be the case for at least Laz of Pazar and Laz of Arhavi. Only one main participle -eri is mentioned for these two dialects, which can relativize either subjet or object (Lacroix 2009, p. 657, Öztürk & Pöchtrager et al. 2011, p.130). Note that this situation of Laz is interesting since Turkish as well displays oriented participles. Laz thus diverges from both cognate and neighboring languages.

Secondly, Laz of Arhavi presents an even more interesting situation: besides the subject and objects, this main participle can also relativize other syntactic functions, while it is mainly restricted to the relativization of the subject and the object in other South Caucasian languages. The example (24) below illustrates the relativization of a dative argument:

(24) **Laz of Arhavi** *(Lacroix 2009, p. 661)*

a. `p’et’mezi-s mtugi dol-a-şkid-u`
   `treacle-DAT mouse PV-VAL5-drown-AOR,SR13SG`
   ‘a mouse drowned in treacle’ *(Ţ.39)*

b. `[mtugi do-lo-şkid-eri] p’et’mezi`
   `mouse PV-be_drowned-PTC treacle`
   ‘treacle in which a mouse drown’ *(Ţ.39)*

The subject of RCs is not marked with the genitive case unlike Turkish and Homshetsi; note however that subjects of other kinds of non-finite subordinate clauses may in Laz of Pazar (2011,p. 132), and in Laz of Arhavi with intransitive verbs (Lacroix 2009, p. 649–50)\(^\text{13}\).

### 5. Observations and suggestions

To summarize, no switch in relativization strategies is observable in the south part of Eastern Anatolia: each language keeps what seems to be its inherited strategy. Beside, languages spoken in the north part of Eastern Anatolia diverge more or less from their

\(^{12}\) For Georgian the complementizer seems to avoid the first position and is somewhere between the first constituent and the verb (Hewitt 1987, p. 187).

\(^{13}\) A similar situation is reported for Georgian (Harris 1981, p. 156–58; Hewitt 1987, p. 187).
Relative clause strategies in languages of East Anatolia

respective genetic families and converge together at least according to one feature, the prenominal position.

Thus, languages behave differently in language-contact situations. What are the circumstances that may favor or not the diffusion of a linguistic feature and linguistic convergence? In this section, I suggest some factors that may be relevant for a language-contact induced change to occur or not.

5.1 Sociolinguistic factors

Sociolinguistic factors such as the number and the degree of bilingualism of speakers may be involved. Turkish in contact with Iranian and Semitic languages in the South part of Eastern Anatolia does not switch to a postnominal strategy, though other Turkic languages did in Iran: e.g. Khalaj, Sonqor Turkic and Kashkay (Kiral 2000, p. 183, Bulut 2005, p. 264, Dolatkhah 2012, p. 190). The reason here seems obvious: Iranian and Semitic languages are minority languages in Turkey, while Turkish is dominant as the unique official language. The major part of the population is monolingual in Turkish and thus is not in a language contact situation; only speakers of minority languages are bilingual.

5.2 Cognitive factors

Semitic and Iranian languages on the other hand do not switch either to the participial prenominal strategy of Turkish (within Turkey). Cognitively, one may expect that a postnominal RC will be easier to proceed than a prenominal one: indeed with a prenominal RC, the speaker has to keep in mind the RC until he accedes the noun it modifies. Note that postnominal RC strategy is by far the dominant strategy world-wide (see de Vries 2001, p. 235, Creissels 2006, p. 223 vol. 2, Dryer 2013, inter alia). This could explain why Iranian and Semitic languages resorting to a postnominal strategy do not switch to the Turkish participial prenominal one, despite the fact that an important part of their speakers are bilingual and thus in a language-contact situation.

5.3 Linguistic structural factors

However, the cognitive factor does not account for the situation of minority languages spoken in the northern part of Eastern Anatolia, which all resort to prenominal RCs while their cognates spoken outside Turkey resort to postnominal RCs. Linguistic structural factors may be suggested here: for all these languages, adjectives precede the nouns they modify (including their cognates spoken outside the area), while in most of Iranian languages and in Semitic ones including those spoken in Turkey, adjectives follow the noun they modify. Thus one may expect that it will be easier for a language to switch to prenominal RCs when adjectives are already preceding the nouns they modify.

Linguistic structural factors may also provide an explanation for the fact that Romeyka does not switch to the participial strategy of Turkish, as did Homshetsi. Indeed, Homshetsi already displayed participles inherited from its ancestor language, while only a few adjectives formed with old participles are available in Pontik Greek (Drettas 2006, p. 12).
5.4 Typological tendencies and universals

Romeyka and Homshetsi have both lost their relative pronouns (while Ancient Greek, Classical Armenian, Modern Greek and Eastern Armenian all display relative pronouns). Interestingly, the combination of prenominal RCs and relative pronouns seems impossible: it is not attested worldwide (Downing 1978, p. 382, p. 396; Keenan 1985, p. 149; Creissels 2006, p. 240 vol. 2; A. D. Andrews p. 2007, p. 218, *inter alia*). Thus, a change regarding one feature (e.g. the loss of relative pronouns) may be linked to another one (e.g. the position of the RC).

5.5 Contact time-depth

Finally, the contact time-depth certainly has an influence. One could expect that the longest in time two languages stay in contact, the more they have probability to influence one another and to converge. Turkish has become a dominant language in the area only recently, with the foundation of the Republic of Turkey in 1923 based on the policy of one unique language, Turkish. Before this, Laz has been in a long-standing contact with Pontic Greek (Drettas 2006). Thus this can be an explanation for why Laz does not switch to the participial prenominal strategy of Turkish as dominant strategy, though structurally it would be suitable for this.

6. Conclusion

Considering various variation parameters of relativization strategies in languages spoken in Eastern Anatolia, two distinct areas arise. In the south part, languages (Iranian, Semitic and Turkish) do not diverge from their respective genetic families and no linguistic convergence can be identified. Iranian and Semitic languages resort to a similar strategy, but this is most probably the result of likelihood. In the north part on the other hand, languages (Laz, Romeyka, Homshetsi) all diverge from their respective genetic families and converge together more or less regarding various features. One feature is shared by all of them: the prenominal position of the RC.

Thus, languages show quite different behaviors regarding contact situations. Several factors may be relevant for a language-contact induced change to occur or not: a few have been suggested here but there are most certainly several other factors that may be involved (geographical, educational, etc.). The fact that Laz displays non-oriented participles while both cognate and neighboring languages display oriented participles for example is an interesting case that cannot be accounted for with the factors suggested here.

Finally, in a further work it would be interesting to investigate some more specific features that have not been considered here due to lack of place and/or lack of documentation, and some more languages (e.g. Circassian dialects spoken in Turkey: Circassian is a North-West Caucasian language, and North-West Caucasian languages indeed display a typologically very uncommon relativization strategy). The increasing documentation of minority languages during the last years will hopefully allow for leading such studies to a wider extent in a near future, possibly including some statistical tools.
Relative clause strategies in languages of East Anatolia

Abbreviations


References


——. in preparation. La Relativisation Dans Une Perspective Aréale: L’aire Caucase Iran-Anatolie. Université Sorbonne Nouvelle.


Nash, Léa. 2002. Pre-Nominal Relative Clauses in Georgian. presented at the Topics in Georgian Syntax, September 13, MIT.


Ophélie Gandon
ophelie.gandon@gmail.com
Turkish scrambling within single clause wh-questions

Tamarae Hildebrandt

University of Michigan

1. Introduction

Turkish is an Altaic language that exhibits agglutinative properties. Verbs bear tense, aspect, mood, and/or agreement affixes, while nouns host Case and/or agreement affixes (1).

(1) Ben-ø hiç sen-i-n köpeğ-i-n-i yıka-ma-di-m¹
I-Nom never you-Gen-2SG dog-Gen-2SG-Acc wash-Neg-Past-1SG
‘I never washed your dog.’

Additionally, (1) demonstrates the option of genitive and accusative Case stacking on köpeğ plus agreement features. Turkish has relatively free word order with the default order being Subject, Object, Verb (SOV). The placement of the verb is more restricted and typically appears sentence-finally, as Turkish is a head-final language (Kornfilt 1997).

1.1 Turkish Questions

According to Cheng (1997), languages either use wh-movement or are wh-in-situ. Wh-in-situ languages mark questions through use of a question particle. Turkish is wh-in-situ (2).

(2) Turkish Questions
a. Ben kitap-i-m-i arkadaş-i-m-a ver-di-m-mi?
ISG book-Gen.ISG-Acc friend-Gen-1SG-Dat give-Past-1SG+Q
‘Did I give my friend a book?’

¹I would like to acknowledge my consultant Dilara for her time, knowledge, and judgments on Turkish questions. Thank you to Catherine Fortin, Cherlon Ussery, Sam Epstein, Acrisio Pires, and the Syntax-Semantics group for their guidance and helpful comments.

¹All data were collected in Spring of 2012 from my consultant during a field linguistics course at Carleton College, unless otherwise cited.

© 2018 by Tamarae Hildebrandt
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 73–83.
GLSA Amherst.
b. Deniz-i ne-ø vur-du-ø?
   Deniz-Acc what-Nom hit-Past-3SG
   ‘What hit Deniz?’

c.* Deniz-i ne-ø vur-du-ø-mu?
   Deniz-Acc what-Nom hit-Past-3SG+Q
   ‘What hit Deniz?’

In both yes/no questions and wh-questions in in-situ languages (2), question particles are not required to appear overtly. Languages such as Chinese and Japanese have a question particle in both types of questions, but question-particles only appear in yes/no questions in Turkish (2a). Wh-questions with the question particle (2c) are ungrammatical, while the omission of the question-particle (2b) yields a grammatical question.

1.2 Scrambling

Turkish exhibits a movement operation called scrambling, which moves phrases to an argument (A-scrambling) specifier position within TP or to a non-argument (A’-scrambling) specifier position within the CP domain. Ross (1967) first defined scrambling as a stylistic operation that optionally applies in the grammar to account for word order differences without any semantic effects. In contrast, Öztürk (2005) argues for two types of scrambling that differ in binding theory, weak crossover, and reconstruction effects. There may be some semantic effects on one or both argument and non-argument types of scrambling.

I argue that wh-movement and scrambling are distinct movement operations. In English, movement of at least one wh-phrase is obligatory to check the question-feature in the syntax². In Turkish, movement of a wh-phrase is due to scrambling, not question-feature checking.

I will focus on reconstruction to differentiate A- and A’-scrambling in Turkish. A-scrambling is not reconstructable, only one scopal reading is available (3b). A’-scrambling allows for reconstruction indicating that multiple scopal readings are possible (4).

(3) * Turkish Scope SOV and OSV

   [Ali] t₁ [all test-Pl-Dat] take-Neg-Past
   ‘Ali did not take all the tests.’
   not > all, *all > not

b. [Bütün test-ler-e] [Ali] t₁ gir-me-di.
   [all test-Pl-Dat] [Ali] t₁ take-Neg-Past
   ‘Ali did not take all the tests.’
   all > not, *not > all

(3a) shows the default reading of negation taking scope over bütün; however (3b) indicates that the dative object moved into [Spec, TP]. The scope of (3b) shows that bütün takes

²Wh-phrases can stay in-situ in an English question like ‘Who saw what?’ Who moves cyclically to [Spec, CP]. What stays in-situ until LF indicating that only one wh-phrase must move overtly to [Spec, CP].
scope over negation and reconstruction is unavailable. Based on the position of the dative object and the one and only new scopal reading, (3b) is an example of A-scrambling.

(4) Evidence for Reconstruction in Turkish (İşsever 2008, ex. 25)
   a. [Üç kişi]ₖₜₖ herkesi suçladı.
      [three people-Nom]ₖₜₖ everyone-Acc accuse-Past-3SG
      ‘Three people accused everyone.’
      3 > all
   b. [Herkesi], [üç kişi]ₖₜₖ suçladı.
      [everyone-Acc], [three people-Nom]ₖₜₖ accuse-Past-3SG
      ‘Three people accused everyone.’
      all > 3, 3 > all

(4) demonstrates that in Turkish scopal relationships can be read off of the surface structure. (4a) shows the default reading where üç kişi takes scope over bütün. A new reading is available in (4b), in which bütün scopes over üç kişi. This initially looks like A-scrambling, we observe that the reconstructed meaning is also available in (4b). The default meaning of (4a) can be reconstructed for (4b) in LF by interpreting üç kişi in its first merged position. Therefore, by hypothesis, A’scrambling has occurred in (4b) and A-scrambling has occurred in (3b), based on the evidence from reconstruction.

1.3 The Problem

Most of the current proposals (e.g. Miyagawa 1997, 2001, 2003, 2004) regarding scrambling are sufficient to accurately account for scrambling in Turkish wh-questions. I will attempt to develop a syntactic proposal that accounts for the data (5-7). I will explain why constituents scramble and why additional projections both above and below TP are necessary.

(5) Accusative Object

   a. Deniz-i ne-ø vur-du-ø?
      Deniz-Acc what-N hit-Past-3SG
      ‘What hit Deniz?’
   b. * Ne-ø Deniz’i vur-du-ø?
      What-Nom Deniz-Acc hit-Past-3SG

(5a) shows that the accusative object has scrambled to a position above the nominative subject. (5b) shows that scrambling of the accusative object is mandatory with nominative wh-phrases. My fieldwork data show that a dative wh-phrase can scramble (6a), but it needn’t (6b).

(6) Dative wh-phrase

   a. Kim-e to-top-ø atlı-di-ø?
      Who-Dat ball-Nom throw-past-3SG
      ‘To whom was the ball thrown?’
   b. Top-ø kim-e atlı-di-ø?
      Ball-Nom who-Dat throw-Past-3SG
      ‘To whom was the ball thrown?’
The data in (7) further complicate our understanding of scrambling, as the first three constituents may appear in any order.

(7) **Possible Scrambling of First Three Constituents**

<table>
<thead>
<tr>
<th>Top-Ø</th>
<th>ne-den³</th>
<th>Deniz-i</th>
<th>vur-du-Ø?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Ball-Nom</td>
<td>What-Abl</td>
<td>Deniz-Acc</td>
<td>hit-Past-3SG</td>
</tr>
</tbody>
</table>

‘Why did the ball hit Deniz?’

Both the ablative and accusative constituents can scramble to a position above the nominative subject. The only constant in (7) is that the verb must appear sentence-finally, indicating it is not eligible for scrambling.

2. **Miyagawa on Scrambling**

Miyagawa (2004) notes similarities between Japanese and Turkish concerning overt morphological Case, scope, scrambling, V-to-T movement, and wh-in-situ. He conjectures that his proposal could extend to Turkish without providing specific examples. First, I will present a discussion of Miyagawa’s (1997, 2001, and 2003) analysis of Japanese scrambling. Then I will argue against the extension to Turkish because the proposal does not accurately represent one of the key differences between A- versus A’-scrambling.

2.1 **Japanese Scrambling**

Miyagawa (2001, 2003) argues that the Extended Projection Principle (EPP) triggers A-scrambling, while A’-scrambling is motivated by focus. EPP features are associated with different core functional categories, which include C, T, and v (Chomsky 2000). EPP is a required and universally strong feature (e.g. Alexiadou and Anagnostopoulou 1998) that must be checked in every language. The parameter for checking can vary with respect to verbal agreement morphology. In languages with ‘rich’ verbal agreement morphology, EPP must be checked through head movement. Languages lacking rich verbal agreement morphology checks EPP via phrasal movement to the specifier of the functional category carrying the EPP feature.

Japanese lacks a rich agreement system, so phrasal movement or merger will satisfy EPP. Miyagawa’s proposal concentrates on the EPP feature located on T. Following Chomsky 1995, he assumes that either DP (9) or wh-PP (10) can move to satisfy EPP. Both phrases are equidistant from T because V has raised to T. A summary of Miyagawa’s proposal of EPP and scrambling in Japanese is given in (8).

(8) **EPP and Scrambling in Japanese**

a. A-scrambling is triggered by the EPP feature located on T.

b. EPP can be satisfied by a DP or a wh-PP because of the equidistant relationship created by V-to-T raising.

³In Turkish, *neden* means why and it is comprised of what (*ne*) and the ablative case marker (*den*).
Miyagawa (2001) demonstrates through scopal evidence (9) that the nominative DP or the accusative DP moves to [Spec, TP] to satisfy EPP. An additional scopal reading is available in (9b) when the accusative DP satisfies the EPP feature on T, as opposed to (9a).

(9) **Japanese Scopal Evidence**

a. \([\text{Zen’}’-\text{ga}]_k \quad t_k \quad \text{sono tesuto-o} \quad \text{uke-nakat-ta} \)
   
   \[[\text{all-Nom}]_k \quad t_k \quad \text{that test-Acc} \quad \text{take-Neg-Past} \]
   
   ‘All did not take that test.’

   \(\text{all > not, *not > all} \)

b. \([\text{Sono tesuto-o,}]_i \quad [\text{zen’}’-\text{ga}]_k \quad (t_i)^d \quad t_i \quad \text{uke-nakat-ta} \)
   
   \[[\text{that test-Acc}]_i \quad [\text{all-Nom}]_k \quad (t_k) \quad t_i \quad \text{take-Neg-Past} \]
   
   ‘That test, all didn’t take.’

   \(\text{not > all, (all > not)} \)

The default interpretation of (9a) is that ‘No one person took the test,’ meaning that \(\text{zen’}’\) takes scope over negation. The nominative DP moves to [Spec, TP] thereby satisfying EPP. (9b) contains a primary and secondary reading, which suggests that Japanese can reconstruct in LF. To get the primary reading, A-scrambling has occurred—meaning \(\text{zen’}’\) stays in-situ, while the accusative DP \(\text{sono tesuto}\) to [Spec, TP] satisfying EPP. A second derivation is possible through A’-scrambling. The accusative DP moves to a position higher than [Spec, TP], as the nominative DP occupies this position. (9b) is an example of A-scrambling because of the new scopal reading, but the reconstructed reading (9b) suggests that A’-scrambling occurred.

Like in (9b), there are two derivations possible in (10). For the primary reading, in which negation takes scope over \(\text{zen’}’\), the wh-PP moves to [Spec, TP] to satisfy EPP. Additionally this movement to [Spec, TP] also satisfies the WH-feature on T, which is a part of a feature movement model Miyagawa (2004) adopts for questions.

(10) **wh-PP Satisfying EPP**

(Miyagawa 2001, ex. 53)

\[[\text{Dare-to}]_i \quad [\text{zen’}’-\text{ga}]_k \quad (t_i) \quad t_i \quad \text{asoba-nakat-ta no?} \]

\[[\text{who-with}]_i \quad [\text{all-Nom}]_k \quad (t_k) \quad t_i \quad \text{play-Neg-Past Q} \]

‘With whom, all didn’t play?’

\(\text{not > all, (all > not)} \)

In this feature movement model, an unvalued Question-feature is located on C and an unvalued WH-feature is located on T. The feature movement model creates a problem for A’-scrambling and the ability to account for the reconstructed reading. The nominative DP moves to [Spec, TP], while wh-PP moves to a non-argument specifier for A’-scrambling. Does the WH-feature require the wh-phrase to be in the [Spec, TP] or can probe/goal agree satisfy the WH-feature?

(11) **The Morphological Differences between Wh-movement and Wh-in-situ**

a. Movement: impossible morphological separation of the wh-feature and phrase

b. In-situ: wh-feature morphologically separates from the wh-phrase

4The trace in parenthesis indicates the A’-scrambling structure, in which the nominative DP moves to [Spec, TP] and the other constituent moves to a specifier above TP.
All languages use wh-movement in the narrow syntax, but differences arise in the morphology (11). In wh-movement languages, the wh-phrase and the wh-feature cannot be morphologically separated from one another. The entire phrase pied-pipes to [Spec, CP] to check the Q-feature on C. In wh-in-situ languages, the wh-feature can morphologically separate from the wh-phrase. Only the wh-feature moves in the overt syntax to [Spec, CP] to check the Q-feature on C.

2.2 Problems with the Proposal

The main problem with Miyagawa’s proposal concerns the use of EPP without providing a clear definition of what can satisfy this principle. Following Alexiadou and Anagnostopoulou (1998), Miyagawa assumes parametric variation for checking EPP; however with the XP parameter, it is unclear what phrases can satisfy EPP. (10) demonstrated that a wh-PP can move to [Spec, TP] to satisfy EPP because the wh-PP agrees with the WH feature on T. A regular PP is unable to satisfy EPP because the PP lacks features that agree with features on T.

If a PP lacks features to agree with a feature on T, then answers to the following questions are needed to enhance the proposal: what features are necessary for an accusative or dative DP to move to [Spec, TP]? Is it enough that the DPs have a set or subset of phi-features, even if the feature values do not match those on T? The conditions for object scrambling (Miyagawa 2003) are independent of feature matching. Rather, object scrambling depends on languages that use V-to-T raising and have morphological Case-marking to create an equidistant structure. The mismatch for requiring feature matching for a regular PP and wh-PP, while an equidistant structure for object scrambling to satisfy EPP, seems inconsistent.

Although, equidistance may not be relevant problem in Turkish scrambling since Turkish satisfies the EPP differently than in Japanese. As Turkish has a rich verbal agreement morphology, V-to-T raising satisfies the EPP (Miyagawa 2004). Where would the sentence-initial constituents like the nominative DP (7), accusative DP (5a), dative DP (6a), and locative PP (12) be located? Would they be located in [Spec, TP] or in some other position? As EPP is satisfied via head movement, phrasal movement to [Spec, TP] may be optional.

(12) Locative in [Spec, TP]
Gündüz-de biz-∅ okul-a gitme-ye karar yer-dik.
Daytime-Loc we-Nom school-Dat go-Dat decision in-Sub
‘During the day we decided to go to school.’

Rather than questioning equidistance, more data is needed to support the conclusion that head movement can satisfy EPP on T in Turkish. In Japanese only wh-PPs can move to [Spec, TP] to satisfy EPP (10), but not regular PPs. If phrases can be located in [Spec, TP] and if the head movement parameter is correct, any phrase in Turkish should be able to move into [Spec, TP]. If there are restrictions on any phrase, then the head movement parameter to satisfy EPP is incorrect and would show only phrasal movement can satisfy EPP.
A second problem is that EPP is a trigger of A-scrambling, but several examples of scope ambiguity in Japanese and Turkish indicate that A’-scrambling has also occurred. The scrambling of the accusative object to a specifier above TP is A’-scrambling, as indicated by the existence of the secondary reconstructed scopal reading, which is predicted to be unavailable if this is analyzed as A-movement. The proposal in (8) would need to be modified to account for the reconstructed interpretations in (9b) and (10).

3. An Alternative Analysis

The goal of my analysis is to provide clearer definitions of how the EPP is satisfied and what phrases are involved in A’-scrambling. Among my elicitations, only A’-scrambling was present. A-scrambling exists in Turkish, but my elicitations failed to show this fact.

3.1 Theoretical Background

I assume a ‘Minimalist’ syntactic approach (Chomsky 2000) including the definition of probe/goal Agree (13). The DP that valued the phi-features on T, simultaneously has its Case valued by T. Then once Case is checked/deleted, the remaining features that cannot be checked via long-distance agree, mainly the EPP feature, drive phrasal movement to a specifier.

(13) Definition of Agree

\[ \alpha > \beta \]

Agree (\( \alpha, \beta \)), where \( \alpha \) is a probe and \( \beta \) is a matching goal, ‘>’ is a c-command relation and matching uninterpretable features of \( \alpha \) and \( \beta \) are checked/deleted.

(Chomsky 2000, p.122)

EPP features are located on a variety of syntactic heads (Chomsky 2000)—specifically on T, Force, Focus, and Topic within my analysis. The EPP features can only be satisfied through phrasal movement to the respective specifier. EPP on T will only attract the nominative DP because it matches all of the phi-features and is the closest to T. EPP features on the other heads will attract the XP that matches the feature (+Q, +Foc, +WH) borne by the head.

(14) Expanded CP Layer (Rizzi 1997)

\[
\text{[ForceP [TopP [FocP [TopP [FinP TP ]]]]]}
\]

The use of Force, Focus, and Topic originates from Rizzi’s (1997) expanded CP layer proposal (14). Within Rizzi’s analysis, Focus and the wh-phrase are inconvertible—meaning that wh-phrases move to or through [Spec, FocP], but cannot remain in this syntactic position. I assume that X cannot move to a position P, if X is not allowed to remain in P. Since the wh-phrase is not allowed to remain in [Spec, FocP], the wh-phrase cannot move to [Spec, FocP]. Non-wh-phrases marked with +Foc can move into [Spec, FocP] to satisfy EPP. Wh-phrases are marked with +WH and move to [Spec, TopP]. I assume that a null wh-operator (OP) is generated in the specifier of a wh-phrase (İşsever 2008). This operator has the [+Q] feature and moves to [Spec, ForceP] to covertly satisfy...
EPP, which maintains my assumption of wh-in-situ languages (section 1.1). The movement of the wh-OP also assumes that the feature movement model (Miyagawa 2004) is correct, since the wh-OP morphologically separates from the wh-phrase.

3.2 Scrambling Derivations

Following the theoretical framework proposed above, I will show a derivation without scrambling, two examples of one constituent scrambling, and one example of two constituents scrambling within a single clause wh-question. Only unvalued feature that have been valued through agree (13) are shown in the trees for readability. Inherent features listed on the heads have been omitted. Lastly, all trees show the movement of the OP to [Spec, ForceP] to satisfy the EPP on the Force head, although this movement occurs covertly in LF (Cheng 1997).

(15) Wh-Question without A’-scrambling

(15) is the S-structure analysis of (7) and shows that no scrambling has occurred. I assume agree (13) precedes any phrasal movements to ensure feature matching for EPP. For example in (15), T will probe into its c-command domain and find the DP located in [Spec, vP]. The DP will value T’s phi features, and simultaneously its Case feature will be valued with nominative Case. Since the complete set of phi-features match, the nominative DP targets [Spec, TP] thereby satisfying EPP. The same applies for the unchecked Q feature on Force. Force will probe into its c-command domain and find its goal, neden, which is marked as [+Q]. As long as phrasal movement follows agree (13), no other stipulations are

---

5It is possible that the null wh-OP in Turkish could move overtly in the narrow syntax. With this phonologically null element, it is difficult to show which option should be used as opposed to the other.
required. If phrasal movement to a specifier does not occur, then the derivation will crash due to an unchecked EPP feature.

I define A’-scrambling as phrasal movement to a specifier motivated by EPP features on Foc or Top within the expanded CP layer. (16a) shows the movement of the accusative DP to [Spec, FocP], while (16b) shows the movement of the dative wh-phrase to [Spec, TopP].

(16) A’-Scrambling: One Constituent

a. Accusative DP

b. Dative DP

(16a) is the representation (5a). The accusative DP, Deniz’i, bears the +Foc feature. Once agree (13) occurs to check/delete features and Case, then movement to satisfy EPP via phrasal movement follows. The nominative wh-phrase moves to [Spec, TP] because its phi-features match the phi-features on T. The accusative DP will move to [Spec, FocP] because it matches the focus feature located on the Focus head. (6a) matches the syntactic tree in (16b) and is nearly identical to (16a). The key difference between (16a) and (16b) is the scrambling of a non-wh- versus wh-phrase. The dative wh-DP is marked with a +WH feature, which agrees with the unvalued WH feature on Top. Following agree, the dative wh-DP targets [Spec, TopP] to satisfy EPP on Top. Within both derivations the wh-OP is generated in the specifier of the wh-phrase. The wh-OP bears the [+Q] feature and will value this feature on Force. The EPP feature on Force is satisfied by covert phrasal movement of the wh-OP to its specifier.

Two phrases, TopP and FocP, appear within the expanded CP layer to account for A’-scrambling. The EPP features on these categories motivate movement to the respective specifiers. Both phrases are required above TP to permit the scrambling of two separate constituents within the same wh-question (17).
A’-Scrambling\(^6\): Two Separate Constituents

a. \([\text{Ne-den}]_i\) \[\text{Deniz’-i}]_k \[\text{Top-ø}]_{i \xi \tau \nu} \ vur-du-ø?  
\[\text{What-Abl}]_i \ [\text{Deniz-Acc}]_k \ [\text{Ball-Nom}]_{i \xi \tau \nu} \ t_i t_j t_k \ \text{hit-Past-3SG}

‘Why did the ball hit Deniz?’

b.

![Diagram of A’-scrambling]

The Foc head merges to TP and the Top head merges directly to FocP in (17b). After agree (13) checks and deletes Case and phi-features, movement to satisfy EPP can occur. The XPs target specifiers of phrases, which match the features on the XP. The nominative DP can only move to [Spec, TP] because it is the closest DP that matches the entire set of phi-features (person, gender, and number). The accusative DP moves to [Spec, FocP], while the ablative wh-phrase moves to [Spec, TopP]. In LF, the wh-OP moves covertly to satisfy EPP on Force.

Low Focus Projection

\([\text{Top-ø}]_i\) \[\text{Deniz’-i}]_a \ t_b \text{ne-den} \ t_a \ vur-du-ø?  
\[\text{Ball-Nom}]_b \ [\text{Deniz-Acc}]_a \ t_b \text{what-Abl} \ t_a \text{hit-Past-3SG}

‘Why did the ball hit Deniz?’

Most of the preceding data indicate that A’-scrambling only occurs within the expanded CP layer; however, (18) demonstrates that a low focus projection is needed. The accusative DP is merged above the vP, but below [Spec, TP]. A low focus position for A’-scrambling would fit within phase-based theory and phase-edges. Before the phase-head complement is transferred, the accusative DP would move to the phase edge. The accusative DP can stay in this low focus position, or the accusative DP can move out of the phase-edge into [Spec, FocP]—creating a high focus position within the expanded CP layer. More research is needed to determine the extent of the empirical adequacy of such an approach.

---

6Another instance of double A′-Scrambling is Deniz’i neden Top vurdu? The expanded CP layer is slightly different from (18a). The TopP would merge directly to TP, instead of directly to FocP as in (18b).
4. Conclusion

Miyagawa’s proposal on scrambling in Japanese may extend to Turkish, but the EPP and A'-scrambling need to be more clearly defined in his approach. Within my proposal, I focused on providing a clear syntactic analysis of A'-scrambling in Turkish. I defined A'-scrambling as phrasal movement to [Spec, FocP] or [Spec, TopP] motivated by EPP features on Foc or Top. Phrasal movement to satisfy EPP can only occur if the head of the phrase and the XP share a feature or a set of phi-features (person, gender, and number).

The use of FocP and TopP within the expanded CP layer (Rizzi 1997) accounts for single (16) and multiple (17) instances of scrambling within a single wh-question. Only non-wh-phrases marked with +Foc can move into [Spec, FocP] to satisfy EPP. Wh-phrases are marked with +WH and move to [Spec, TopP]. The Force head bears an unvalued question feature and an EPP feature. A null wh-OP, generated in the specifier of a wh-phrase, values and deletes the Q-feature. The OP satisfies the EPP in LF by covertly moving to [Spec, ForceP].

I assume that agree (13) precedes phrasal movement, but no other stipulations are needed or required. If an unchecked EPP feature remains in the derivation due to a lack of phrasal movement, then the derivation will crash.

References


Tamarae Hildebrandt
tamhil@umich.edu
Reanalyzing Indo-Iranian “stems”: A case study of Adıyaman Kurmanji

Laura Kalin & Ümit Atlamaz
University of Connecticut, Rutgers University

1. Introduction

Indo-Iranian languages present several challenges for recent theoretical approaches to morphology (Halle & Marantz 1993, et seq) and agreement/case splits (Coon 2010, i.a.). First, the Indo-Iranian verbal system revolves around two verb “stems”—traditionally labeled the “present stem” and the “past stem”—whose semantics are difficult to pin down, leading to the claim that the stems have a morphomic distribution, appearing in fixed constructions (Haig 2008). Second, the form of the stems is highly opaque and irregular, making decomposition into morphemes a challenge. Finally, these stems form the basis of various sorts of case and agreement splits, despite the lack of a clear syntactic or semantic trigger.

In this paper we undertake a case study of one Indo-Iranian language, Adıyaman Kurmanji (AK), a dialect of Kurdish spoken in the town of Adıyaman in southeastern Turkey. We closely examine both the semantics and morphology of verb stems in AK, and argue that the above challenges are only apparent. In particular, we propose (i) a morphological analysis of these stems that opposes a Ø-marked form (“present stem”) with an overtly-suffixed form (“past stem”), §2, and (ii) a semantic analysis of this morphology, with the null suffix as nonpast tense, and the overt suffix elsewhere (past tense, nonfinite tense), §3.

This compositional analysis, combined with a variety of morphosyntactic evidence, leads us to several surprising observations. The puzzle we take up in detail in §4 is that T behaves morphologically and syntactically as though it were below Asp in AK. Two additional puzzles that we note but do not explore in detail are that AK exhibits an extremely rare morpheme order within the complex verb, Asp-V-Tns (Julien 2002), and that split ergativity in AK is conditioned by tense, which has been claimed to be unattested (Salanova 2007, Coon 2013). We explore various possible explanations for the special position and role of tense in AK, but ultimately leave these new puzzles open for further research.

*Thank you to Jonathan Bobaljik, Sabine Iatridou, Peter Klecha, Roumyana Pancheva, and Susi Wurmbrand for extremely helpful discussions about this work, as well as audiences at University of Connecticut, Cornell University, and University of Massachusetts, Amherst. A special thank you also to Ayşehan Ortaç, for sharing her language with us.

© 2018 by Laura Kalin & Ümit Atlamaz
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 85–98.
GLSA Amherst.
2. Morphological breakdown

AK is an SOV but predominantly head-initial language with frequent pro drop (Atlamaz 2012). Like other Indo-Iranian languages, the verbal system of AK revolves around two so-called verb “stems”. The term “stem” here carries with it two main implications (Aronoff 1994, 2012, i.a.). First is the implication that these verb forms are stored in the lexicon, i.e., stems are not broken down into smaller pieces. Second, stems—since they are stored in the lexicon—can have a distribution that is purely morphologically-determined, or “morphemic”; in other words, the choice of stem can be completely disconnected from syntactic and semantic factors. The specific claim with respect to Indo-Iranian languages is that the “present stem” and the “past stem” are chosen from the lexicon as bases for further verbal morphology, with the choice of stem conventionalized across constructions, with the synchronic distribution due to diachronic factors (Haig 2008).

In this section, we pursue a morphological analysis of the verb stems in AK by isolating a piece of morphology that differentiates the stems. We postpone a discussion of the semantics of this stem-differentiating morpheme to §3, instead using the stems’ traditional labels—“present stem” and “past stem”—throughout this section.

At first glance, there seems to be no consistent morphological relation between the present stem and the past stem. Some common verbs come in suppletive stem pairs, (1), while other stem pairs differ in unpredictable phonological material, (2), and yet others do not differ at all, (3).

(1)

<table>
<thead>
<tr>
<th>“present stem”</th>
<th>“past stem”</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘go’</td>
<td>her</td>
</tr>
<tr>
<td>‘say’</td>
<td>we</td>
</tr>
<tr>
<td>‘see’</td>
<td>wun</td>
</tr>
<tr>
<td>‘come’</td>
<td>e</td>
</tr>
</tbody>
</table>

(2)

<table>
<thead>
<tr>
<th>“present stem”</th>
<th>“past stem”</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘eat’</td>
<td>x</td>
</tr>
<tr>
<td>‘catch’</td>
<td>g</td>
</tr>
<tr>
<td>‘give’</td>
<td>d</td>
</tr>
<tr>
<td>‘do’</td>
<td>k</td>
</tr>
</tbody>
</table>

(3)

<table>
<thead>
<tr>
<th>“present stem”</th>
<th>“past stem”</th>
</tr>
</thead>
<tbody>
<tr>
<td>‘sew’</td>
<td>drü</td>
</tr>
<tr>
<td>‘die’</td>
<td>mir</td>
</tr>
<tr>
<td>‘chew’</td>
<td>çü</td>
</tr>
<tr>
<td>‘cry’</td>
<td>gri</td>
</tr>
</tbody>
</table>

Looking further than these common and irregular verbs, however, two more consistent patterns emerge. A number of verbs form the past stem by adding -i to the present stem, (4), and a number of verbs form the past stem by adding -t to the present stem, (5).
Reanalyzing Indo-Iranian “stems”

As is evident from a quick glance through (1)–(5), the grouping of verbs into different types of stem pairs is not semantically or phonologically conditioned. We can make a number of concrete observations based on these verb stem pairs. First, whenever there is a clear and non-null phonological relation between the stems, the past stem always builds on the present stem, with the additional segments in the past stem following the present stem. The two most regular and common strategies for deriving the past stem from the present stem are adding \(-i\) or \(-t\). We conjecture, then, that the present stem reveals the phonological form of the verb root, while the past stem consists of the verb root plus a suffix, which we will take to be \(-i\) in its default/elsewhere form.¹ For semantic reasons discussed in the following section, we also posit that the present stem bears a null suffix; both verb stems can thus be broken down into a root and a suffix. A number of representative vocabulary items are given in (6):²

(6) Some relevant vocabulary items (first pass)

<table>
<thead>
<tr>
<th>“present”</th>
<th>“past”</th>
</tr>
</thead>
<tbody>
<tr>
<td>“present”</td>
<td>(\rightarrow-0)</td>
</tr>
<tr>
<td>“past”</td>
<td>(\rightarrow-t) /</td>
</tr>
<tr>
<td>“past”</td>
<td>(\rightarrow-0) /</td>
</tr>
<tr>
<td>“past”</td>
<td>(\rightarrow-or) /</td>
</tr>
<tr>
<td>“past”</td>
<td>(\rightarrow-\text{est}) /</td>
</tr>
<tr>
<td>“past”</td>
<td>(\rightarrow-i)</td>
</tr>
<tr>
<td>(\sqrt{\text{BOIL}})</td>
<td>(\rightarrow) (\text{kel})</td>
</tr>
</tbody>
</table>

¹It is difficult to determine with any certainty whether \(-i\) or \(-t\) is the elsewhere form of the suffix that forms the past stem, since both exponents appear frequently and neither picks out a natural class of verbs on semantic or phonological grounds. We have chosen \(-i\) as the elsewhere allomorph based on the fact that the suffixation of \(-t\) is often accompanied by small phonological changes in the verb root, while \(-i\) is typically not accompanied by such changes, cf. (4)–(5). Nothing hinges on this choice.

²We treat the suppletion cases, (1), as portmanteaux, because these verbs never co-occur with additional (overt) past stem morphology. We analyze portmanteaux as resulting from insertion at non-terminal nodes (Caha 2009, Radkevich 2010), but nothing hinges on this; we could instead take root suppletion to occur in the context of the “past stem” suffix, with a null allomorph of this suffix occurring with the suppletive root. Finally, if we are correct in taking both verb stems to contain the verb root and an additional piece, then it is important to note that there is nothing about (1) that tells us for certain whether it is the “past stem” or “present stem” that is the elsewhere (non-portmanteau) form of the verb root, or whether both are portmanteaux.
Kalin & Atlamaz

\[
\begin{align*}
\sqrt{\text{MILK}} & \rightarrow \text{do} \\
\sqrt{\text{SEW}} & \rightarrow \text{drü} \\
\sqrt{\text{EAR}} & \rightarrow \text{x} \\
\sqrt{\text{CATCH}} & \rightarrow \text{g} \\
\sqrt{\text{GO}} & \rightarrow \text{her} \\
\sqrt{\text{GO, “past”}} & \rightarrow \text{çü}
\end{align*}
\]

As a first step, then, we have shown that the verb stems break down into predictable pieces.

3. **Semantic breakdown**

In the previous section, we proposed that the two verb stems in AK consist of the verb root and a suffix: \(\sqrt{V-\emptyset}\) for the “present stem”, \(\sqrt{V-i}\) for the “past stem” (plus a number of other allomorphs of this suffix, cf. (6)). We are now in a position to investigate the semantic range of these verb stems, in order to see whether a consistent semantics can be attributed to the different pieces we have identified, thereby nullifying the need for an appeal to “stems” as a theoretical primitive in the system. Our core observations in this section will be that the verb stems are distributed based on tense, but not aspect, corresponding closely (but not perfectly) to their traditional labels, as schematized in (7).

\[(7)\]

| a. “Present stem”: \(V\)-TENSE.NONPAST | (abbrev: T.NONPST) |
| b. “Past stem”: \(V\)-TENSE.ELSEWHERE | (abbrev: T.ELSE) |

The null suffix in the present stem consistently expresses nonpast tense, while the overt suffix that forms the past stem spells out both past tense and nonfinite tense, hence it is the elsewhere exponent of T. For clarity and consistency, we adopt the proposed glosses in (7) (abbreviated as indicated) in the examples that follow.⁴

3.1 **The “present stem”**

There are three main uses of the present stem, (8).

\[(8)\]

| a. **Present habitual**: IMPF-V-T.NONPST |
| Ez çay-ê \(\text{di-kirr-\emptyset-n}\) |
| I.NOM tea-OBL IMPF-buy-T.NONPST-1SG |
| ‘I buy tea.’ |

| b. **Present progressive**: IMPF-V-T.NONPST-COP |
| Ez çay-ê \(\text{di-kirr-\emptyset-\text{cop}}\) |
| I.NOM tea-OBL IMPF-buy-T.NONPST-1SG-COP |
| ‘I am buying tea.’ |

⁴There is also a copula that will surface in the examples in this section. There are in fact two copulas in AK, the “present copula” and the “past copula”. Just like the “present” and “past” labels for the stems, however, it is not clear that these are informative labels. Since we will only be dealing with the “present copula” in this paper, we will simply gloss it as COP.
Reanalyzing Indo-Iranian “stems”

c. Future: AUX + SBJN-V-T.NONPST
Ez dikê çay-ê bı-kırr-/ım. (di-k-e = IMPF-do-COP)$^4$
I.NOM AUX tea-OBL SBJN-buy-T.NONPST-1SG
‘I will buy tea.’

The present progressive, (8b), can get a future interpretation in matrix contexts when it appears with future adverbials e.g., ‘tomorrow’ sıwe. However, the present stem in all of its forms is ungrammatical in matrix contexts with past tense adverbials, e.g., ‘yesterday’ dhıni and ‘two hours ago’ di saata ber ve.

Thus far the best characterization of the present stem is that it encodes nonpast tense. Looking further to embedded clauses, we can see that the present stem in fact expresses a relative nonpast tense. Under a matrix past verb, the present stem is interpreted as cotemporal with the matrix verb phrase or temporally following the matrix verb phrase, (9). (Though not shown here for space reasons, this is also true for the other forms of the present stem.)

(9) Mı I.OBL go-/0 [ ki çay-ê di-kırr-0-İm-e ].
I.OBL say.T.ELSE-3SG that tea-OBL IMPF-buy-T.NONPST-1SG-COP
‘I said that I was buying/was going to buy tea.’ (saying before/cotemp. with buying)

Finally, as can be seen throughout (8), the present stem is always prefixed. Following Giorgi & Pianesi (1997) among others, we take present tense to be incompatible with perfective aspect, hence the obligatoriness of the imperfective prefix, di-, which appears in (8a)–(8b). In addition, there seems to be a surface requirement in AK that verbs cannot bear more than one prefix: in environments where the subjunctive is required, as in (8c), the imperfective prefix cannot appear, and instead we see the subjunctive prefix bı-.

Our conclusion about the present stem, then, is that it expresses a relative nonpast tense. We therefore propose that the present stem consists of the verb root with a null suffix that contributes this relative nonpast tense.

3.2 The “past stem” in finite clauses

The default, context-free interpretation of the “past stem” is a simple past tense, (10).

(10) Simple past: V-T.ELSE
Mı çay kırr-i-0.
I.OBL tea.NOM buy-T.ELSE-3SG
‘I bought tea.’

This simple past seems to be interpreted as perfective, a point we will return to later. With the addition of the imperfective prefix, the interpretation is past imperfective, (11).

$^4$It is not clear whether this decomposition of the future auxiliary is correct synchronically, or whether it is now an unanalyzed whole. Since the conveyed meaning is neither imperfective nor present tense, and since the auxiliary does not need to agree with the nominative subject (as present stems normally do), we simply gloss the future auxiliary as AUX, taking it to be morphologically simplex.
Past progressive/habitual: IMPF-V-T.

\[ M_I \text{ çay } d\text{-kırr}-i-\emptyset. \]

I.OBL tea,NOM IMPF-buy-T.ELSE-3SG

‘I was buying tea.’ / ‘I used to buy tea.’

The past stem, (10)–(11), is grammatical with past adverbials in matrix clauses, but not with future adverbials, the converse of the present stem.\(^5\,6\)

Just like nonpast tense morphology in AK, (9), past morphology expresses a relative tense. Under a matrix past tense, the past stem is interpreted relative to that past time, (12).

\[ M_I \text{ go-}\emptyset \text{ kı çay } (d\text{-})\text{kırr}-i-\emptyset. \]

I.OBL say,T.ELSE-3SG that tea IMPF-buy-T.ELSE-3SG

‘I said that I bought/was buying/used to buy tea.’ (saying after buying)

Our first hypothesis is that the suffix that forms the past stem encodes relative past tense.

A logical question to ask at this point is whether the past stem is in fact perfective, in addition to (or instead of) being past. However, while the (non-imperfective-marked) past stem is interpreted as perfective by default, cf. (10), it does not have the expected entailments of a true perfective, as shown in the felicitous continuations of (13a) in (13b–c).

\[ \text{a. Ehmet d\text{hini } xamı } çê \text{ k-ır-}\emptyset. \]

Ahmet yesterday house good do-T.ELSE-3SG

‘Ahmet built a house yesterday.’

\[ \text{b. . . . hema, so\text{ğ } ne-k-ır-}\emptyset. \]

but finish NEG-do-T.ELSE-3SG

‘. . . but (he) didn’t finish (it).’ (completedness not entailed)

\[ \text{c. . . . hema, hin ji } çê \text{ di-k-}\emptyset-\emptyset. \]

but still too good IMPF-do-T.NONPST-COP.3SG

‘. . . but (he) is still building (it).’ (boundedness not entailed)

While the entailment of completedness is not a reliable indicator of high perfective aspect crosslinguistically, the entailment of boundedness is (Altshuler 2015). The past stem in AK thus fails the crucial test in (13c), and so we conclude that it is not perfective.\(^7\)

\(^5\)The plain past stem can also have a reading that is something like “about to” when combined with the present adverbial \(n\text{ha} \) “now”. This interpretation is restricted to predicates that can be construed to have a process and subsequent logical culmination. We take this to be a pragmatically-available interpretation, based on a culmination being so imminent that it can be said to already have happened. Thus, such sentences are only felicitous when the process is already underway. We thank Sahine Iatridou for helpful discussion.

\(^6\)In counterfactuals, the verb takes the form of a past stem bearing a counterfactual suffix, and in this case the past stem can appear with future adverbials. We take this to be part of a larger pattern whereby past tense morphology is co-opted in counterfactuals (Iatridou 2000, Bjorkman & Halpert 2012, \textit{i.a.}).

\(^7\)When a finite verb lacks overt tense (i.e., in the present stem), the interpretation is present tense; we therefore take there to be a null present tense morpheme. When a finite verb lacks overt aspect, the interpretation is \textit{not} perfective; we therefore do not posit a null perfective aspect morpheme.
Reanalyzing Indo-Iranian “stems”

take the default perfective interpretation of simple past clauses to be a result of implicature, triggered by the absence of the imperfective prefix.

Our preliminary conclusion is that the suffix that forms the past stem contributes a (relative) past tense in finite clauses. We will see in the next section, however, that this suffix does not uniquely expone past tense, but rather is underspecified for tense.

3.3 The “past stem” in non-finite clauses

There is a complication to the clean opposition of nonpast (null suffix) vs. past (overt suffix): all participles and nominalizations in AK are formed on the past stem. This is notable because these participles and nominalizations do not semantically encode tense in AK. Adjectival participles, (14), as well as nominalizations, (15), are compatible with both past and future readings.

(14) Past and future readings of adjectival participles:
   a. Me beq-ê kûst-i di we.OBL frog-EZ kill.T.ELSE-PART see.T.ELSE ‘We saw the killed frog.’ (frog already dead at present)
   b. Em dıkê beq-ê kûst-i bi-wun-Ø-in we.NOM AUX frog-EZ kill.T.ELSE-PART SBJN-see-T.NONPST-PL ‘We will see the killed frog.’ (frog may or may not be dead yet at present)

(15) Past and future readings of nominalizations:
   a. Me fîrr-i-n-ê Mehemed-ê mezi k-îr we.OBL fly-T.ELSE-NMLZ-EZ Mehemed-OBL watch do-T.ELSE ‘We watched Mehemed’s flying/flight.’ (flying/flight in the past)
   b. Em dıkê fîrr-i-n-ê Mehemed-ê mezi we.NOM AUX fly-T.ELSE-NMLZ-EZ Mehemed-OBL watch bi-k-Ø-un SBJN-do-T.NONPST-PL ‘We will watch Mehemed’s flying/flight.’ (flying/flight in the future)

Our conclusion based on the appearance of the past stem in nonfinite environments is that the exponent of past tense, -i, is not exclusively used for past tense. Rather, this exponent is the elsewhere morphological realization of T, (16).

(16) Updated vocabulary items
   a. T[pres] → -Ø
   b. T → -i (and other allomorphs, cf. (6))

Both T[past] and T[nonfin] are realized with the same vocabulary item, namely, the suffix that forms the so-called past stem. Note that this is a marked morphological system,
as the underspecified/elsewhere morphology is richer (overt, with many allomorphs) than the non-underspecified morphology, which is consistently null.

3.4 Interim summary

We summarize the morphology of the core verb forms we have covered in (17) and (18):

(17) Core verb forms built on the “present stem”
   a. present habitual IMPF-V-T.NONPST
   b. present progressive IMPF-V-T.NONPST-COP
   c. future Aux + SBJN-V-T.NONPST

(18) Core verb forms built on the “past stem”
   a. simple past V-T.ELSE
   b. past habitual/progressive IMPF-V-T.ELSE
   c. participles/nominalizations V-T.ELSE-PART/NOMZN

The “present stem” and “past stem” approximate the right labels, but: (i) the morphology is fully compositional and predictable, so there is no need for “stems” as a theoretical primitive, nor for an appeal to a morphemic distribution of the stems; (ii) the “present stem” is nonpast; and (iii) the “past stem” represents the verb root bearing the elsewhere morphology of T, surfacing both in past tense and nonfinite environments.

4. Locating T in Adıyaman Kurmanji

We have now identified the core pieces of aspectual and temporal verbal morphology in AK: present tense T as -0, elsewhere T as -i (etc.), imperfective aspect as di-, and subjunctive mood as bı-. Combining this with a variety of morphosyntactic evidence points us to a rather surprising conclusion about the syntactic position of T in AK. In particular, T seems to be (syntactically and/or morphologically) below Asp, in conflict with the expected superiority of T over Asp. In this section, we present the morphosyntactic evidence for the low position of T, and we explore various ways of situating this finding theoretically.

4.1 Evidence for the low position of T

There are four pieces of evidence that suggest a close relationship between T and v+V. First, the choice of verb root affects the choice of an allomorph for T:

(19) | V-T.NONPST | V-T.ELSE |
--- | --- | --- |
‘eat’ | x-0 | x-or |
‘catch’ | g-0 | g-est |
‘die’ | mır-0 | mır-0 |
‘steal’ | diz-0 | diz-i |
‘hear’ | biz-0 | bis-t |
As can been seen in (19), it is impossible to pick the right phonological form of T without knowing the identity of V. Second, for a number of verbs, the choice of tense in T affects the form of the verb:

(20) | V.T.NONPST | V.T.ELSE |
---|---|---|
‘go’ | her | çü |
‘say’ | we | go |
‘see’ | wun | di |

As seen in (20), it is impossible to pick the right phonological form of the verb without knowing the identity of T. Under the fairly standard assumption that there are locality restrictions on allomorph-conditioning (and portmanteaux), T and V must be local.

But how local exactly are T and V to each other? V and v seem to be spelled out together in the normal case and are inseparable as V+v (or v is typically null). But, when v is overtly pronounced separately from the verb root as a causative morpheme, v conditions the form of T rather than V doing so. Take, for example, the verb ‘boil’ kel. The regular past stem is kel-i. When the past stem of ‘boil’ bears the causative v suffix -on/-ın, the elsewhere T is instead spelled out as -d (determined by CAUS) and appears outside the causative morpheme, as seen in kel-on-d (*kel-on-i, *kel-i-on). Causative morphology thus shows us that T is separated from the verb root by (at least) v, both linearly and with respect to allomorph-conditioning.

Unlike causative morphology, however, V-T allomorphy is not blocked by an overt exponent for Asp. Imperfective aspect blocks neither the verb root from conditioning the form of T, (21), nor T from conditioning the form of V, (22), cf. (19)–(20).

(21) | IMPF-V[T][PRES] | IMPF-V[T(ELSE)] |
---|---|---|
‘eat’ | di-x-∅ | di-x-or |
‘catch’ | di-g-∅ | di-g-est |
‘die’ | di-mur-∅ | di-mur-∅ |
‘steal’ | di-diz-∅ | di-diz-i |
‘hear’ | di-biz-∅ | di-biz-t |

(22) | IMPF-V[T][PRES] | IMPF-V[T(ELSE)] |
---|---|---|
‘go’ | di-her | di-çü |
‘say’ | di-we | di-go |
‘see’ | di-wun | di-di |

Further, imperfective Asp never conditions V’s form, nor does V condition Asp’s form.\(^8\)

It is worth pausing for a moment to fully understand the implications of this data. If Asp were between T and V (as is standard), then we would have the structure in (23).

\(^8\)The only apparent exception to this generalization involves vowel-initial verb roots which trigger surface allomorphy of di, e.g., “bring” di-un → tin; “come” di-e → te. We take this to be a purely phonological process, and so do not consider it to be a counterexample.
Taking as input the structure in (23), accounts of allomorph selection that rely on strict adjacency (e.g., Bobaljik 2012) cannot account for any of (19)–(22), since T is separated from v+V by Asp. Accounts that allow allomorph conditioning via “spans” (Svenonius 2012, Merchant 2015) also cannot account for any of (19)–(22), since Asp is “otiose” (irrelevant for the choice of allomorph) and so cannot be included in a conditioning span. Accounts that allow “pruning” of null nodes (e.g., Embick 2003, 2010, Calabrese 2012) can account for (19)–(20), but not (21)–(22), since Asp is overt and thus cannot be pruned, leaving T and v+V still non-local. These problems all disappear if Asp is in fact above T in AK. We return to this point in §4.2.3.

The final piece of evidence for the low position of T comes from the morphology that is (im)possible in nominalizations. In particular, we know from the overt suffix that surfaces in participles and nominalizations that (nonfinite) T is present in nominalizations, cf. (14)–(15). Further, this nonfinite T is obligatory, (24), and Asp is disallowed, (25).

(24) Particles/nominalizations not allowed to lack T
   a. *beq-ê kuj-i
      frog-EZ kill-PART
      Intended: ‘the killed frog’
   b. *x-in-ê Mehemed-ê
      eat-NMLZ-EZ Mehemed-OBL
      Intended: ‘Mehemed’s eating’

(25) Particles/nominalizations not allowed to have Asp
   a. beq-ê (*di-)kust-i
      frog-EZ IMPF-kill.T.ELSE-PART
      ‘the killed frog’
   b. (*di-)x-or-in-ê Mehemed-ê
      IMPF-eat-T.ELSE-NMLZ-EZ Mehemed-OBL
      ‘Mehemed’s eating’

For nominalizations to include T but not Asp, there must be a syntactic constituent in the clause that contains T and lacks Asp.

To summarize: (i) V conditions allomorphy on T; (ii) T conditions allomorphy of V; (iii) this conditioning is not blocked by overt Asp; and (iv) nominalizations include T but not Asp. All of these facts point to T being closer to V than Asp is at some point in the syntactic or morphological components of the derivation.

---

9It is impossible to rule out the presence of an empty/null Asp in (25). However, participles and nominalizations in many languages preserve aspectual distinctions (Alexiadou 2001, Aikhenvald 2011, i.a.), so we might expect Asp to be able to be imperfective, and thus overt, if the Asp projection were present here.
4.2 The puzzle and some solutions

Why is Asp being above T surprising or problematic? Compositional semantic analyses of tense and aspect crucially rely on Asp mediating between T and the VP event/situation (e.g., Klein 1994, Stowell 1995, Demirdache & Uribe-Etxebirria 2000, Iatridou et al. 2001), (26a). Simplifying somewhat, the role of Asp is to relate the time argument of the VP (the event time) to Asp’s own time argument (the reference/assertion time), which T in turn relates to its time argument (the utterance time in matrix clauses). If Asp and T are structurally reversed, (26b), they are in the wrong relative positions to do their jobs.

(26) a. Standard hierarchy: T > Asp > V
    b. Reversed hierarchy: Asp > T > V

How can we reconcile the morphosyntactic evidence—which points to (26b)—with the semantic evidence (a standard tense/aspect system)—which points to (26a)?

4.2.1 A semantic solution

Perhaps the most obvious solution is to design a complex semantics for tense and aspect in AK, such that the apparent problem of the reversed hierarchy goes away. This solution would adopt (26b) and simply re-engineer the denotations of T and Asp in AK to get the clause-level semantics right. This is in principle possible, and essentially would involve allowing T and Asp to bypass their local time arguments for more distant ones, such that T could still relate the reference time to the utterance time, and Asp could still relate the reference time to the event time.

A number of problems arise for this solution. One problem is that it adds significant power to the semantics of tense and aspect, by taking away the restriction that each temporal or aspectual operator relate its own time argument in one of several fixed ways to that of its complement. Another problem is that we would expect languages to be able to freely choose between (26a) and (26b), rather than nearly always choosing (26a). Perhaps most importantly, under this analysis it is entirely accidental that the complex denotations of T and Asp in the reversed hierarchy in AK end up mimicking exactly the output of the (comparably) simple denotations of T and Asp in the standard hierarchy.

4.2.2 A syntactic solution

A very different sort of solution involves syntactic licensing, in the style of Stowell (2007). The basic idea here is that tense morphology need not surface in the same position as tense interpretation, but rather the morphology could appear in a low position, with its form conditioned/licensed by a temporal operator higher in the structure, in T. For Stowell (2007), this is the case in English for low past tense morphology on the verb licensed under a high Past operator in T. For AK, since the more specific morphology is nonpast tense (the present stem), it would have to be low nonpast tense morphology licensed under a
high Nonpast operator, with the elsewhere morphology (the past stem) occurring when the Nonpast operator is absent.

Such an analysis can maintain the standard hierarchy, (26a). However, one of the primary motivations for this type of analysis of tense morphology is the presence of sequence-of-tense effects. We have already seen in AK, however, that there are no sequence-of-tense effects, neither for present tense, (9), nor for past tense, (12). A Stowell-type analysis therefore does not fare well for AK.

4.2.3 Two morphological solutions

Finally, there are two routes towards a morphological solution. On the one hand, we could maintain both the standard hierarchy, (26a), and a strict locality condition on allomorph-selection (Bobaljik 2012), but invoke an operation that brings T closer to \( \nu+V \) in the post-syntax, before Vocabulary Insertion. In particular, we could invoke the Lowering operation (Embick & Noyer 2001, 2007), which allows a head to adjoin to the head of its complement. Operating on the standard hierarchy, (26a), one operation of Lowering would adjoin T to Asp, a position from which T would be local to \( \nu+V \); this would allow T to condition allomorphy of \( \nu+V \) and vice versa.

On the other hand, we could loosen the locality restriction on allomorph-selection to allow (somewhat) non-local conditioning. This again maintains the standard hierarchy, (26a), while allowing T to condition the form of \( \nu+V \) across an overt Asp, without invoking any special morphological operations. For a revised version of the relevant locality condition, one option is to allow linear adjacency to be sufficient for allomorph-conditioning, regardless of structural distance, as proposed by Ostrove (2015). Another would be to allow conditioning of allomorphy to proceed (basically) freely within the same complex head, as proposed by Harley & Choi (2016), building on Bobaljik (2012); see also Bobaljik (2000).

The major benefit of a morphological solution to our puzzle is that nothing special needs to be said about tense/aspect semantics in AK; T and Asp appear in their standard positions, (26a), and have a standard semantics. Note, however, that none of these morphological solutions naturally explains the exclusion of Asp from nominalizations and participles, cf. (24)–(25) and fn. 9.

We leave it as an open question here which—if any—of these solutions to the low tense puzzle is the right one.

5. Conclusion

In this paper, we have shown that so-called verb stems in Indo-Iranian need not be treated as morphomic stems and so are not generally problematic for recent theoretical approaches to morphology and case/agreement splits. In particular, we showed that verb stems can be decomposed into morphemes (exponents) that relate systematically to semantic tense.

Solving this puzzle has uncovered several more. First, tense seems to occupy an unusually low position in AK, as discussed in §4. This puzzle might have a semantic, syntactic, or morphological solution. Second, though not discussed further in this paper for space reasons, is that split ergativity in AK is triggered by a change in tense. The directionality of this
split aligns with the purported universal directionality of tense-based split ergativity, with ergative alignment in the past tense (Dixon 1994). However, more recently, Coon (2013), following Salanova (2007), has surveyed a number of purported cases of tense-based split-ergativity, and concludes that there are no true tense-based splits; rather, these splits are in fact aspectually-conditioned. If our analysis of AK verbal morphology is correct, then Indo-Iranian languages (or at least AK) have true tense-based splits. A final observation is that the morpheme order in AK verbs, Asp-V-T, is extremely rare (Julien 2002).

Taking into account these other ways that AK is exceptional—a tense-based split and a rare morpheme order—may help us differentiate among the possible analyses of low tense in AK, §4.2. For example, a semantic solution would solve all three puzzles in one fell swoop: the reversed order of heads (Asp > T) allows T to affect the case/agreement alignment and results in a rare morpheme order within the complex verb. Alternatively, if case and agreement are post-syntactic phenomena, a morphological Lowering account might also solve all three puzzles together. We leave this open for future research, as well as the question of whether our analysis can extend to other Indo-Iranian languages.

References


Ostrove, Jason. 2015. On morphological locality, linear adjacency and the nature of Vocabulary Insertion. Ms. University of Santa Cruz.


Laura Kalin, Ümit Atlamaz
laura.kalin@gmail.com, umit.atlamaz@rutgers.edu
**Turkish comitatives: The genuine and the apparent**

Jaklin Kornfilt

Syracuse University

1. **Introduction: The Comitative Issue, the Turkish facts, and older literature on comitative constructions**

Turkish has an interesting construction involving, at first glance, what is traditionally called a comitative DP (or PP), and plural agreement on the predicate, instead of the expected singular agreement. The construction in question is illustrated in (1):

(1) Hasan-la sinema-ya git-ti-k.

Hasan-with cinema-DAT go-PAST-1.PL

Some literature, e.g. Aissen 1989, claims that (1) is ambiguous between the following two readings: (a) *We* went to the movies with Hasan and (b) *I* went to the movies with Hasan.

---

* This paper is an expanded and somewhat updated version of a draft, written and circulated in 1988/89, and presented at an LSA meeting in Chicago around then. I would like to dedicate this paper to the memory of Osvaldo Jaeggli, with whom I had many enjoyable discussions on the topic of comitatives and coordinate structures, and who had planned, at some point, to study corresponding constructions in Spanish. I am grateful to many people for discussions of the issues addressed in this paper; had I heeded their advice more, this paper would have doubtlessly been better than it is. I would like to thank in particular Noam Chomsky, Ken Hale, Jorge Hankamer, Susumu Kuno, Phil LeSourd, Deniz Özyıldız, and Engin Sezer for their patience with my ideas, and Akgül Baylav, Lâle Berke, Alp Otman, Sumru Özsoy, Deniz Öyıldız, Engin Sezer, and Mehmet Yanılmaz for sharing their native intuitions with me. Any shortcomings are my sole responsibility.

1 The comitative marker in Turkish surfaces in two possible forms: As the free morpheme *ile*, and its postclitic variant -*lA*. (Note that I shall follow here the general Turkological practice of using capital letters for segments that assimilate; where vowels are concerned, the capitalized vowel will undergo the rules of vowel harmony.)

2 Some scholars treat the comitative in Turkish as a case like all others; if so, a DP marked with the comitative would still be a DP (or a KP, i.e. a Case Phrase). Others argue that the comitative marker shares certain properties with postpositions — in particular, that it is never stressed, "throwing" the (otherwise final) word-level stress onto the syllable immediately preceding it. Under this view, the comitative constituent will be a PP.

© 2018 by Jaklin Kornfilt

Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 99–125.

GLSA Amherst.
It is the second reading that is of interest to us here. How can (1) be interpreted as having a singular subject, given the plural agreement on the predicate?

In what follows in this introductory section, I will mainly present the discussion of both readings, and particularly of the “surprising”, second reading, in previous literature — especially in older literature where some relevant cross-linguistic observations were made, and proposals were discussed, some of which were more semantically oriented than is necessary, in my opinion, for a syntactic phenomenon. In sections 2 and 3, I will then discuss the “surprising reading” and related phenomena, and advance my coordination-based proposal. Section 4 will summarize and conclude.

Let us start with an account for the less problematic first reading.

Suppose the “comitative” constituent is a dependent of the VP — a daughter of VP or adjoined to the VP. If the subject is pro with the features of first person plural, the agreement facts and the interpretation of (1) under its reading in a. are explained in a straightforward way. Given that Turkish is a “Pro-Drop” (Null Subject) language, this is a plausible analysis which gains in credibility if one considers that (1) has a counterpart with an overt pronoun for the reading in a.:

(2) Biz Hasan-la sinema-ya git-ti-k.
we Hasan-with cinema-DAT go-PAST-1.PL
'We went to the movies with Hasan.'

How should the surprising reading in b. for (1) be analyzed?

In this introductory section, I shall give a brief overview of prior literature addressing the “surprising reading” for comitative constructions, at least of work which has mentioned Turkish, even if briefly, and work related to those sources.3

Aissen (1989) (henceforth A.) proposes the following two structures6 to account for the two readings found in Turkish and other languages for the corresponding examples:

---

3 As a matter of fact, I shall claim that the second reading of (1), given in b. below, is actually different, and that the correct form of it is: ‘Hasan and I went to the movies.’

4 The abbreviations used in this paper are as follows: 1.PL: first person plural; 1.SG: first person singular; 3.SG: third person singular; ACC: accusative; Act.Nom.: action nominalization; B: Boolean (head); BP: Boolean Phrase; CC: Coordinate Construction; DAT: Dative; Fact.Nom.: Factive Nominalization; GEN: Genitive; KP: Case Phrase; LOC: Locative; NumP: Number Phrase; Optat.: Optative; PASS: Passive; PL: Plural; PPC: Plural Pronoun Construction; Q: Yes/No question marker; SPC: Singular Pronoun Construction.

5 Some more recent work, mainly on such constructions in Russian, has come to my attention only very recently and therefore can’t be addressed in this paper; I hope to make up for this shortcoming in future work. Some of these studies on comitatives in Russian are Vassilieva & Larson (2005) and Ionin & Matsushansky (2003). I am grateful to Sabine Iatridou for having given me access to these studies. Similarly, Demirok (2016) came to my attention only a few days before completion of this paper; I am thus unable to address that work on Turkish comitatives, other than noting that some observations and ideas, such as the person hierarchy mentioned here briefly, are also mentioned there and obviously proposed independently from my work.

6 Aissen’s structures are proposed for Tzotzil, but they are intended to carry over to other languages, such as Turkish, which display comitative structures with what I will continue to call the “surprising reading”, i.e. with an understood singular subject under presence of plural agreement on the predicate, as in reading b. for (1). As already mentioned in the previous footnote, I shall claim that Turkish lacks the “surprising reading” in this word order, with the comitative phrase preceding the pronoun. Instead, I claim that the
(3) a. TP
   DP
   VP
   PP
   V'
(biz) Hasan-la sinema-yayigit-ti-k
we Hasan-with cinema-DAT go-PAST-1.PL
'We went to the movies with Hasan.'
(adapted from A.'s (7a))

(3) b. TP
   DP
   VP
   PP
   DP
   V'
   V
Hasan-la (biz) sinema-yayigit-ti-k
Hasan-with we cinema-DAT go-PAST-1.PL
'I went to the movies with Hasan.' (A discussion of how to obtain this reading from this structure will follow soon.)
(adapted from A.'s (7b))

subject in the apparent “surprising reading” under this word order is actually a coordinate noun phrase. In the mirror image word order, which we will also consider, we do get a genuine “surprising reading”, and I will attempt to explain that reading for the word order with the comitative expression following the pronoun, in section 3.
A. calls the bold-faced and enlarged DP (for her, an NP) in (3b) the "Plural Pronoun Construction (PPC)", and she schematizes the PPC as follows:

\[
\begin{align*}
\text{DP} & \quad \text{(Head)} \\
\text{(Adjunct)} & \quad \text{XP} \quad \text{Plural Pronoun}
\end{align*}
\]

(adapted from A.'s 8)

Crucially, the PPC has two daughters: A head, which is a plural personal pronoun, and an "Adjunct", which can take on various forms from language to language; in Turkish, it would show up as a comitative constituent.

Given that Turkish is a Null Subject Language, the plural pronominal head of the PPC has the option of not being realized phonologically, thus yielding (1), under the reading shown in b. However, it should also be possible to have an overt pronoun in the head position of the PPC in (1), and A. offers the following example to confirm her prediction:

\[
[\text{Hasan-la} \quad \text{biz}]_{\text{NP}} \quad \text{dükkan-a} \quad \text{git-ti-k.}
\]

Hasan-with we store-DAT go-PAST-1.PL

'Hasan and I went to the store.'

(A.'s (9c), with her constituent analysis and her translation)

The schema for the PPC given in (4) would explain all facts (other than the singular interpretation of the plural pronoun, if such interpretation does exist — as already mentioned, I claim later that it does not in this word order, and under this constituent analysis), i.e. those of the plural agreement on the predicate as well as those of the order between the comitative and the pronoun: Turkish is head-final, hence any adjunct (which the comitative phrase is claimed to be under A.'s analysis) would precede a head, as it does in (5), under the assumption that the nominative pronoun is the head of the complex subject. Secondly, since the PPC would have a (plural) head, the (plural) features of that head would determine those on the predicate, presumably via feature percolation through the mother node — i.e. the boldfaced and enlarged DP (for A., an NP) in (3b).

A. discusses the following semantic analysis of the PPC, based on Ladusaw (1988):

The adjunct in the PPC imposes reference conditions on the head it modifies, without introducing any additional referents. In (5), the first person plural pronoun requires as a referent a set containing the speaker and at least one more person; the adjunct requires that this set contain Hasan. The speaker and Hasan together satisfy the plurality requirement of the head; hence, the PPC may refer to just two people: the (singular) speaker and Hasan. Thus, the adjunct refers to an individual included in the reference of the head rather than added to it. This

---

7 Today’s DPs were NPs when Aissen’s article was written.
procedure of semantic interpretation would account for the “surprising” reading in (1b), which I shall call, following A., the "PP-included" reading — as opposed to the reading in (1a), which is the "PP-excluded" reading.

Given the schema in (4) for the PPC, reference to more than two individuals should also be possible, since the plural pronoun by itself may refer to more than two individuals. This, then, would be a second source of the "PP-excluded" reading, in addition to the source provided by the structure in (3a). This structural ambiguity is motivated in A. by examples such as (6):

(6) Hasan-la sinema-ya git-ti-m.  
    Hasan -with cinema-DAT go-PAST-1.SG  
    ‘I went to the movies with Hasan.’  (adapted from A.’s (11c))

Under A.’s approach, (6) must have the structure in (3a), but with a singular subject and singular agreement, rather than the PPC structure in (3b), which would require a subject referring to at least two individuals and hence would be plural, determining plural agreement on the predicate.

The type of analysis which this approach is designed to supersede has been called "Conjunct Movement" (cf. Hale (1975) for Navajo), "Conjunct Union" (Aissen 1987 for Tzotzil), and "Conjunct Splitting" (Grinder 1969, with a critique by Chung 1972, for Samoan); an early treatment for English is found in Lakoff and Peters 1969).

All of these analyses have in common that they posit a coordinate structure in subject position at an early stage in the derivation, thus accounting for the plural agreement (via the simple arithmetic of adding instances of the number feature in each conjunct); they claim further that one of the conjuncts moves out of the coordinate structure, thus forming the comitative element. For our example in (1), the underlying source in such a framework for the PP-inclusive reading would be as follows:

(7) [Hasan ve ben]DP sinema-ya git-ti-k.  
    Hasan and I cinema-DAT go-PAST-1.PL  
    ‘Hasan and I went to the movies.’

The first person in the second conjunct would determine the first person agreement on the predicate, via a person hierarchy which would place the first person highest, followed by second person, with third person at the lowest end of the hierarchy.8

Crucially, the coordinate nature of the subject would determine the plurality of the agreement under these (even) older approaches, i.e. at a minimum, each conjunct would represent a singular DP, and the two DP conjuncts would add up to a plural subject.

Then, Hasan would move out of the higher DP in our example and, presumably, adjoin to the subject DP, or possibly to the VP; the conjunction marker would be deleted.

---

8 A hierarchy of this nature is probably needed in all accounts of this and related constructions; cf. A., p. 530, section 4.3. We shall see later that in coordinated DPs, a similar hierarchy dictates that the first conjunct has to be lower than the second conjunct, at least for many speakers. We shall return to this issue.
and the comitative marker would be inserted\textsuperscript{9} in an appropriate position, thus creating the actual structure of (1) under its “inclusive” reading at Spellout (or, in the terminology of those older accounts, at S(urface)-Structure).

Note, however, that now the agreement on the predicate is not determined by any coordinate subject at Spellout, unless one allows a feature calculus based on heads and adjuncts, as well as one based on conjuncts in coordinate structures — an undesirable move. If the comitative expression is taken to have adjoined to VP rather than to the subject DP, the situation is even worse, because at Spellout, there wouldn’t be any constituent that determines (plural) agreement. One would have to say that either the coordinate subject from a previous stage in the derivation determines agreement at Spellout, or else that a constituent consisting of the subject and the comitative adjunct at Spellout determines agreement. Neither proposal is a desirable move (although in recent models of grammar, morphology can be interspersed with syntax, thus perhaps weakening my first objection above), and both are rightly criticized by A. Perhaps even more seriously, the proposal based on "conjunct movement" has the additional problem of violating the Coordinate Structure Constraint.

Lastly, as mentioned earlier, one might adopt a semantic approach to the determination of plural agreement: It might be possible to claim that the “controller” of the agreement morphology on the predicate is determined not by the syntactic features of the subject, but by the features of the subject’s intended referent (cf. Pollard and Sag 1988, as referred to in A.). Thus, suppose we did not follow A. in deriving the PP-inclusive reading for (1) from a PPC structure; rather, we would posit a first person singular pronoun in head position of the complex subject. According to Pollard and Sag’s approach, although there would be no syntactic constituent that has the features of first person plural, the intended referent would be a set that includes the speaker and Hasan, hence semantically the crucial plurality is present and would determine the plural agreement.

A. succeeds in showing that, at least for Tzotzil and some of the other languages she considers, agreement — a syntactic phenomenon — is syntactically determined (namely by the PPC), and that it is not necessary to posit a semantically based explanation.\textsuperscript{10} Furthermore, A.’s study also makes a strong case in favor of a “controller” of agreement that is a constituent at Spellout (for A., “S-Structure”), rather than a non-constituent string at Spellout, or else a string which was a constituent at a different level of representation.

My main purpose in this paper is to show that the analysis of the “comitative” construction with plural agreement and the PP-inclusive reading offered in A. is wrong for Turkish. However, A.’s central claims, made primarily for Tzotzil, do carry over nevertheless: The plural agreement is determined syntactically rather than semantically, and the determining entity is a constituent at Spellout.

\textsuperscript{9} Obviously, such deletion and insertion operations of morphological markers are not available to us in more recent (morpho-syntactic) approaches; at any rate, they are unnecessary for an understanding of comitatives.

\textsuperscript{10} However, A.’s approach is not purely syntactic, either, since her structure for the PPC has a complex subject whose head is syntactically plural, and where the singular interpretation of the plural head has to be based on semantic/pragmatic considerations, too (as based on Ladusaw 1988, as mentioned earlier).
2. Turkish Comitatives, Conjunctions, and the SPC

In this section, the properties of comitative subjects and of certain coordinate constructions will be discussed and compared.

2.1 Against a Turkish PPC

Let us return to (5) (A.’s (9c)), which was offered by A. as an overt instantiation of the PPC. For the sake of convenience, this example is repeated here as (8):

(8) \[\text{Hasan-la \ biz} \_ \text{DP dükkân-a git-ti -k.}\]

\hspace{1cm} Hasain-with we store-DAT go-PAST-1.PL

'Hasan and I went to the store.' (A.’s bracketing and translation.)

As bracketed in (5/8), and with the brackets made clear by introducing a heavy intonational break after the putative subject (i.e. after the putative PPC), the only reading available for this example is not the PP-inclusive, but the PP-exclusive reading.\(^{11}\) In other words, the translation given by A. and repeated here in (5) and (8) is wrong, and the only reading available for this example with the indicated bracketing (assuming, as I do, that the heavy intonational break does reflect the complex subject’s right-hand boundary) is the one in (9):

(9) Hasan and we went to the store.

However, the same string can have a PP-inclusive reading, if a heavy intonational break is introduced after the "comitative" constituent:

(10) \[\text{Hasan-la} \ [\text{biz}] \_ \text{DP dükkân-a git-ti -k.}\]

\hspace{1cm} Hasain-with we store-DAT go-PAST-1.PL

(10) is ambiguous between a PP-inclusive reading (that is, 'I went to the store with Hasan.' and a PP-exclusive reading ('We went to the store with Hasan.').

The availability of the second reading, i.e. of the PP-exclusive interpretation for (10), is not surprising, if we realize that (10), under this reading, is a version of the PP-exclusive reading for (1), already discussed. The basic structure of (1) and of (10), under their PP-exclusive interpretation is given in (11):

(11) \[\text{biz} \_ \text{Hasan-la} \_ \text{DP dükkân-a git-ti-k.}\]

\hspace{1cm} we Hasain-with store-DAT go-PAST-1.PL

'We went to the store with Hasan.'

Here, the comitative constituent would be an adjunct of the VP, and \textit{biz}, the first person plural pronoun, would be the sole, simple (and complete) subject. Given that Turkish is

---

\(^{11}\) The grammaticality judgments reported here are mine and those of seven other native speakers, acknowledged in the special acknowledgment footnote.
word-order free to a rather high degree, I would claim that (10) is derived from (11) by scrambling the comitative VP-adjunct over the subject; the reading would, of course, be preserved.

We are faced with two questions, however. First, why does (5/8) not permit a PP-inclusive reading? Second, how can we account for the PP-inclusive reading of (10)?

My answer to the first question will be that this is simply because Turkish does not have the PPC — at least not in the way conceived in A.

Before attempting to answer the second question, however, I shall turn to yet another construction, which I will call — at least for the time being — the Single Pronoun Construction (SPC).\footnote{It would be interesting to see if some of the other languages considered in A. to have the PPC might instead be more similar to Turkish and have a SPC which actually is a coordinate structure instead, as I shall claim later.}

2.2 Complex Subjects and Singular Pronouns

Note the properties of the construction in (12):

\begin{align*}
(12) & \text{[Hasan-la} \text{ ben]} \text{DP sinema-ya git-ti-k.} \\
& \text{Hasan-and I cinema-DAT go-PAST-1.PL} \\
& \text{‘Hasan and I went to the movies.’}
\end{align*}

Note that here, even though there is no unique, i.e. non-complex, first person plural subject that determines the first person plural agreement on the verb, we might explain the plural agreement by making either one of the following two assumptions:

A. The complex constituent in subject position has a head; that head is the first person singular pronoun, whose person feature determines the verbal agreement in part. The factor determining the plurality on the verb is not syntactic, but semantic: The intended referent of the set denoted by the subject is a set consisting of Hasan (a comitative PP adjunct within the complex subject) and the speaker, and is therefore plural. Let me call this the semantic view of the Single Pronoun Construction (SPC).

B. The constituent in subject position is a kind of coordinate structure. At this point, we have to ask ourselves what the internal structure of such a coordination looks like. There are two main options: 1. The coordinate structure is completely parallel, with the two conjuncts merged at the same level, i.e. the traditional approach to coordination; 2. The coordinate structure is headed, in conformity with X'-syntax. I shall adopt the second option in both instances: The complex constituent in subject position is a coordinate structure, and that structure does conform to X'-syntax, at least up to a point, as we shall see very soon.
Turkish comitatives: The genuine and the apparent

There are different options for the latter approach, with the coordinate structure in conformity with X'-syntax; I shall briefly consider two.

One approach to analyzing coordinate structures as headed is to view the conjunction morpheme as the head of the coordinate structure, with the second conjunct the complement, and the first conjunct the specifier of that head. In other words, what I had glossed earlier as ‘with’, i.e. as the comitative morpheme, is actually a conjunction marker in the SPC, as illustrated in (12). Note that there, I glossed the morpheme in question, -lA, as ‘and’, a conjunction marker, rather than as a comitative marker meaning ‘with’. This is essentially the analysis proposed for coordinate structures in Munn (1993).

However, this is somewhat problematic, because in a head-final structure, the zero-level head, i.e. the conjunction, should be in an absolutely final position; if –lA is that head, it should be at the rightmost edge of the coordination, and it should cliticize to the second conjunct. However, as we have seen with the examples so far, it cliticizes to the first conjunct. Kayne (1994) addresses this problem (with respect to coordination in general, especially in head-final languages, rather than with respect to comitatives), by speculating that there could be two conjunction markers, with the head of the coordination showing up after the second conjunct (which would be its complement), and the first one after the first conjunct, the specifier of the coordination.

If this analysis is applied to the SPC, one would need to say that the conjunction which would be the head of the entire coordinate structure would be systematically silent in all of its occurrences, while the second instance of the conjunction marker would, again systematically, show up on the specifier. I find this problematic.13

Munn (1996) proposes another singly-headed analysis for coordinate structures. In this proposal, which was made for English, the first conjunct (=XP₂) acts as the phrasal head to the entire coordinate structure, while the second conjunct (=XP₃), itself headed by the coordinate conjunction, is adjoined to the first conjunct:

\[(13)\]

\[
\begin{array}{c}
\text{XP}_1(=2) \\
\text{XP}_2 \\
\text{BP} \\
\text{B} \\
\text{XP}_3 \\
\end{array}
\]

(BP: Boolean Phrase; B: the Boolean conjunction)

13 Alternatively, one could say that the conjunction marker which is the head of the entire coordination and is thus at the rightmost edge of it moves to the first conjunct at PF and cliticizes to it, skipping over the second conjunct. This would be an undesirable move; what would the motivation be, and why wouldn’t the coordination head not be able to cliticize to its (adjacent) complement, i.e. the second conjunct? Note further that –lA can never be realized overtly on both conjuncts. With respect to the above-mentioned speculations on the part of Kayne (1994) whether in head-final languages such doubling of conjunction markers is possible, with the marker showing up after both conjuncts: this possibility would support setting up a syntactic head position at the right edge. Turkish does have such a marker, –DA; however, it means, when doubled, ‘as well as; too’, rather than ‘and’, the meaning that –lA has in the SPC. As mentioned in the text, -lA shows up only once in this construction, and always on the first conjunct.
I propose to adopt this structure for Turkish, but in a mirror-image fashion with respect to the direction of the adjunction. Note that in head-final languages it is unusual to have adjunction to the right; typically, adjunction is to the left of the target (cf. also Chomsky 1995: 340); Munn’s phrasal adjunction illustrated in (13) would result in (14) for head-final structures:

![Diagram](image)

(14)

I propose here that, at least for head-final languages, adjunction in coordinate structures is leftward in general. Further, the B-element is a marker of the adjunct (which, in the terms of Kayne 1994, can also be viewed as a specifier, given that in that approach, there is no distinction between the two). This is why it shows up with the adjunct phrase, i.e. the “first conjunct”, rather than at the rightmost edge of the entire coordination.

We now have a structure which conforms to X’-syntax somewhat, in that it has a head which projects its features to the mother node. However, that head is phrasal, rather than being a zero-bar level category. The structure is quite similar to the structure proposed by A. for the PPC (or the SPC) cross-linguistically; crucially, the XP₂, i.e. the phrasal head, is singular here, so that its singular semantics can be read off the structure directly, without needing recourse to semantic or pragmatic considerations. Furthermore, the first “conjunct” is crucially not a PP, but rather a Boolean Phrase, thus determining the coordination-related properties of the entire coordination. We shall see later that *ile/-la*, too, has different properties as B, from when it is a P in Turkish.

In (12), the relevant kind of example for the comitative coordination construction with a singular phrasal head, it is the person feature of the first person singular pronoun that determines the person feature of the verbal agreement. Also, I mentioned earlier that it is the nature of the subject as a coordinate structure which determines the subject’s plurality and consequently the plural feature of the verbal agreement. Let me call this the Coordinate Construction (CC) view of the Singular Pronoun Construction (SPC). As pointed out earlier, I have indicated my commitment to this view by glossing the suffix *-la* in (12) as ‘and’, rather than as ‘with’.

Before turning to evidence in favor of this view, let me mention briefly that A. does mention the possibility that some languages might have a SPC, but she does not mention any specific languages of this type. Turkish, then, might be claimed to be one such language, rather than a language with the PPC. The SPC, then, would provide UG with a second source for the PP-included readings of examples like (1) cross-linguistically. This would be in addition to the PPC; crucially, syntactic rather than semantic properties of the subject would determine the plural agreement on the predicate, as already pointed out earlier.
2.3 Against Conjunct Movement

First, I would like to advance some data that differentiate the structure underlying the PP-excluded reading from the structure underlying the PP-included reading; while these data will be neutral between a PPC, or a coordination-based SPC structure for the “PP-included” reading, they will serve to argue against the older view based on “Conjunct Movement”, and they will at the same time support a systematically different analysis for the “adjunct” comitative when it is a PP, from when it is a BP.

First of all, note that the difference in function between -la as a genuine comitative marker, i.e. as a P, and as a conjunction marker, i.e. as a B, goes along with a difference in (basic) word order. In the structure with the PP-excluded reading, illustrated in (11) for a simple plural pronominal subject, as well as in (15) below with a singular pronoun as the simple subject, the comitative constituent follows the subject in the basic word order:

\[(15)\]  
Ben Hasan-la sinema-ya git-ti -m.  
I Hasan -with cinema -DAT go-PAST-1.SG.  
'I went to the movies with Hasan.'

Note the singular agreement on the verb, showing that ben ‘I’ is the sole subject. The word order is as expected, since Hasan-la ‘with Hasan’ is an adjunct of VP.

As we saw in (10)/(11), Hasan-la, the comitative PP, as well as ben, the subject, can be scrambled around, when the comitative PP is a VP-adjunct; importantly, these two expressions do not form a constituent and thus can easily be separated. A few examples follow, showing how freely such scrambling can apply:

\[(16)\]  
Hasan-la ben sinema-ya git-ti-m.  
Hasan-with I cinema-DAT go-PAST-1.SG

Same as in (15), with sentential focus on the dative DP.

\[(17)\]  
Ben sinema-ya Hasan-la git-ti-m.  
I cinema-DAT Hasan-with go-PAST-1.SG

Same as in (15), with sentential focus on the comitative PP.

\[(18)\]  
Ben sinema-ya git-ti-m Hasan-la.  
I cinema-DAT go-PAST-1.SG. Hasan-with

Same as in (15), with sentential focus on the dative DP, and with the comitative PP backgrounded, as a post-verbal constituent.

\[(19)\]  
Hasan-la sinema-ya ben git-ti -m.  
Hasan-with cinema-DAT I go-PAST-1.SG.

Same as in (15), with sentential focus on the subject, and the comitative PP topicalized.
(20) Hasan-la sinema-ya git-ti-m ben.
    Hasan-with cinema-DAT go-PAST-1.SG. I
Same as in (15), with sentential focus on the dative DP, with the subject
backgrounded as a post-verbal constituent, and the comitative PP topicalized. 14

On the other hand, where -lA functions as a conjunction marker rather than as a
comitative marker (a P), the order is rigid: The constituent marked with -lA has to
precede the second element of the larger constituent, i.e. the second conjunct under the
view defended here; we see this order in (12), repeated here as (21), for the reader’s
costiveness:

(21) [Hasan-la ben]DP sinema-ya git-ti-k.
     Hasan-and I cinema-DAT go-PAST-1.PL
'Hasan and I went to the movies.'

Furthermore, the constituent marked with -lA cannot move out of a complex DP, nor can
the second element in that DP move out; as we just saw in (16) through (20), both of
those elements are free to scramble within the clause if they do not form a constituent
with each other. In contrast, the following examples constitute unsuccessful attempts to
scramble either element out of the complex subject DP in (12)/(21), which I have claimed
is a coordinate structure:

(22) *[ [e]i ben]DP sinema-ya git-ti-k [Hasan-la];
     I cinema-DAT go-PAST-1.PL Hasan-and
Same intended reading as (21).

(23) *[Hasan-la [e]i ]DP sinema-ya git-ti-k [ben];
     Hasan-and cinema-DAT go-PAST-1.PL I
Same intended reading as (21).

(24) *[Ben]; [ Hasan-la [e]i ]DP sinema-ya git-ti -k
     I Hasan-and cinema-DAT go-PAST-1.PL
Same intended reading as (21).

Note also that the entire complex subject, which I claim is a coordination, can scramble
as a single unit:

(25) sinema-ya git-ti-k [Hasan-la ben]DP
     cinema-DAT go-PAST-1.PL Hasan-and I
Same reading as (21), with the entire coordinated subject backgrounded.

14 An alternative reading exists, where the comitative PP is a contrastive focus, and where the dative
constituent is not focused. Similar contrastive focus readings are available for the subject in (16) and (18),
likewise only possible when the verb-adjacent constituent is not focalized. The issue of contrastive focus in
positions other than the one preceding the verb is a complicated one which this paper will not address.
These facts are easily explained by appealing to the Coordinate Structure Constraint, however formalized: The structure in (21), with a singular pronominial second conjunct following the apparently comitative adjunct posits a coordinate structure for the subject, thus not allowing movement of either part of the coordinate structure to move out of the coordination. The plural agreement on the verb is explained by the nature of the subject as a coordination; here, each DP conjunct is singular, and, together, they form a plural coordination. The singular reading of the second conjunct is obviously read off directly from the syntax, given that this conjunct is an overt singular pronoun. This point will be important later, when looking at similar structures with a phonologically unrealized second conjunct in such constructions with plural agreement.

2.4 The Coordinate Construction (CC) nature of the Single Pronoun Construction (SPC) Structure: Additional evidence

I now turn to some additional evidence that favors the coordination nature of the SPC structure, i.e. in favor of the view that the structure underlying the PP-included readings is a coordinate structure rather than the view that the complex subject is headed by a singular person pronoun with a PP-adjunct.

First of all, Turkish does not, in general, allow direct modification of a head by a PP; in most instances, a verb is needed that, together with the PP, forms a relative clause modifier of the head:

Chomsky by a book buy-PAST-1.SG
Intended reading: 'I bought a book by Chomsky.'

Chomsky by write-PASS-Participle a book buy-PAST-1.SG
'I bought a book written by Chomsky.'

this Ali for a book-Assertive
Intended reading: 'This is a book for Ali.'

this Ali for write-PASS-Participle a book-Assertive
'This is a book written for Ali.'

In addition to the movement-based examples which illustrate the workings of the Coordinate Structure Constraint and thus support the analysis of examples such as (12)/(21) as having complex subjects with a coordinate structure, there are intonation-based examples which make the same point: In (12)/(21), no intonational break can be placed between the two conjuncts:

Hasan-and I cinema-DAT go-PAST-1.PL

The reason is clear: the break forces a constituent boundary between the two conjuncts; now, we have no coordinate structure any longer, and ben ‘I’ is the simple and sole subject of the utterance; its singular number feature conflicts with the plural agreement on the verb.
Of course it would be possible to claim that the postposition *ile* or its cliticized form -lA are somewhat exceptional and do allow the PP that is headed by either form to act as a nominal modifier. Note, however, that this would weaken the (non-CC) SPC hypothesis considerably.

Secondly, in the rare instances where a PP can immediately modify a nominal, it can move out of the complex DP:

   you-GEN "as much as" a child see-PAST-1.SG
   'I saw a child as old/tall/... as you.'
   b. [[e]i bir çocuk ]DP gör-dü-m [PP sen-in kadar]i

   you-DAT suitable a school find-PAST-1.SG
   'I found a school appropriate for you.'
   b. [[e]i bir okul] bul-du-m [san-a göre]i

Note that the result of scrambling the PP-modifier out of the complex NP is fine, illustrated by (28b) and (29b). However, crucially, DPs marked with -lA cannot scramble out of their complex DP when they are in a CC-structure, as we saw in (22) - (24). In those examples, the complex DP is a subject; but the same behavior is also found where a corresponding DP is an object:

   today for hours physics-and chemistry study-PAST-1.SG
   'I studied physics and chemistry for hours today.'
   b. * Bugün saatlerce [[e]i kimya] Çalış-ti-m [fizik-le]i

All of these facts are easily explained if the complex DP is a conjunction: Any movement of a conjunct out of the coordinate structure will be ruled out by the Coordinate Structure Constraint. I therefore take these facts to establish the coordinate nature of the complex constituent, which is an object here. As a consequence, the complex subject that determines plural agreement for the inclusive readings and has a single pronominal head is a coordinate structure.

Under this account, the PP-included reading of (1) is due to the same CC-structure underlying (12), with the difference that the second conjunct is a *pro* (a phonologically empty pure pronominal in the terminology of Chomsky 1982 and much subsequent work), with the features of first person singular for the PP-included reading and with the features of first person plural for the PP-excluded *conjunctive* reading.
2.5 Brief summary of the readings of (1)

For the reader’s convenience, I repeat example (1), which the paper started off with, and then summarize the readings that it has:

(1) Hasan-la sinema-ya git-ti-k.
Hasan-with cinema-DAT go-PAST-1.PL

(1) is actually three-ways ambiguous, rather than just two-ways as stated in the introduction:

A. [Hasan and I] went to the movies (“PP-included” (actually, “BP-included”); the subject is a complex DP: a coordinate structure with a singular pro as one conjunct, and Hasan as the other conjunct — under the analysis adopted here for coordinations, Hasan is a BP-adjunct of the singular pro);

B. [Hasan and we] went to the movies; the subject is a complex DP: a coordinate structure with a plural pro as one conjunct and Hasan as the other conjunct = a BP-adjunct within the coordinate structure;

C. We went to the movies with Hasan (PP-excluded); the subject is a simple DP: a plural pro; the comitative PP-constituent is external to the subject.

Both a. and b. have a structure with a coordinate subject and differ only with respect to the plurality of the pro conjunct within the subject. Reading c. is related to the structure in (3a.), with a simple subject and a genuine comitative PP which is a VP-adjunct.

I now turn to some apparent counterexamples against the CC Hypothesis for the BP-included reading (as I shall be calling the “PP-included reading” from now on) for examples such as (1).

2.6 Challenging the CC-Hypothesis

One type of potential argument against the CC-Hypothesis is based on the limitations of the distribution of the “comitative” marker when used as a conjunction marker.

The marker ile/lA us used to conjoin only two elements, while there is no such restriction on the number of conjuncts when the conjunction ve ’and’ is used:

(31) a.* Dün sinema-da Zeynep-le Mehmet-le Hasan-1 gör-dü-m.
yesterday cinema-LOC Zeynep-and Mehmet-and Hasan-ACC see-PAST-1.SG
Intended reading: ‘Yesterday I saw Zeynep and Mehmet and Hasan at the movies.’

b.? Dün sinema-da Zeynep-i ve Mehmed-i ve Hasan-1
yesterday cinema-LOC Zeynep-ACC and Mehmet-ACC and Hasan-ACC
gör-dü-m.
see-PAST.1
‘Yesterday I saw Zeynep and Mehmet and Hasan at the movies.’
The awkwardness of (31b) is stylistic and comes from the repetition of the conjunction marker. Crucially, (31b) is grammatical, while (31a) is not.  

Secondly, where the complex DP is in a case-marked position, only the second conjunct receives the appropriate case; the first conjunct, marked with *ile-iA*, does not:

\[(32)\]

\begin{enumerate}
\item a. Dün sinema-da Zeynep-le Hasan-i gör-dü -m.
\item b. *Dün sinema-da Zeynep-i-yle Hasan-i gör-dü -m.
\end{enumerate}

\begin{enumerate}
\item yesterday cinema-LOC Zeynep-and Hasan-ACC see-PAST-1.SG
\item yesterday cinema-LOC Zeynep-ACC-and Hasan-ACC see-PAST-1.SG
\end{enumerate}

In coordinate structures with the general conjunction marker *ve*, on the other hand, each conjunct can receive the appropriate case, as we saw in (31b).

These limitations on *ile-iA* would follow, if this element is not a conjunction marker, but a postposition; that postposition would be expected to show up on one element (i.e. its complement) only, and it would block case assignment to the postpositional object by another case marker (in this instance, by the verb).

If we accept this analysis of *ile-iA*, we would also have to adopt an analysis which views the comitative adjunct as a PP rather than as a BP in examples like (12) (and also in examples like (1), with the second conjunct a small pro, but otherwise with an identical structure), i.e. accept an analysis of the second conjunct as a singular pronoun to which a PP rather than a BP has been adjoined. This, in turn, would force us to posit semantic determination of the plural agreement. (Or, conversely, an analysis of the BP as a PP in examples like (1) would force us to posit semantic rather than syntactic determination of the singular reading of the silent second conjunct despite the presence of plural subject agreement on the verb.)

I would like to suggest here that, at least for Turkish, the cost is too high for this move, and that the CC analysis of the inclusive reading and a singular interpretation of the second conjunct can be maintained in spite of the problems just mentioned.

### 2.7 In Defense of the CC-Hypothesis

We saw earlier, namely in the examples (16)-(20) and in (21)-(24) that the putative PP-adjunct marked with -iA in the complex DP behaves differently from other PP-adjuncts, and we further saw, via examples (26) and (27), that PP-adjuncts within DPs are extremely limited in Turkish. These facts argue strongly against a SPC-approach which would not be based on a CC.

Furthermore, the arguments against the CC-hypothesis presented above lose some of their force when additional evidence is considered.

First of all, the case assigned to a complex DP does not have to spread to the conjuncts in Turkish (as it apparently must in other languages like Russian), when that complex NP is a coordinate structure; witness the behavior of a coordinate structure with *ve* 'and', whereby either both conjuncts are marked with the accusative suffix (as also...)

---

\[16\] Actually, (31a) is OK, when the three potential conjuncts are arranged in a pair-wise fashion, i.e. under the reading: 'Yesterday, I saw Zeynep and [Mehmet and Hasan] at the movies.'
Turkish comitatives: The genuine and the apparent

seen earlier in (31b)), but where the option exists of only the second conjunct bearing that suffix:

yesterday cinema-LOC Ahmed-ACC and Hasan-ACC see-PAST-1.SG 'Yesterday I saw Ahmet and Hasan at the movies.'

b. Dün sinema-da [Ahmet ve Hasan]-i gör-dü-m.
yesterday cinema-LOC Ahmet and Hasan-ACC see-PAST-1.SG 'Yesterday I saw Ahmet and Hasan at the movies.'

Note that in (33b), the first conjunct does not bear the Accusative marker; only the second conjunct does. From this point of view, the behavior of the coordinate object in (33b) is closer to that of the complex DP with -i in (32a) than it is to the coordinate object with ve in (31b).

I would like to suggest the following approach to the conjunction facts with respect to case marking. In examples like (31b), where each conjunct bears the case marker appropriate for the mother node of the coordination, each conjunct is a KP (i.e. a case phrase). In examples like (33b), where only the last conjunct bears the case marker, each conjunct is a DP. The reason why the case marker attaches only to the last conjunct in such examples is not the status of that conjunct as the head of the phrase; rather, the case is really at the level of the mother node from a syntactic point of view; but since the case marker happens to be a suffix morphologically, it attaches to the right-hand periphery of the phrase, which happens to be the end of the last conjunct.17

If this is the correct analysis for conjunctions formed with ve in examples where the conjuncts do not bear case themselves, there is no reason why the same analysis should not hold for conjunctions formed with -i in (31a). There, too, the last (i.e. second) conjunct will be the only one to carry the case marker; this will be due that conjunct's phrase-final position and not because of its putative head status.

The fact still remains that ile/-i can conjoin only two elements, while ve is not restricted in this way. But we can simply say that this is a lexical property of this item; why shouldn't languages have the option of marking in some special way coordinations consisting of two items only? The alternative is to say that the constituent marked with this element is a PP, and we saw earlier that it does not behave like a regular PP adjunct within an DP. Hence, the account positing a coordinate structure for the complex DPs in question is the preferable one.

There is one more restriction on the distribution of ile/-i: It can conjoin only nominal elements, while ve is not so restricted. This, at first glance, would make ile/-i seem more like a case marker or a postposition rather than a conjunction marker.

However, some more detailed observation shows that ile/-i can conjoin not only DPs, but also nominal entities of a lower phrasal level. An example of N0-level (or perhaps NumP-level) conjunction with ile/-i follows.

17 This phenomenon of a single case marker (or of other bound morphemes) distributing over conjuncts in a coordination is often referred to in the literature as Suspended Affixation. For this phenomenon in Turkish, see, for example, Erdal 2007, Kornfilt 2012, and Lewis 1975.
'Yesterday I saw huge lobsters and (huge) fish in the sea.'

Note that under the reading sketched in the translation, the adjective kocaman ‘huge’ can have scope over both conjuncts, i.e. it can be external to the coordination with –la under this reading.

Since case is assigned to DPs and not to lower level phrases, and since postpositions select for DP objects (unless they select for clausal objects), it appears that ile-/lA as a conjunction marker is neither a case nor a postposition.

Note also that ile-/lA exhibits some interesting behavior where it appears with some types of nominal clauses. It can freely attach to infinitivals and clauses whose predicate is so-called action nominal, but not to clauses with so-called factive nominals18:

(35)  [[Ahmed-in yarış-t] kazan- Croat.3SG-and] Mehmed-in
      Ahmet-GEN race-ACC win-Act.Nom.-3SG-and Mehmet-GEN
      work-his-ABL fire-PASS-Act.Nom.-3SG same day-DAT meet-PAST
      'Ahmet's winning the race and Mehmet's getting fired from his job happened on the same day.'

      Ahmet-GEN race-ACC win-Fact.Nom.-3SG-and Mehmet-GEN
      iş-in-den kov-ul-duyg-un]-u yeni duy-du-m. 
      work-his-ABL fire-PASS-Fact.Nom.-3SG new hear-PAST-1.SG
      Intended reading: 'I've heard recently that Ahmet won the race and Mehmet was fired from his job.'

It is likely that an explanation of this difference lies in the somewhat more nominal nature of the “action” nominal complements as opposed to “factive” complements; the main independent evidence is that action nominal complements have no marking of independent tense at all, while in factive nominals, the marker -DIG denotes non-future; future is expressed by the special factive nominal marker -AcAG.

Note, however, that factive nominal complements are nevertheless nominal enough to accept, indeed require, case marking — otherwise a property of DPs; furthermore, they show up in syntactic positions otherwise occupied by DPs, e.g. as objects of verbs as well as of postpositions. Hence, if factive complements are DPs on independent grounds, the inability of ile-/lA to conjoin such complements must be due to some lexical

---

18 This terminology for different types of nominalization goes back to Lees 1963. As has been shown more recently, these terms do not always fit the context, given that the so-called factive nominalization can show up in non-factive contexts, and the so-called action nominalization can show up for non-actions. For some discussion see Erguvanlı Taylan 1998, among others.
idiosyncracy\textsuperscript{19} of the conjunction marker rather than (solely) to the defective nominality of the complement clause.

It should also be noted that the conjunction marker \textit{ve}, while more general in its distribution, cannot be used everywhere, either. For example, \textit{ve} sounds very stilted when conjoining sentences and VPs:

\begin{center}
\textbf{(37)} ?? \{ Ahmet \textit{yarış-ı} kazar-\textbf{di} \} \textit{ve} \{ Hasan iş-in-den kov-ul-du\}.

\quad \text{Ahmet race-ACC win-PAST and Hasan job-his-ABL fire-PASS-PAST}

\quad \text{'Ahmet won the race and Hasan was fired from his job.'}
\end{center}

\begin{center}
\textbf{(38)} ? Ahmet \{ \textit{yarış-ı} kazar-\textbf{di} \} \textit{ve} \{ vatan-in-a dön-\textbf{dü} \}.

\quad \text{Ahmet race-ACC win-PAST and country-his-DAT return-PAST}

\quad \text{'Ahmet won the race and returned to his home country.'}
\end{center}

It sounds much better to use a construction for sentential coordination whereby the conjunction marker follows the first item of the last conjunct:

\begin{center}
\textbf{(39)} [ Ahmet \textit{yarış-ı} kazar-\textbf{di} ], [ Hasan \textbf{da} iş-in-den kov-ul -\textbf{du}].

\quad \text{Ahmet race-ACC win-PAST Hasans and job-his-ABL fire-PASS-PAST}

\quad \text{'Ahmet won the race and Hasan was fired from his job.'}
\end{center}

The best-sounding VP-coordination pattern, on the other hand, is one where the tense/aspect and agreement markers of the first conjunct are replaced by the suffix \textit{–(y)}\textit{lp} (if tense/aspect and agreement are to be interpreted as being the same as those of the second conjunct):

\begin{center}
\textbf{(40)} Ahmet \{ \textit{yarış-ı kazar-\textbf{lp}} \} [ vatan-in-a dön-\textbf{dü} ].

\quad \text{Ahmet race-ACC win-\textbf{and} country-his-DAT return-PAST}

\quad \text{'Ahmet won the race and returned to his home country.'}
\end{center}

It appears, therefore, that Turkish has a variety of different coordination markers, each one with its own idiosyncratic properties. Thus, rather than claiming that \textit{ile}/\textit{-IA} is a postposition in these coordination structures, it would be more appropriate to claim that it is a special conjunction marker. This will enable us to maintain a purely syntactic explanation of the plural agreement facts for the so-called PP-included readings, which are, as mentioned earlier, actually BP-included readings.

I now turn to some differences between \textit{ile}/\textit{-IA} as a clear-cut postposition in the PP-excluded construction and \textit{ile}/\textit{-IA} as a conjunction marker.

\textsuperscript{19}This idiosyncracy probably has to do with the difference in the height of the clausal architecture at which different coordination markers attach; the general coordination marker \textit{ve} clearly attaches very high, at the KP level which is above the nominalized clausal level, while \textit{ile}/\textit{(y)}\textit{la} attaches lower (since case markers can’t show up when this marker is present), but probably as high as TP, given that it can distinguish between a T-head which has genuine tense features from a completely defective T without any tense features; for a treatment of nominalized clauses with different levels at which “nominalization” applies, and for the idea of defective tense in such clauses, see Borsley & Kornfilt (2000), Kornfilt & Whitman (2011), among others.
2.8 Differences between the Postposition and the Conjunction

The first difference is a semantic one. In its purely comitative use, *ile/-la* denotes togetherness. On the other hand, togetherness is a possible, but not a necessary ingredient of a situation denoted by a coordinate structure. Hence, different truth conditions obtain for the following two examples:

(41) Ben dün Hasan-la sinema-ya git-ti-m.
    I yesterday Hasan-with cinema-DAT go-PAST-1.SG
    'I went to the movies with Hasan yesterday.'

*Hasan-la* is a regular comitative constituent here, and the construction has the PP-excluded reading; it makes good sense to view *ile/-la* as a postposition in this usage. Note that (41) is true only if Hasan and I went to the movies together; it would be false, for example, if we went to different movie theaters, even if we did so at the same time.

Now compare (41) with (42), a BP-included construction and, as I claim, with *ile/-la* as a conjunction marker rather than as a comitative postposition:

(42) Hasan-la ben dün sinema-ya git-ti-k.
    Hasan-and I yesterday cinema-DAT go-PAST-1.PL
    'I went to the movies with Hasan yesterday.'

Although the primary reading of (42) is that Hasan and I went to the movies together, it is possible to imagine situations where we went separately or even to different cinemas. Suppose, for example, that Hasan and I are part of a group of diligent students preparing for an exam. Yesterday, Hasan and I were the only ones who wanted to escape work; (42) could then be uttered successfully. If we went separately, (42) would be true in such circumstances, but (41) would be false. If so, the ‘conjunctive’ use of *ile/-la* is not comitative, and the morpheme should not be glossed as ‘with’, but with ‘and’, in this particular usage.

Another difference between *ile/-la* as a genuine comitative postposition and as a conjunction marker comes from dialect data.

*iile/-la* is one of a small number of postpositions that assign Genitive case to their objects, if the object is a pronoun (more specifically, a personal pronoun, a demonstrative, or the [+human] WH-element *kim* ‘who’; otherwise, no overt case is assigned to the complement, i.e. the object of this element:

(43) Ben sen-in-le sinema-ya gid-eceğ-im.
    I you-GEN-with cinema-DAT go-FUT-1.SG
    'I will go to the movies with you.'

(44) Ben Hasan-la sinema-ya gid-eceğ-im.
    I Hasan-with cinema-DAT go-FUT-1.SG
    'I will go to the movies with Hasan.'
Turkish comitatives: The genuine and the apparent

There is a tendency in modern Turkish to omit the Genitive assigned by postpositions to pronouns in the spoken, colloquial style. More conservative speakers do tend to retain the Genitive — a tendency which is enforced by normative influences via grammar textbooks, grammar instruction in schools etc. However, in spite of such pressure, even the conservative dialect allows (as a matter of fact, even prefers) for "Genitive-Drop" in the structures which I am claiming are due to coordination and to *ile*–*lA* as a conjunction marker:

'bCome on, let's you and I go to the movies tonight!' 


This strong tendency to drop the Genitive on a pronominal which is the first conjunct in a coordination formed with the cliticized form –*lA* becomes a prohibition of grammar when it is the first conjunct rather than the second which determines, via the Person Hierarchy mentioned earlier, the person feature of the agreement marking on the predicate:

(47) a. * [Sen-in-le o] dün sinema-ya mı git-ti-niz? 
'Did you and she go to the movies yesterday?'

b.(?)[Sen-le o] dün sinema-ya mı git-ti-niz?

---

20 The Genitive found elsewhere, e.g. with subjects of embedded nominalized clauses or on possessors in possessive noun phrases is not subject to this trend to omit it. This trend is observable not only for the comitative, but also for other postpositions that share the property of assigning the Genitive to pronouns only—although this tendency is much more pronounced with the clitic version of *ile*–*lA*.

21 It is important to note the plural rather than singular agreement here, in order to understand the relevance of the ungrammaticality of this example. The almost identical counterpart of (47a), with the same word order and with the Genitive marking on the pronoun, is perfectly grammatical when the agreement is singular (note that the agreement marker for third person singular is zero in the verbal agreement paradigm):

(i)  Sen-in-le o dün sinema-ya mı git-ti? 
'Did she go to the movies with you yesterday?'

Here, the third person singular pronoun *o* is the sole subject of the sentence and thus determines the agreement on the predicate. There is no complex subject here; rather, the DP marked with *-le* is simply a comitative PP which has been scrambled to sentence initial position from its original position within the VP; the source for this PP-excluded construction is (ii):

(ii) O dün sen-in-le sinema-ya mı git-ti?
In order to understand these facts better, it might be helpful to realize that overt conjunction markers are a rather late development in Turkish; Turkologists report that the oldest documents of Old Turkic (runic inscriptions from the 7th century AD) do not show any evidence of conjunction markers. Even in Modern Standard Turkish it is possible to omit conjunction markers in many syntactic contexts:

(48)  a. Ahmet, Mehmet ve ben
    Ahmet, Mehmet and I
    'Ahmet Mehmet, and I'
  
b. Ahmet, Mehmet, ben
    Same translation as in (49a.)

We see the general conjunction marker ve in (49a); this element was borrowed into the language from Semitic. (49b) shows the possibility of dispensing with a conjunction marker.

Note that the very existence of examples like (47b) is strong evidence in favor of the CC-based analysis. If the complex subject in such constructions were not a coordinate structure, as it would not be under any hypothesis which views the “comitative” phrase as a PP-adjunct for inclusive readings, we would not expect for such an adjunct (i.e. the DP marked with *ilef~lA*) to be able to determine agreement. Note that it would be curious enough for an adjunct to determine plurality by its mere existence; it would be all the more curious for a postpositional object within a PP which is itself a mere adjunct to be able to pass on its person features to the "mother node" of the subject. On the other hand, these two phenomena are perfectly predictable behavior for a conjunct in a coordinate construction; hence, the CC analysis must be the correct one.

Note also that the rejection of the Genitive marker which is otherwise found on pronominal complements of the “comitative” marker is expected under the CC analysis, while it is surprising for any hypothesis which views the comitative phrase as a PP-adjunct within the complex subject. There is no reason to expect a PP to have any different (morpho-phonological) properties when it is a VP-adjunct (or is in a chain with such a VP-adjunct position) on the one hand and when it is part of a complex DP, on the other. However, if we are not dealing with a PP adjunct but rather with a straightforward conjunct, i.e. with a BP, we would expect it to have different properties from a PP.

The fact that rejection of the Genitive by a pronoun is even stronger when that pronoun (when it is a first conjunct) determines agreement (via the Person Hierarchy) is also expected under the CC hypothesis. In such a situation, the first conjunct is a stronger determining entity than the second conjunct and thus takes on "head-like" properties, revealing the coordinate nature of the complex subject in a clear-cut manner, since Turkish has otherwise no left-headed constructions. The Genitive marking, even if it is only a semblance of case and not genuine case, would render that coordinate nature

---

22 The (half a) question mark of (47b) can be explained by the preference (for some speakers) for having the conjunct with the higher ranking on the Person Hierarchy as the second, rather than the first, conjunct. i.e. as the phrasal head of the coordination.
Turkish comitatives: The genuine and the apparent

The genuine and the apparent opaque; rejection of the (surface) Genitive marker makes the structure transparent with respect to its true nature as a conjunct within a coordination.

Now that we have unraveled the mysteries of the CC-nature of the SPC construction, it is clear that this structure is the source for the related PP-included reading of examples like (1), which is an instance of a CC construction with an appropriate pro-head, whereby the pro would have the features first person and singular for the “surprising reading” (reading A. in the summary of section 2.5), and the features first person and plural (reading B. in the summary of section 2.5).

3. The CC as a Parenthetical

This brings us back to a question that was raised earlier in the paper and which has been left unanswered so far. This question was for an account of the PP-included reading for (10), which is repeated below as (49):

(49) [Hasan-la] biz dükkân-a git-ti-k.
    Hasan-and we store-DAT go-PAST-1.PL
    'Hasan and I went to the store.'

As mentioned in the introductory discussion of (10), this example is ambiguous between a BP-included and a PP-excluded interpretation. The latter is not surprising and is simply due to scrambling of the comitative constituent to the beginning of the sentence. But if all BP-included readings are due to the CC-construction in Turkish, yet if the subject biz 'we' does not form a constituent with the (apparent) comitative element, how can we account for this reading?

I would like to claim that (49) is a particular version of (1), namely of a construction including the CC with a (singular) pro-head. The CC is a parenthetical and has been scrambled from its original position after the plural subject to sentence initial position. The source for (49) would be (50):

(50) Biz, [Hasan-la] dükkân-a git-ti-k.
    we Hasan-and store-DAT go-PAST-1.PL
    'Hasan and I went to the store.'

To see the PP-included translation here might be surprising; we have seen similar examples earlier, claiming that they were typical examples of a PP-excluded reading, with a unique subject and a VP-dependent comitative PP in their basic word order. As a matter of fact, the surface string of (50) is ambiguous and does also have a PP-excluded reading. A more appropriate representation of the PP-included reading of (50) is given in (51):

(51) Biz, [Hasan-la pro], dükkân-a git-ti-k.
    we Hasan-and [+1.PRS +SG] store-DAT go-PAST-1.PL
    'We, that is Hasan and I, went to the store.'
It is important that under this analysis of the “comitative” as a conjunct within a parenthetical coordination, the plural subject pronoun which agrees with plural agreement on the verb does not form a constituent with the “comitative”.

Given that this is a rather subtle issue, the judgments of four native speakers (a subset of those acknowledged in the acknowledgment footnote) were elicited. It turned out that whenever the agreement on the verb is plural, a sequence of a pronoun and a “comitative” (under either order) is well-formed only if the sequence is interrupted by a heavy intonational break, thus making it clear that the sequence does not form a constituent. This is true for both the BP-included and the PP-excluded readings.

Furthermore, it is possible to have an appropriate overt singular pronoun in the place of pro; while the juxtaposition of these personal pronouns, with the parenthetical pronoun referring to a subset of the non-parenthetical pronoun, is not completely felicitous, obvious downgrading of the parenthesis by intonational means or syntactic material makes the utterance better:

(52) Biz, yani [Hasan-la ben], dükân-a git-ti -k.
    We that is Hasan-and I store-DAT go-PAST-1.PL
    'We, that is Hasan and I, went to the store.'

(53) Biz, (sotto voce: Hasan-la ben), dükân-a git-ti-k.
    Same reading as in (52).

If this view is correct, (50)/(51) would be related to (52) and (53); (49), in turn, would be a scrambled version of (50)/(51), with the parenthetical material scrambled.

As a matter of fact, additional scrambled versions of (50)/(51) suggest that this is indeed the correct analysis of the construction in (49) under its BP-included interpretation.

The sentence-initial position in Turkish is usually the site of a topic or of shared information; thus, a better translation of (49) than the one given there would be:

(54) As for Hasan and me, we went to the store.

Another syntactic position suited for a parenthetical is post-verbal, where afterthoughts or presupposed material are found:

(55) Biz dükân-a git-ti-k [Hasan-la pro].
    'We went to the store—that is, Hasan and me'

However, one would not expect for a parenthetical to be the sentential focus; indeed, this is not possible:

    b. * Biz dükân-a—[HASAN-LA pro]—git-ti-k

The immediate pre-verbal position is where focused elements are found in Turkish. The surface string depicted in (56) is grammatical, however not under the analysis outlined in
Turkish comitatives: The genuine and the apparent

(56), but rather under the PP-excluded reading only. In other words, the ambiguity of (49) between a BP-included and PP-excluded reading is maintained under scrambling of the parenthetical to unstressed positions, but not under focusing. This is just as expected if, for the BP-included reading, we assume that the constituent marked with ile/la is contained within a CC which is itself a parenthetical.

4. Summary and conclusions

I hope to have shown in this paper that certain instances of plural agreement without an overt plural antecedent in Turkish are due to the existence of complex subjects which consist of coordinate structures rather than of a pronominal head with a PP-adjunct. In those instances where there is an overt antecedent, I have argued that a coordinate structure of the sort described here is present, as well, as a parenthetical. One of the conjuncts within such complex subjects (or within a parenthetical to a plural subject) can be an overt singular pronoun, or it can be a phonologically empty pure pronominal, namely pro, with the appropriate features, and crucially interpreted as singular. This would give us the reading A. in the summary in section 2.5. (Such a pro can also be interpreted as plural — reading B in the summary in section 2.5.)

I have also argued that Turkish does not have a PPC of the sort argued for in A. I take the existence of the PPC in languages like Tzotzil to have been convincingly established by A., as well as by other scholars for Russian, as mentioned here in passing. Its lack in Turkish just shows that constructions like (1) and (12) with their "surprising" plural agreement may have more than one source cross-linguistically. It might be interesting to investigate whether any given language that has a construction like (1) has more than one source for its PP-included reading; I leave this question open for future research.

My main concern here has been to show that in Turkish, the PPC is not a possible source for the PP-included reading for (1); furthermore, I hope to have shown that the determining elements for agreement are syntactic rather than semantic, and that they have to form constituents at Spellout. More specifically, I have proposed syntactic analyses for all three readings of (1) as summarized in section 2.5, whereby all readings can be read off straightforwardly from a syntactic structure; the pro, the phrasal head of the relevant coordinate structures as subjects of utterances with plural agreement, was shown to correspond in a transparent manner to the overtly singular as well as plural pronominal phrasal heads in coordinate subjects that co-occur with such plural agreement. Thus, the Turkish comitative marker has a dual nature: 1. As a genuine comitative, when it is a P and heads a PP adjunct of VP, and 2. As a special coordination marker, B, heading a BP adjunct of a coordination with a pronominal second conjunct, which is the phrasal head of the coordination. As we have seen, that phrasal head can be overt (a singular or a plural pronominal), as just explained, or it can be small pro (with the option of singular or plural features); in either instance, the person feature of that phrasal head will be projected to the entire coordination, thus determining the person feature of the predicate; the coordinate nature of the complex subject (whether with an overt phrasal head or with small pro as that head) determines the predicate’s plural agreement.
References


Demirok, Ömer. 2016. On ile in Turkish. Ms., MIT.


Jaklin Kornfilt
kornfilt@syr.edu
1. Introduction

This paper is concerned with an asymmetry between two instantiations of the defective copula verb *i-* in Modern Turkish: the past form *i-di* and the conditional form *i-se*. The suffixes -*di* and -*se* attach to *i-* as to any other verbal stem, and they also take the same pronominal suffixes, cf. (1) and (2).

(1) a. i -di -k  
    COP -PST -1PL  
    ‘we were’

    b. gel -di -k  
    come -PST -1PL  
    ‘we came’

(2) a. i -se -k  
    COP -COND -1PL  
    ‘if we were’

    b. gel -se -k  
    come -COND -1PL  
    ‘if we came’

They furthermore share the property that they like to attach to their host as clitics, in which case the initial [i] disappears after consonants, (3b), but remains visible as [j] after vowels, (4b).

(3) a. yorgun i -di -m  
    tired COP -PST -1SG  
    ‘I was tired’

    b. yorgun -∅ -du -m  
    tired -COP -PST -1SG  
    ‘I was tired’

(4) a. hasta i -di -m  
    sick COP -PST -1SG  
    ‘I was sick’

    b. hasta -y -di -m  
    sick -COP -PST -1SG  
    ‘I was sick’

*I thank my informants for their valuable judgments and patience; Kadir Gökgöz, Susi Wurmbrand, and the audiences of Tu+1 at UMass and a LingLunch at UConn for their feedback and comments; and Deniz and Faruk for their commitment and excellent organization of this workshop.

1See Iatridou (2013) for arguments that -sA is not a conditional suffix but a correlative. I will gloss it as COND for simplicity and because I am not concerned about its semantics.

© 2018 by Sabine Laszakovits
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 127–139.
GLSA Amherst.
When -DI² and -sA attach to the verb stem, they seem to take the same morphological slot as participial tense/aspect/mood (TAM) suffixes, such as -Iyor PROG, -(y)AcAG FUT, -(IIA)r AOR, -mIs PERF, a.o. (Göksel & Kerslake’s (2005, §8.2.3) position 3). As TAM suffixes, they cannot be separated from the verb stem by the polar question particle, (5), but as copular clitics, the question particle can intervene between V+TAM and i-di, (6a). Interestingly, this intervention is not possible when followed by i-se, (6b).

(5) a. *gel -mi -di -k
    come -Q -PST -1PL
b.  gel -di -k -mi
    come -PST -1PL -Q
‘Did we come?’

(6) a. gel -ecek-mi -y -di -k
    come -FUT -Q –COP -PST -1PL
    ‘Were we going to come?’

b. *gel -ecek-mi -y -se -k
    come -FUT -Q –COP -COND -1PL

One might think that the reason for the unacceptability of (6) is that conditionals are islands and do not allow embedding of question elements. However, this is easily shown to not be the right analysis. In (7), a conditional clause contains a wh-word, and in (8), -mI is inside a conditional but attaches to a different host.

    A   M what read -AOR -COP -COND happy be -FUT
    ‘What is such that Ali will be happy if Merve reads it?’

(8) [ BU KİTAB -ı [mi] oku -r -∅ [sa] -m ] mutlu ol -acak -sn?
    this book -ACC -Q read -AOR -COP -COND -1SG happy be -FUT -2SG
    ‘Is it this book that you will be happy if I read it?’

This paper is structured as follows: In section 2, I will present evidence for a movement analysis of the question particle -mI, according to which -mI can only attach to constituents that can independently undergo syntactic movement. In section 3, I use this movement test to account for (6b), whereby I try to account for a substantial amount of speaker variation.

²Capital letters indicate phonological variation: A=[a], [ɛ] or [e], D=[d] or [l], G=[g] or [k], I=[i], [ɯ] or [y] ⟨ı⟩. Sounds in brackets indicate insertion/deletion in order to avoid hiatuses. All other transcriptions follow Turkish orthography, except that I will treat the question particle -mI as a suffix because it forms a prosodic unit with its host, rather than as a separate word as in standard orthography.

³I use clefts in the translation to disambiguate which constituent is being questioned, rather than adding prosodic information to the English translation. I do not mean to imply that -mI-questions are syntactically underlying clefts.
I will weaken the claims made in section 2 for certain properties of the verbal complex. Section 4 concludes. In section 5, I briefly present two further differences between i-di and i-se, but leave their analysis open for future work.

2. The diagnostic: -mI as a trigger for movement

-mI can be roughly described as attaching to the constituent whose focus alternatives it introduces (Kamali 2015). In (9a), it attaches to the subject, in (9b) to a direct object, and in (9c) to an adjunct.

(9) a. Ali [mi] dün yemek yap -tı?
   A  -Q yesterday dinner make -PST
   ‘Was it Ali who made dinner yesterday?’
   Focus alternatives: {Ali, Markus, Merve, . . . }

      F  D  -ACC kiss -PST
      ‘Was is Derya who Feyza kissed?’
      Focus alternatives: {Derya, Ömer, Ahmet, . . . }

   c. Ali dün [mi] yemek yap -tı?
      A  -Q dinner make -PST
      ‘Was it yesterday that Ali made dinner?’
      Focus alternatives: {yesterday, today, last monday, . . . }

Apart from subjects and adjuncts, possible hosts for -mI include predicates (10a), possessors (10b), and for some speakers numerals (10c).

(10) a. Ali hasta [mi]?
    A  -Q sick
    ‘Is Ali sick?’

      E  A  -GEN -Q car -3SG -ACC buy -PST
      ‘Was it Ali whose car Emre bought?’

   c. %Emre [ üç [mi] araba ] al -dı?
      E  three -Q car buy -PST
      ‘Is three how many cars Emre bought?’

However, -mI cannot directly attach to demonstratives (11a), attributive adjectives (11b), and complements of postpositions (11c).

    E  this -Q car -ACC buy -PST
    Intended: ‘Was it THIS car that Emre bought?’
Instead, -mi has to attach distantly at a phrase that is able to host it, and must indicate its scope by prosodic means.

(12)  

a. Emre [ BU araba -yi ] -mi [ ] al -di?  
E this car -ACC -Q buy -PST  
Intended: ‘Ali, Emre bought his car.’

b. Emre [ BEYAZ araba -yi ] -mi al -di?  
E white car -ACC -Q buy -PST  
Intended: ‘Was white the color that Emre bought a car of?’

c. Emre [ Merve -mi için ] araba al -di?  
E M -Q for car buy -PST  
Intended: ‘Was it Merve who Emre bought a car for?’

The observation is that those constituents that -mi cannot attach to are the same ones that are not able to undergo movement, while the constituents that -mi does attach to, can undergo movement. As an exemplification for syntactic movement to the left edge, I will use topicalization.

Topicalization is possible for subjects (13a), objects (13b), adverbials (13c), possessors (13d), and for some speakers numerals (13e). Crucially, the speakers who like topicalization for numerals are the same ones that allow -mi attaching to numerals. Topics are separated by a small pause from the rest of the clause, which is indicated by a comma.

(13)  

A yesterday dinner make -PST  
‘Ali, he made dinner yesterday.’

yesterday A dinner make -PST  
‘Yesterday, Ali made dinner then.’

c. Derya -yi, Feyza öp -tü.  
D -ACC F kiss -PST  
‘Derya, Feyza kissed her.’

A -GEN E car -3SG -ACC buy -PST  
‘Ali, Emre bought his car.’

4I use hanging topics for the translation without meaning to imply that fronted topics in Turkish are hanging topics.
What Turkish conditionals can teach us about the question particle

e. % Üç, Emre [ t araba ] al -di.
three E car buy-PST
‘Three, Emre bought this many cars.’

Topicalization is not possible for demonstratives (14a), attributive adjectives (14b), and the complements of postpositions (14c).

this A car -ACC buy-PST
white A car -ACC buy-PST
M A for car buy-PST
Intended: ‘Merve, Ali bought a car for her.’

I propose to interpret this correlation between hosting -mI and being able to topicalize as an underlying causal connection. See also Özyıldız (to appear) for a similar conclusion.

3. On lexical focus in conditionals

This section is concerned with the difference between -DI and -sA described in section 1: -mI can separate the copula from V+TAM, but -sA cannot. A minimal pair exemplifying this is repeated below:

(15) balı ˘g HAŞLA -r [ mI ] -y -di -m
fish -ACC boil -AOR -Q -COP -PST -1SG
‘Is it boil what I would (do to) the fish?’

(16) *balı ˘g HAŞLA -r [ mI ] -y -sa -m
fish -ACC boil -AOR -Q -COP -COND -1SG
Int’d: ‘(So you don’t like fried fish, but) if I BOILED it, (would you eat it?)’

Given the flexibility of -mI to attach to the constituent that it modifies, one might expect (16) to be felicitous at least in those contexts where what is questioned is the lexical content of the verb. The intended meaning of (16) indicates that even then, (16) is unacceptable. Instead, -mI must attach distantly and indicate its scope by prosody, (17). This is parallel to the distant attachment seen with demonstratives, attributive adjectives, and complements of postpositions, (12).

(17) balı ˘g HAŞLA -r -∅ -sa -m -mI
fish -ACC boil -AOR -COP -COND -1SG -Q
‘Is it if I BOIL the fish that …’
Some speakers accept another repair, namely replacing the defective copula \( i \)- with the non-defective copula \( ol \)- that also carries the meaning ‘become’. With \( ol \)-, \(-ml\) can attach below \(-sA\), (18).

\[
\text{(18) } \%\text{balı -t HAŞLA -r} \begin{array}{c}
\text{-mi} \\
\text{-sA} \\
\text{-m}
\end{array} \quad \text{fish -ACC boil -AOR -Q COP -COND -1SG}
\]

The meanings of (18) and (17) are not completely identical. Using the auxiliary \( ol \)- with an aorist gives rise to a somewhat habitual reading (Ersen-Rasch 2012, §15.3). One consultant also describes an ‘ironic’ flavor.

In light-verb (LV) constructions, \(-ml\) can attach to the nominal part under a lexical focus interpretation instead of joining the verbal complex, (19).

\[
\text{(19) } \begin{array}{c}
\text{Ali} \\
\text{-yi}
\end{array} \text{ DAVET -mi et -ti?} \\
\begin{array}{c}
A \\
M
\end{array} \text{ -ACC invitation -Q do -PST}
\]

‘Is it invite that Ali did Merve?’

This is not excluded in conditionals:

\[
\text{(20) } \begin{array}{c}
\text{Ali} \\
\text{-yi}
\end{array} \text{ DAVET -mi ed -er} \begin{array}{c}
\text{-∅} \\
\text{-se}
\end{array} \\
\begin{array}{c}
A \\
M
\end{array} \text{ -ACC invitation -Q do -AOR -COP -COND}
\]

‘If it is invite that Ali does Merve, . . . ’

(18) and (20) are another indication that in principle \(-ml\) is not blocked in the scope of \(-sA\), but that the impossibility of (6b) and (16) must be due to a combination of idiosyncracies of \(-ml\), \(-sA\), and \( i \)-.

Given the diagnostic established in section 2, we make clear predictions about topicalizations of V+TAM when \(-ml\) can attach directly to this complex, resp. about topicalizations of the nominal part of LVCs. Speakers pattern into (at least) two groups with respect to this prediction. What I will label ‘dialect A’ conforms to this prediction, cf. section 3.1. The majority of speakers that I have consulted, however, do not speak dialect A. I will label their grammar ‘dialect B’ and discuss properties of their \(-ml\) in section 3.2.5

3.1 Dialect A: \(-ml\) as a trigger for movement

Given that \(-ml\) can attach to V+TAM in (15), where it is followed by \( i-di \), the diagnostic in section 2 predicts that V+TAM should be able to undergo topicalization. This is not perfectly acceptable, but not deemed unacceptable by speakers of dialect A.

---

5My informants are 10 speakers of Turkish who have grown up in different areas of Turkey. Out of those 10, 2 were speakers of dialect A. I am not aware of any geographic or social factors that distinguish dialect A from dialect B. I have encountered much micro-variation in both dialects as indicated at various occasions throughout this paper. A detailed investigation about the extent of the variation and its factors remains to be undertaken.
What Turkish conditionals can teach us about the question particle

(21) ??oku -r, kitab -t i di -m
read -AOR book -ACC COP -PST -1SG

Given that -mI cannot attach to V+TAM in (16), where it is followed by i-se, we predict that V+TAM should not be able to undergo topicalization if it strands i-se. This is borne out for dialect A.

(22) *oku -r, kitab -t i se -m
read -AOR book -ACC COP -COND -1SG

Replacing the copula i- with the copula ol- makes V+TAM topicalization better. Compare (23) with (22).

(23) ??oku -r, kitab -t ol sa -m
read -AOR book -ACC COP -COND -1SG

Regarding LVCs, we predict that the nominal part should be able to undergo topicalization given that it can host -mI. For some speakers, this holds, but others reject this construction.

(24) %davet, ablam Cihan -t et -ti
invitation my.aunt C -ACC do -PST

Speakers who find (24) acceptable fall within our predictions. For those speakers of dialect A who don’t, I propose to extend Kamali’s (2011) account of -mI as a second-position clitic from VPs to Vs.

Kamali (2011) argues that -mI attaches to the constituent carrying the sentential main accent. In wide focus sentences, the main accent sits on the left-most element inside the VP, i.e. low adverbs and internal arguments, including subjects of unaccusatives, but not high adverbs or subjects of unergatives. When -mI modifies a VP, Kamali takes mI P to attract the left-most constituent inside the VP into its specifier position so that -mI becomes a second-position clitic seemingly inside the VP.

I propose to extend this second-position-clitichood to Vs, and I take LVCs to be complex V heads. Predicate focus in LVCs will then appear as -mI attaching to the nominal element, (25).

(25) Ali Bahar -t davet ml et -ti?
A B -ACC invitation -Q do -PST
‘Is it invite that Ali did Bahar?’

This finds independent support from disambiguating the scope of predicate-final -mI in simplex Vs. (26), as reported by Kamali (2011, ex. (12)) has two readings, either predicate focus or verum focus.
In LVCs we observe a different PF for predicate focus and verum focus. Predicate focus has -\(ml\) as a second-position clitic on V, thereby attaching to the nominal element as in (25). Verum focus has -\(ml\) in a higher position (in the CP-domain, by assumption), thereby following the entire verbal complex. With simplex V, this is syncretic, but with complex V, we predict -\(ml\) to attach to the end of the verbal complex only. This is borne out, (27).

(27) Ali Bahar -\(\text{-i}\) DAVET et -\(\text{-ti}\) [\(\text{-mi}\)?
A B -ACC invitation do -PST -Q
Verum focus: ‘Did or didn’t Ali invite Bahar?’
#Predicate focus: ‘Is it invite that Ali did Bahar?’

Let’s return to example (20), repeated below as (28a). If -\(ml\) here does not attach to davet but to the complex V davet -\(\text{-er}\), we predict davet ed-\(\text{-er}\) to be able to topicalize. Crucially, we predict it to be able to topicalize in contexts where simplex V cannot host -\(ml\) or topicalize, such as before i-se. This is borne out. In (28b), davet ed-\(\text{-er}\) more or less successfully undergoes topicalization. (29) is the control with simplex V. (29a) shows that -\(ml\) cannot attach to simplex V, and (29b) that simplex V cannot undergo topicalization. (Recall that these data hold for a very small group of speakers, namely speakers of dialect A who do not allow topicalization of the nominal part of LVCs.)

(28) a. Ali Merve -\(\text{-yi}\) DAVET [\(\text{-mi}\) ed -\(\text{-er}\) -\(\text{-∅}\) -\(\text{-se}\)]
A M -ACC invitation -Q do -AOR -COP -COND
‘If it is invite that Ali does Merve, …’

b. ??[ davet ed -\(\text{-er}\) ], Ali Merve -\(\text{-yi}\) t i -\(\text{-se}\)
invitation do -AOR A M -ACC COP -COND

(29) a. *oku -\(\text{-r}\) -\(\text{-mu}\) -\(\text{-y}\) -\(\text{-sa}\) -\(\text{-m}\)
read -AOR -Q -COP -COND -1SG

b. *oku -\(\text{-r}\), kitab -\(\text{-t}\) t i -\(\text{-se}\) -\(\text{-m}\)
read -AOR book -ACC COP -COND -1SG

Being unaware of further variation within dialect A, I hope to have thus shown that -\(ml\) does indeed only attach to elements that can move, but that when it attaches to VP and V, it is hosted by the first constituent inside the VP/V rather than by the entire phrase.
3.2 Dialect B: -mI as a second position clitic

Speakers of dialect B do not fulfill the prediction that V+TAM should be able to topicalize when it can host -mI — i.e., they accept (30a), but not (30b).

(30) a. kitab -ı oku -r -mu -y -du -n  
book -ACC read -AOR -Q -COP -PST -2SG  

b. *oku -r, kitab -ı t i -di -n  
read -AOR book -ACC COP -PST -2SG

As established in section 1, there is a contrast between (30a) and (31), which only differ in the TAM suffix, -DI vs. -sA.

(31) *oku -r -mu -y [sA] -n  
read -AOR -Q -COP -COND -2SG

At this point, I have nothing further to say than to stipulate that -DI allows reordering of -mI to its left and that -sA doesn’t — in Özyıldız’s (to appear) framework, i-di allows movement of its complement but i-se doesn’t. Interestingly, reduction of the copula to -∅/y also seems to play a role as (32) with the full copula i- does not allow this reordering.

(32) *oku -r -mu [1] -di -n  
read -AOR -Q COP -PST -2SG

Note that this seems to be consistent with oku-r not being able to topicalize in (30b) since it would have to strand i-di. However, (30b) would not be improved by stranding the cliticized copula -y-di instead, as shown in (33).

(33) *oku -r, kitab -ı t -y -di -n  
read -AOR book -ACC COP -PST -2SG

Further evidence for the flexibility of -mI inside the verbal complex that is not connected to movement abilities of its host, comes from predicate focus under the ability suffix -(y)Abil. Historically, and cross-Turkically, -(y)Abil is a compound verb consisting of the converb -(y)A that still exists independently, and the main verb bil- ‘to know’. Turkish has lexicalized most of its other compound verbs, but -(y)Abil is to this day fully productive.

(34) oku -ya bil -ir -sin  
read -CONV know -AOR -2SG

‘you can read’
Given this morphological split between -(y)A and bil-, we might expect this construction to also be an instance of complex V as discussed for dialect A. We then predict that -mI should be able to attach to only the first element under predicate focus. However, while -mI can appear in this position, it does not give rise to a predicate-focus reading. My informants describe (35) as ‘sarcastic’ and as expressing surprise at someone’s ability while mocking their previous inability. Note that in English, this context would be expressed in declarative form.

(35) oku -ya [mI] bil -ir -sin
read -CONV -Q know -AOR -2SG
‘You can READ?’ (I thought you only ever watched movies.)

But I will set aside sarcastic expressions and leave them for future research.

4. Conclusions

In this paper, I have argued for a movement account of the polar question particle -mI resulting in that the constituent that it attaches to as an enclitic must be able to undergo movement. I tentatively assume that mIP is left-headed and that the hosting phrase needs to move to Spec,mIP, effectively making -mI a second-position clitic. This is an extension of Kamali (2011), who assumes this for predicate-focus questions, but not for narrow-focus questions targeting specific constituents other than VP, and of Özyıldız (to appear), who assumes a similar syntax of -mI in general but does not account for the attachment peculiarities of predicate focus.

I have furthermore used this account of -mI to explain an asymmetry between the two tense/aspect/mood (TAM) suffixes -DI (past tense) and -sA, which marks conditional clauses among other things. The asymmetry consists of -mI being able to attach below -DI in the verbal complex, but not below -sA. I have found that the speakers I consulted patterned into two major groups: group A fulfills the predictions made by this account alone, namely allowed other kinds of syntactic movement of the verbal complex that -mI attaches to. Group B did not allow this, but as I have argued, their grammar is compatible with a second-position clitic approach to -mI. An independent, currently unmotivated assumption is needed saying that -sA blocks the second-position clitichood of -mI.

5. Appendix: More differences between i-di and i-se

Apart from the different behavior of -mI under i-di and i-se that was discussed in this paper, two other differences have come to my attention. I will briefly give the data here, but at this point I have no analysis to offer.

5.1 No conditional of a conditional

The second asymmetry concerns double occurrences of -DI and -sA in a single verbal complex. If -DI attaches to the verbal stem, it can attach again as a copular clitic in order
What Turkish conditionals can teach us about the question particle
to form a past perfect, (36a). But -sA cannot attach to a verbal stem that already has -sA on it, (36b).

(36) a. gel -di -y -di -k
    come -PST -COP -PST -1PL
    ‘we had come’

    b. *gel -se -y -se -k
    come -COND -COP -COND -1PL

-sA can, however, attach to -DI, (37a), and -DI can attach to -sA, (37b).

(37) a. gel -di -y -se -k
    come -PST -COP -COND -1PL
    ‘if (as you imply) we have come’

    b. gel -se -y -di -k
    come -COND -COP -PST -1PL
    ‘if we had come’ (counterfactual)

The same pattern is attested when the personal agreement attaches to the main verb instead
of the copula:

(38) a. gel -di -k -∅ -ti
    come -PST -1PL -COP -PST

    b. *gel -se -k -∅ -se
    come -COND -1PL -COP -COND

(39) a. gel -di -k -∅ -se
    come -PST -1PL -COP -COND

    b. gel -se -k -∅ -ti
    come -COND -1PL -COP -PST

Grammarians report a slight difference in meaning between the two attachment sites of the agreement suffix: Ersen-Rasch (2012, p. 177, p. 209) reports that attachment to the main verb continues a previous discourse, while attachment to the copula does not. Göksel & Kerslake (2005, p. 88) also report these suffix ordering possibilities.

5.2 Double φ-agreement depending on -mI

A further difference between -DI and -sA has been reported to me by Kadir Gökgöz (p.c.)
that I have not found discussed in the literature.
While the pronominal suffix can attach either to the main verb or to the auxiliary, it usually cannot attach to both at the same time. This is not unexpected. This pattern holds for the past perfect (40), and for the counterfactual (41).

\[(40)\]
\begin{align*}
a. \text{söyle -} & \text{di } \langle -m \rangle \ -\Ø/y \ -\text{di } \langle -m \rangle \\
& \text{say } \text{-PST -1SG -COP -PST -1SG}
\end{align*}
\begin{align*}
b. *\text{söyle -} & \text{di } \ -m \ -\Ø \ -\text{di } -m \\
& \text{say } \text{-PST -1SG -COP -PST -1SG}
\end{align*}

\[(41)\]
\begin{align*}
a. \text{söyle -} & \text{se } \langle -m \rangle \ -\Ø/y \ -\text{di } \langle -m \rangle \\
& \text{say } \text{-COND -1SG -COP -PST -1SG}
\end{align*}
\begin{align*}
b. *\text{söyle -} & \text{se } -m \ -\Ø \ -\text{di } -m \\
& \text{say } \text{-COND -1SG -COP -PST -1SG}
\end{align*}

However, under the realis past (42), double occurrence of \(\phi\)-agreement is not out for all speakers. ((43) is given for completeness but presumably ruled out by independent reasons as discussed above.)

\[(42)\]
\begin{align*}
a. \text{söyle -} & \text{di } \langle -m \rangle \ -\Ø/y \ -\text{se } \langle -m \rangle \\
& \text{say } \text{-PST -1SG -COP -COND -1SG}
\end{align*}
\begin{align*}
b. *\text{söyle -} & \text{di } -m \ -\Ø \ -\text{se } -m \\
& \text{say } \text{-PST -1SG -COP -COND -1SG}
\end{align*}

\[(43)\]
\begin{align*}
a. *\text{söyle -} & \text{se } \langle -m \rangle \ -\Ø/y \ -\text{se } \langle -m \rangle \\
& \text{say } \text{-COND -1SG -COP -COND -1SG}
\end{align*}
\begin{align*}
b. *\text{söyle -} & \text{se } -m \ -\Ø \ -\text{se } -m \\
& \text{say } \text{-COND -1SG -COP -COND -1SG}
\end{align*}

Returning to the past perfect and the counterfactual, we find a contrast between (40b) and (44) for the past perfect, and between (41b) and (45) for the counterfactual: insertion of \(-mI\) into the verbal complex seems to ameliorate double agreement.

\[(44)\]
\begin{align*}
a. *\text{söyle -} & \text{di } -m \ -\Ø \ -\text{di } -m \\
& \text{say } \text{-PST -1SG -COP -PST -1SG}
\end{align*}
\begin{align*}
b. ?\text{söyle -} & \text{di } -m \ -\text{mi } -\text{y } -\text{di } -m \\
& \text{say } \text{-PST -1SG Q -COP -PST -1SG}
\end{align*}

"Had I said it?"

\(6\)Groups of angles brackets \(\langle x \rangle \ldots \langle x \rangle\) indicate that the acceptability judgment applies if any single one of these occurrences is realized.
What Turkish conditionals can teach us about the question particle

(45) a. *söyle -se -m -∅ -di -m
    say -COND -1SG -COP -PST -1SG

b. ?söyle -se -m -mi -y -di -m
    say -COND -1SG -Q -COP -PST -1SG

“What if I said it?”

I leave open the question of whether and how these properties of -mi, -i, -sA, and -DI can be unified in more general terms.

References


Özyıldız, Deniz. to appear. Move to mI, but only if you can. In Proceedings of WAFL 11.

Sabine Laszakovits
sabine.laszakovits@uconn.edu
Iconic templates in Turkish

Filiz Mutlu

McGill University

1. Introduction

Iconic roots are bound in Turkish (Hatipoğlu 1971) and they become visible to syntax by means of two word formation processes: affixation and reduplication with or without ablaut (Baturay 2010). I claim these word formation processes create templates (cf. Inkelas 1993), and these templates are recursive. In contrast with the observed trend of iconicity to have more flexible phonotactics than the rest of the language (Samarin 1971, Childs 1988, Dingemanse 2012), I observe Turkish iconicity to be much more restrictive. I claim that Turkish iconic roots and templates reflect the core grammar of the language.

1.1 Iconicity

It was pointed out that the linguistic sign was arbitrary and seemingly non-arbitrary association of meaning and form such as found in onomatopoeic words was marginal (Saussure 1916/1998). However, though iconic tokens may be fewer in number than arbitrary ones, they belong in a system of their own rather than being marginal exceptions (cf. Diffloth 1979, Dingemanse 2012). A case in point is Turkish.

A well-observed quality of iconic words is that they have more flexible phonotactics (Samarin 1971, Childs 1988, Dingemanse 2012). They can resist historical sound change, have speech sounds the rest of the language does not have or more possibilities for the combination of sounds the language has (Diffloth 1979). Turkish is a surprising exception in that the phonology of iconicity is more restrictive, with a fewer number of sounds and sound combinations.

Reduplication and ablaut are two morphological tools used iconically in Turkish (Baturay 2010) like other languages (Doke 1935, Anderson 1998). Reduplication refers to a word formation process that repeats all or part of a word or phrase (Urbanczyk 2006). Reduplication can be transparent ("more of the same") or opaque Michelucci et al (2011). Ablaut (apophony) is a context-free non-arbitrary vowel alternation with grammatically distinctive character (Rieder & Schenner 2001). The apophonic path is a common pattern across languages (Güerssel & Lowenstamm 1996).
Iconic reduplication can follow the apophonic path (i) or it can be complete (ii):

(1) i. chit-chat, slip-slop, tick-tock (English, Rastall 2004)  
   piŋ1 piŋ1 paŋ1 paŋ1 ‘crash’, cīl li xua1 la1 ‘storm’ (Mandarin, Meng 2012)  

ii. hoep-hoep ‘a bird’ (Afrikaans, Huyssteen 2004),  
   pupu ‘owl’ (Cavinena, Guillaume 2008)  
   murmurizo ‘murmer’ (Greek, Fischer 2011)

2. Turkish Iconic Roots

Turkish has bound iconic roots such as güm- ‘bang’, lıp- ‘soft and heavy’, tn- ‘slow’. The examples in this paper are taken from the onomatopoec dictionary of Zülfikar (2005) which lists hundreds of roots and multiple words derived from each root.  

The possible shape of a root is \((C_1)V(C_2)(C_3)\), like non-iconic ones. The most common form is \(C_1VC_2\). The initial consonant of the root can be any consonant but \([n, r]\) and the final any consonant but \([h]\) (Özgenç 1980). Zülfikar notes \([ʒ]\) cannot be \(C_1\). Interestingly, these restrictions hold for verb roots as well, which are also bound (Bayırlı 2012).  

Iconic roots cannot bear nominal or verbal inflection. They must undergo reduplication and/or affixation to become words. Reduplication of bound roots can be complete çat çat, apophonic çat çut or show consonant alternation çat pat (Baturay 2010). The output of reduplication is a nominal (Hatipoğlu 1981). Derivational suffixes on iconic roots yield both verbs and nominals.  

Free roots are attested but few in number: yırt ‘to rip’, pıs ‘to be frightened’ lop ‘soft, roundish, kof ‘empty, flimsy’, gür ‘strong, of a current’ (Standard Turkish); çır ‘to rip’, mız ‘to be a spoilsport’, mış ‘give up on’, pıt ‘to slip out of hand’ (dialect).

3. Templates

There is a set of morphological operations a root goes through until it is lexicalised. I observe that these operations can be parasitic on one another or mutually exclusive. It looks like every operation comes with a slot in a template and operations requiring the same slot are incompatible with one another (cf. Inkelas 1993).  

Reduplication results in creating nominals. Suffixation, however, can be expressive or derivational. I take derivational to mean that the suffix assigns a new lexical category or creates a categorical change in meaning. I will call the non-derivational suffixes extenders (cf. Ido 1999). Extenders intensify or expand the meaning of the stem in a gradient way.
3.1 Template I

Template I is made up of three extenders, a nominal deriving suffix, a verb deriving suffix and reduplication.

(2) Template I

<table>
<thead>
<tr>
<th>root</th>
<th>C3 insertion</th>
<th>Extender {-IR}</th>
<th>Extender {-t}</th>
<th>Der. Suffix</th>
</tr>
</thead>
<tbody>
<tr>
<td>gümb</td>
<td>gümbür</td>
<td>gümbürde</td>
<td>gümbürtü</td>
<td></td>
</tr>
</tbody>
</table>

The second slot gümb and the fourth slot gümbürde are parasitic on the the third slot gümbür. gümb cannot be reduplicated or quoted with an auxiliary verb. The derivational suffixes {-II} and {-dA} select the same base as the extender {-t} so they cannot exist together.

3.1.1 The extender {-IR}

A root can be affixed by {-Ir}/ {-II} tak-ır 'rapping' (Özgenç 1980) attaching to both bases in reduplicated forms tak-ır tak-ır (Baturay 2010). Özgenç (1980) calls {-Ir, -II} onomatopoeic substantive derivational suffixes, Ido (1999) calls them extenders and Zülfikar (1995) describes them as a means of deriving secondary forms of the roots. {-Ir} does not derive substantives. A form like gümbür cannot bear nominal inflection or project into a phrase. {-Ir} must be an intensifier/extender. The distribution of {-Ir} is more restricted than that of {-II}: It does not follow [r] final roots. This does not follow from a phonotactic constraint: üf-ür-ür 'puff-{-IR}-AOR' is grammatical. It is a morpheme specific restriction, part of the morphological template itself.

3.1.2 The extender {-t}

The {-Ir} affixed stem can in turn be fortified by {-t}: tak-ır-t (Ido 1999). In fact, this is the only stem {-t} selects: giöm-b-ür-t, *güm-t.{-t} does not select the [l] form of this extender: *pır-ıl-t. 'sparkle'. This, however, is not a phonological restriction: pr-ıl-t. 'sparkle, NOM.' is grammatical. The restriction has only to do with the selectional properties of a particular morpheme.

3.1.3 The extender {-C3}

When affixed with {-IR}, nasal and lateral final roots are fortified by a plosive to yield a homorganic sequence: tan-g-ır 'crash'; zım-b-ır 'dissonant sound'; hal-d-ır 'rush'. Note that the sequences mur- ‘murmur’, lar- ‘suddenly’ are iconic roots and they are phonologically well-formed. Insertion is not a phonological requirement. It serves to fortify the iconic meaning: It is a morphological operation parasitic on the following
In this template, there are two derivational suffixes {-dA}, {-tI} which select only iconic roots and {-I/Ak} which is still active only on iconic roots. The verb deriving suffix {-dA} and the noun deriving {-tI} select only the {-IR} stem: şangırda ‘to clang’, şangırtı ‘clang’. Bauer (2003, p. 85) notes that {-dA} semantically selects onomatopoeic words and phonologically those ending in a liquid. However, {-dA} never selects liquid final iconic roots: *gürde but gürle ‘roar’. What {-dA} selects is not a sound but a base bearing only one specific morpheme: It is a morphological selection. Göksel and Kerslake (2004) mention that {-tI} is added to onomatopoeic stems to form nouns, but they do not mention that the only stem it selects is the {-IR} base.

The {-IR} stem and verbs derived from iconic roots can be suffixed with {-I/Ak} to yield a nominal: fin-g-ir-de-k ‘flirty’, şın-g-ir-da-k ‘rattling’, çın-g-ir-ak ‘baby’s rattle’. {-I/Ak} conceivably was a productive nominaliser in the history of the language, as a great number of nominals end in it, such as dur ‘stop’ and durak ‘station’. {-I/Ak} currently seems to lead an insulated life of its own within iconic templates. All kinds of iconically derived verbs can be nominalised with {-I/Ak}: pof-la-k ‘empty’, pört-le-k ‘bulging’, üf-ür-ük ‘breath’, çir-la-k ‘shriill’, tü-kür-ük ‘spit’. This suffix is active in templates but no longer so in plain morphology.

This template has four interdependent extenders (two of them with low/high vowel variants), the derivational suffix {-I/Ak} and reduplication. The fortifying function of low vowels contrast with the diminutive function of high vowels.
The second slot hop is parasitic on the third one, hoppa/hoppi. Every other extender is parasitic on the preceding one. (-I/Ak) selects a base with at least one of the extenders.

3.2.1 The extender {I/A}

A fourth extender, {-I/A} starts a different template. It supports the C₃ insertion slot on its left like {-IR} does: giüm-b-e. C₃ insertion and reduplication cannot both occur with an {-I/A} stem: pata pata ‘thumping’, lapa lapa ‘large flakes (of snow)’ but *giümbe giümbe ‘bang’. It looks like the combination of C₃, following extender and reduplication is reserved for {-IR}: giümörü giümörü ‘banging’.

3.2.2 The extenders {-dI/A}, {-nA} and {-lA}

The {-I/A} form can host the extender {-dI/A}: giümbede, hoppidi ‘hopping, sudden’. The two extenders cannot have vowels of different height. Note that this is not for phonological reasons: Other suffixes and roots freely combine with no restrictions on vowel height. With these extenders height has an iconic function such that low vowels convey strong impressions and non-high vowels convey weaker impressions (cf. Jespersen 1922/2013).

The resulting base in turn can host a sixth extender, {-nA}: giümbedene, şappadan ‘splashing’. {-nA} can only attach to {-AdA} but not {-IdI}: hoppadanak but *hoppidinik. I believe this is because {-nA}, as an extender building on three preceding extenders, has a fortifying function and it is semantically incompatible with {-I} which has a diminutive function. Similarly, {-A} but not {-I} can take a seventh extender {-lA}: hoppalara ‘sudden, surprising’, harala gärele ‘bustling, chaotic’ but *hoppli.

3.3.3 Reduplication and Nominalisation

Any slot in the template can be reduplicated to form a nominal (except the second slot, hop): şappada(na) şappada(na), şappada(na) şappada(na), şipidi şipidi, hoppalara hoppalara. {-lA} is only reduplicated with ablaut: çatala çatala ‘crashing’ but *çatala çatala. Any slot in the template can be nominalised with {I/Ak}: hoppak, hoppalak, hoppidik, hoppadak, hoppadanak.
3.4 Further operations

3.4.1 The extender {-Im}

There is an eighth extender suffix, {-m}: *im inim inle ‘moan’ and *szim szim szlal ‘ache’. {-m} does not support C3 insertion on its left. The roots that take {-m} are always reduplicated. In other words, {-m} is parasitic on reduplication. Such roots are relatively few in number and mostly selected by a fixed verb: tirim tirim ara(n) ‘search high and low’, mirin kiren et ‘make up excuses’.

3.4.2 Derivational suffixes {-KIR}, {-lA} and {-Ir}

Zülfikar (1995) mentions the verb-deriving suffixes {-lIr, -šIr, -klIr, gIr} aksIr, takIr, hapšIr ‘sneeze’, öksIr, tohkur ‘cough’, püskIr, püfkIr ‘burst’, höykIr, haykIr ‘roar, cry’ and provides a metathesis analysis for them. He takes the original suffix to be {-KlIr}, which he believes historically underwent metathesis when added to sibilant final roots: as-kIr > aksIr ‘sneeze’. The resulting {-SzIr} then became productive by analogy. The roots these suffixes select cannot be reduplicated: *ak/s ak/s aksIr, *püs püs püskIr. The suffix itself is iconic and have a connotation of bursting, explosion.


Roots can be affixed with{-Ir} to form verbs: ıführ ‘blow’, bağır ‘yell’. {-Ir} is not very productive, but it exists in lexicalised forms.

4. Discussion

4.1 Recursivity

The templates are recursive in that template II can take the extender-bearing output of Template I as input. The output gümbürt and the root that yielded it, güm, are both input to the same operation.

(4) Template I as input to Template II

<table>
<thead>
<tr>
<th>Template I Extenders</th>
<th>Template II Extenders</th>
</tr>
</thead>
<tbody>
<tr>
<td>root C3 [-IR] [-t]</td>
<td>Root C3 [I/A] [-dA]</td>
</tr>
<tr>
<td>güüm gümb gümbür gümbürt gümbürtt gümbürttede</td>
<td></td>
</tr>
</tbody>
</table>

Remember that C3 insertion is parasitic on the following slot that can host either {-IR} from Template I or {-lA} from Template II, but not both: *gümbüre, *gümber. The two suffixes occupy the same slot in the template. However, the whole string gümbürt can return to the root position to the left of C3 insertion and go through Template II.
Previously, recursion with the inflectional suffix {-ki} has been noted by Hankamer (2004). His analysis of the phenomenon is that it “can best be understood in terms of its syntactic functions”. That is, recursion still happens in syntax. Extender recursion is interesting because it is completely invisible to syntax. Extender bearing forms are not words. They cannot bear inflection or project into phrases. So the recursion must belong strictly to morphology.

In plain morphology, at least one derivational suffix has the potential to take a base bearing itself: kitap-lik (book.DER) ‘a place to store books, bookcase’. Consider the possible but non-lexicalised form: kitap-lik-lik ‘a place to store bookcases.’

4.2 Parasitic Slots

Most of the slots in the templates are parasitic on others: C₃ insertion only happens if followed by the extenders {-IR} or {-I/A}. The extender {-nA} is parasitic on the extender {-dA}. {-nA} and {-I/A} follow only extenders with low vowels. {-t} is parasitic on {-IR}.

Any root can be used with diye ‘like thus’ or et ‘do, go’ as an instance of language mention (cf. Göksel, 2015). In fact, even extralinguistic signs such as a hand gesture can be mentioned with diye/et. However, some parasitic slots cannot be mentioned: *gümb diye/et, *gümbe diye/et. These slots are completely invisible to any operation but those they are parasitic on.

4.3 Extension of templates to plain morphology

Non-iconic roots can be run through the iconic templates to create expressive morphology (cf. Zwicky and Pullum 1987). The extender {-Im} is recycled with verb roots: erim erim eri- ‘melt-INTENSE’. It is mostly used with cognitive/psychological verbs or with emotional connotations: sarım sarım sarıl ‘snuggle up to’, üzüm üzüm üzül ‘be sad’

{-IR} and reduplication can act on a sub-morphemic (meaningless) part of regular nominals: orul orul oraleit ‘hot drink-INTENSE’, börül börül börülce ‘vegetable, PLEASANT’.

4.4 Roots as the cognitive core of the language

Bayırlı (2012) argues that Turkish verbs (and in fact, verbs universally) are roots and not phrases until they are nominalised by some operation, which may be phonologically null. Turkish verbs display the same strict phonotactics as the iconic roots: Verbal suffixation is always harmonic and verb roots do not have clusters of a larger set than sonorant-obstruent stop. Neither verbs nor iconic roots contain the sound [ʒ]. Neither verbs nor iconic roots begin with a [r] or [n] or end in [h].

The roots, whether iconic are not, are the core of the language where the restrictions on the shape of objects arise. One important difference between verbal and iconic roots is that the former is a closed class but the latter is not. Novel iconic roots are produced on the go. While the strict phonotactics of verbs could be attributed to the fact that verbs as a
closed class have a frozen grammar, the productive nature of iconicity means that it is not a historical accident but synchronic restrictions at play.

The core patterns of a language are observable in the way roots are utilised: For English, zero-derivation is ‘a particularly productive process’ (Lieber 2005). I believe it is the default process with novel words: google > to google, but not for instance *googlise. The latter would have a different meaning than ‘to search using google’ even if it existed. Such patterns reveal different linguistic strata without any historical information.

It looks like Turkish iconic roots and verbs have similar qualities by virtue of being roots not words. However, verbal roots are inflectable: gel-di ‘come-PAST’ but iconic roots are not *puf-tu ‘puff-PAST’. English iconic roots are inflectable just like verbal ones: whooshed. This raises the question: Are there levels of rootness or boundness in Turkish? Considering cases where the bound stem is not even mentionable the way extra-linguistic objects are, such as *gümb diye, some parasitic slots are also even more ‘bound’ than the root itself.

5. Conclusion

Turkish iconic roots are lexicalised through templates. Morphological operations come with a number of designated slots that have to be filled in by other operations. For instance, the suffix {-Im} comes with an empty slot that must be filled by reduplication. C3 insertion comes with a slot on its right that must host either {-Ir} or {I/A} but not both. Those extenders use the same slot and cannot exist together.

The templates are recursive; the output of one template can be the input of another. Recursion happens at a level invisible to syntax and it is purely morphological.

Roots, both iconic and verbal, belong to a deeper stratum and have the most restrictive phonotactics. Cross-linguistically, iconicity is observed to have more flexible phonotactics. Turkish iconicity is exceptional in being less flexible. The templatic nature of derivation and the phonotactics must be related as the roots are used through these templates, not merely quoted or mentioned as extra-grammatical objects.

Iconic roots are produced on the fly every day and can refer to sound, motion, shape, emotion. They are the sole group of objects selected by a whole set of morphological operations, and support only a subset of the phonotactic possibilities of the language. I believe they form a lexical category like the ideophones of African languages or Japanese mimetics.

References

Iconic templates in Turkish


A Locality Restriction on Indexical Shift: Evidence from Turkish*

Matthew Tyler
Yale University

1. Introduction

In English, 1st and 2nd-person pronouns, or indexical pronouns, always refer to the speaker or hearer of the utterance respectively. But in some languages, an indexical pronoun embedded under a propositional attitude verb may refer instead to the author or addressee of the proposition, as in (1), from Zazaki (Anand & Nevins 2004).

(1) Rojda ne va kr mi kes paci krd.
Rojda not say that I anyone kiss did
“Rojda, didn’t say that she kissed anyone.”

There has been much recent work on the syntax and semantics of indexical shift in various languages (Schlenker 2003, Anand & Nevins 2004, Podobryaev 2014, Shklovsky & Sudo 2014), and much of this work has come to the conclusion that there is a particular operator responsible for shifting the context on which indexical pronouns rely for their reference. However, it has generally been assumed that when an indexical pronoun finds itself in the scope of a context-shifting operator, it is obliged to pick up its reference from the context introduced by that operator, and it does so with no further restrictions. In this paper, I show that, at least for some speakers of Turkish, (a) not all pronouns in the scope of the operator must shift, and (b) the ability of a pronoun to shift can be blocked by an intervening unshifted pronoun. Such patterns are problematic for analyses of indexical shift that make use solely of context-shifting operators. I propose that at least for some speakers, indexical shift should be considered a special case of regular pronominal binding, and that intervention effects are instances of the De Re Blocking Effect in action.

The paper is organized as follows. Section 2 discusses the status of indexical shift in Turkish, and lays out the empirical contribution of this paper – the existence of violations of Shift Together, a supposedly universal principle governing the distribution of shifted

* I would like to thank Deniz Özyıldız, Faruk Akkuş, Bob Frank and Raffaella Zanuttini for their help with this project. I would also like to thank the audience for my QP presentation at Yale, and the visitors to my posters at Tu+1 (UMass Amherst) and LSA 2016.

© 2018 by Matthew Tyler
Faruk Akkuş, Isa Kerem Bayırlı, Deniz Özyıldız (eds.): Tu+ 1, 151–160.
GLSA Amherst.
indexicals. The data appear to show a kind of ‘intervention effect’. Section 3 provides an analysis in which indexical shift is considered pronominal binding, and the intervention effects are accounted for in terms of binding competition (Fox 2000). Section 4 provides cross-linguistic evidence for the proposal from Tsez, and Section 5 concludes.

2. **Indexical shift in Turkish**

Indexical shift in Turkish has previously been discussed in two works: Şener & Şener (2011) and Özyıldız (2012). They are largely compatible, although they differ in one major respect: Şener & Şener claim that only null pronouns may be shifted, while Özyıldız claims that both null and overt pronouns may be shifted, providing examples such as (2).

(2) İnan Ayşe'-ye [sen-inle ben-i nere-ye ata-yacak-lar] de-miş?
İnan Ayşe-DAT [you-COM 1-ACC where-DAT appoint-FUT-3PL] say-DUB

“Where did İnan say to Ayşe that they would appoint {you and me/him and her}?”

The judgments shown in the remainder of this paper come from a speaker of the most permissive variety of Turkish, with respect to indexical shift. The speaker allows shifting in finite clauses embedded under both sanmak ‘believe’ and demek ‘say’, he allows both 1st and 2nd-person pronouns to be shifted, and he allows both null and overt pronouns to be shifted. ¹ In the rest of this section, we see that the speaker also reports a particular set of very revealing judgments that shed light on the nature of indexical shift.

2.1 **Shift Together and its violations**

Anand & Nevins (2004), who investigate the behavior of indexical shift in Slave and Zazaki, propose the generalization in (3).

(3) **Shift-Together Constraint**

All indexicals within a *speech-context domain* must pick up reference from the same context.

That is, where multiple indexical expressions find themselves in the scope of a the same attitude predicate, either they all receive shifted interpretations, or none of them receive shifted interpretations. ‘Mixed’ interpretations, where clausemate indexical pronouns are interpreted according to different contexts, are ruled out by (3).

In Anand & Nevins’s analysis, Shift Together is a natural consequence of how indexical shift works, and so we should not expect to find it violated in any language. This has largely been corroborated in studies of other languages with indexical shift, including Amharic.

¹There is no doubt much more variation in indexical shift in Turkish. The results of some preliminary surveys show that there is variation in terms of which predicates license shifting; speakers pattern differently in whether they allow shifting under sanmak ‘believe’, demek ‘say’, and other attitude predicates. There may also be variation in whether or not 2nd-person pronouns may be shifted.
Locality Restrictions on Indexical Shift: Evidence from Turkish

(Schlenker 2003), Uyghur (Shklovsky & Sudo 2014), Mishar Tatar (Podobryaev 2014) and Tsez (Polinsky 2015), all of which adhere to Shift Together.\(^2\)

Özyıldız (2012), however, presents the paradigm in (4), which shows a Shift Together violation that is grammatical in his variety of Turkish. In (4), reading (i) involves no shifting. Reading (ii) shifts both pronouns, meaning that it obeys Shift Together and so is acceptable, as predicted. Reading (iv) violates Shift Together and is, unsurprisingly, disallowed. But the interesting data point is reading (iii), which is judged acceptable despite violating Shift Together.

(4) Tunc Ayşe-’ye [ben sen-i nere-ye götür-eceğ-im] de-miş?
Tunc Ayşe-DAT [I you-ACC where-DAT take-FUT-1SG] say-DUB

“Where did Tunc say to Ayşe that...
   i. I would take you?”
   ii. he would take her?
   iii. he would take you?”
   iv. *I would take her?”

The generalization seems to be that the lower (earlier) pronoun may shift only if the higher (later) pronoun shifts. We can show that it is not a simple asymmetry between 1\(^{st}\) and 2\(^{nd}\)-person pronouns by considering the sentence in (5), where the 1\(^{st}\) and 2\(^{nd}\)-person pronouns have been switched. Here, we see again that the lower pronoun may shift only if the higher pronoun shifts (the equivalent readings (i) and (ii) are left out, but they are both grammatical).

(5) Tunc Ayşe-’ye [sen ben-i nere-ye götür-eceğ-im] de-miş?
Tunc Ayşe-DAT [you I-ACC where-DAT take-FUT-1SG] say-DUB

“Where did Tunc say to Ayşe that...
   iii. she would take me?”
   iv. *you would take him?”

We can also show that this is not simply an asymmetry between subject and non-subject – when the direct and indirect object are both indexical pronouns, we see the same pattern as before, where the lower pronoun may shift only if the higher pronoun shifts:

(6) Tunc Ayşe-’ye [patron ben-i sen-inle nere-de tanış-tr-acak] de-miş?

“Where did Tunc say to Ayşe that the boss would introduce...
   i. me to you?”
   ii. him to her?
   iii. ?him to you?”
   iv. *me to her?”

This pattern can be stated another way: an indexical pronoun may only shift if there is no unshifted pronoun intervening between the indexical pronoun and the DP serving as

\(^2\)It is worth noting that in Mishar Tatar, apparent Shift Together violations are possible if one pronoun is null, and therefore a member of the class of shiftable pronouns, while the other pronoun is overt, and therefore a member of the class of unshiftable pronouns. However, such examples do not undermine Anand & Nevins’s analysis as, according to Podobryaev (2014), the unshiftable pronouns in Mishar Tatar are assigned reference by a distinct mechanism.
its referent (where ‘intervene’ may, for now, be interpreted as involving structural or linear intervention). So in (6), seninle ‘with you’ may only shift when beni ‘me’ is shifted – this ensures that there is no unshifted indexical pronoun intervening between beni ‘me’ and the DP that serves as its referent, Tunç.

It is also important to reiterate once again that these judgments are not shared by all, or even most, Turkish speakers. These are the judgments of an individual with the most permissive possible constellation of properties related to indexical shift – however, I predict that all speakers who allow Shift Together violations should find the (iii) readings of (4-6) more natural than the (iv) readings. The next section presents an analysis of the grammar that generates this pattern.

3. Analysis

In the previous section we saw that for speakers who allow Shift Together violations, an indexical pronoun may be shifted only if there is no unshifted pronoun that intervenes between the shifting pronoun and the DP serving as its referent (with ‘intervene’ yet to be refined). This pattern bears a strong resemblance to the De Re Blocking Effect (Anand 2006), indicating that indexical shift may be collapsible with regular pronominal binding.

I first compare the asymmetry found in indexical shift to the De Re Blocking effect, before moving onto how shifting and binding might be given a unified analysis.

3.1 The De Re Blocking Effect

The De Re Blocking effect (Anand 2006) states that no obligatory de se anaphor can be c-commanded by a de re counterpart. One consequence of this is the well-documented asymmetry between the 1st-person pronouns in (7), from Lakoff (1972). The only possible interpretation is the one in which the object pronoun is interpreted de re (as George), and the subject de se (as Brigitte). If the object was interpreted de se instead, then the subject would necessarily be de re, and thus we would end up with a configuration in which a de se pronoun is c-commanded by a de re pronoun – a configuration explicitly ruled out by the Blocking Effect.

(7) [George:] I dreamt I was Brigitte Bardot and I kissed me.
   a. In the dream Brigitte kisses George.
   b. # In the dream, George kisses Brigitte.

Another phenomenon that Anand argues to follow from the De Re Blocking Effect is Dahl’s puzzle (Dahl 1973). The puzzle is that of the four logically possible interpretations of the ellipsis site in (8), only three are available. This can be restated as a restriction against a pronoun construed strictly c-commanding a pronoun construed sloppily. Anand (2006), following Fox (2000), argues that reading (d) is unavailable thanks to the De Re Blocking Effect, albeit indirectly.
The reasoning is as follows. Fox’s Rule H (which I refer to henceforth as binding locality) states that where a pronoun could be bound by multiple possible antecedents, and the possibilities would be ‘semantically equivalent’, that pronoun must be bound by the most local possible antecedent. This means that if the pronoun his in (8) is construed sloppily (i.e. requires a binder), only the embedded subject pronoun he may serve as its binder – the matrix subject John is not the most local possible antecedent, and so cannot directly bind his. The possible and impossible binding configurations of the first sentence in (8) are shown in (9), from Anand (2007).

(9) a. *John $\lambda x$ said that $\lambda y$ likes his$_x$ mother.

b. John $\lambda x$ said that $\lambda y$ likes his$_y$ mother.

The binding relations in the elided VP would then have to match those in the anteceding sentence, thanks to a condition enforcing Parallelism. This explains why reading (d) is ruled out – in order to get this interpretation, the lowest pronoun his would have to be bound by the matrix subject, with the strictly-construed pronoun he intervening between them.

Crucial to Anand’s explanation is the notion of binding locality. Anand proposes that the underlying motivation for binding locality is the same as the underlying cause of the De Re Blocking Effect – obligatory de se pronouns (of which me in (7) and his in (8) are both instances) are marked for binding by an operator, and it is this binding operation that cannot be intervened.

Phenomena that Anand also attributes to the De Re Blocking Effect include intervention of long-distance reflexives by indexical and deictic pronouns in Mandarin (Zushi 1995, Anand & Hsieh 2005), and pronoun obviation in the presence of logophoric pronouns in Yoruba (Adesola 2005). In each of these phenomena, the banned or blocked configuration is the same: an unbound, antecedentless element intervenes between a variable-like pronominal element and its binder.

The similarities between the De Re Blocking Effects outlined here and the indexical shift asymmetry in the previous section are clear: in both cases there is a relation between a pronoun and its binder or antecedent, and in both cases that relation is blocked by an intervening unbound (free) pronoun. Given that the De Re Blocking Effect is characteristic of operator-variable relations where the variable is a pronoun, this seems like good reason to attempt a unification of ‘ordinary’ pronominal binding and indexical shift. In the next section, I provide an analysis of indexical shift in (dialectal) Turkish that collapses it with ‘ordinary’ pronominal binding.
3.2 Indexical shift as binding

Following Anand (2006, 2007), I assume that there is a class of pronouns that need to be bound by an operator. For Anand, this is the class of obligatory de se pronouns – he argues that indexically-shifted pronouns acquire their referents via a different mechanism (see Anand & Nevins 2004). However, I propose that at least in some languages, pronouns that are indexically-shifted should be treated in the same way as obligatory de se pronouns. That is, they both must be bound by an operator.

What exactly is this operator? Following earlier work in Tyler (2015), I propose that the operator responsible for binding the shifted indexical is the λ-operator associated with the subject or indirect object argument of the embedding attitude predicate. The binding relation between a shifted indexical and its antecedent in the Turkish variety described here is schematized in (10), using English words.

(10) İnan λx [ Ix clapped ] said.

This operator-variable relationship is equally susceptible to intervention as the other binding relations Anand discusses. In (11), an unbound (and so unshifted) indexical pronoun intervenes between the bound (shifted) indexical and its antecedent, and the result is ungrammaticality. This is the configuration found in the unavailable reading (iii) in (4-6).


However, there are two apparent difficulties with simply assimilating these to other cases of the De Re Blocking Effect. Recall that the effect is a consequence of binding locality, and under binding locality, binding configurations are only ruled out (a) if there is an intervening element which could also bind the variable and (b) if having the variable bound by one potential binder would be ‘semantically equivalent’ to having it bound by the other. Adopting this explanation would mean that (12a), equivalent to (11), is ruled out because (12b) is both available, and ‘semantically equivalent’ to (12a).

    b. İnan λx [ you λy [ mey where take ] ] said.

To assimilate the indexical shift asymmetries to other De Re Blocking Effects would therefore require not only that you can bind I and vice versa, but also that, for the purposes of evaluating binding configurations, indexically-shifted pronouns (e.g. me in (12a)) are considered ‘semantically equivalent’ to unshifted pronouns (e.g. me in (12b)).

---

3I do not claim that the mechanism proposed here should be adopted as an analysis for all indexical shift. Just as Anand proposes that there are multiple routes to de se-hood (see also Maier 2011), there may also be multiple ways to shift an indexical. See also the analysis of Tsez in Section 5.

4In the analysis in Tyler (2015), the person-feature discrepancy between the binder and the bindee is not a problem since the bound indexical is transmitted its 1st or 2nd-person feature from the attitude verb. For an alternative view, in which the attitude verb itself binds shifted indexicals, see von Stechow (2003).
Taking the first problem first, Charnavel (2015) uses the following data to argue that 1st-person pronouns can indeed bind 2nd-person pronouns and vice versa. In (13a), the interpretation of the pronoun in the ellipsis site is not strict (this gives rise to reading (13b)), nor is it clearly in a sloppy relation with an antecedent (this is because the only available antecedent is the 1st-person pronoun in subject position, with which you does not share person-features). Rather, the pronoun in the ellipsis site is interpreted as relying on a “dependent interpretation of you with respect to I’.”

(13) [Romeo to Juliet:] I love you.
    [Juliet to Romeo:] I do too.
    a. Juliet loves Romeo.
    b. Juliet loves herself.

Interpretation (a) of the focus construction in (14) shows a similar dependency between I and you. I follow Charnavel in taking these to be instances of binding.

(14) [Tom to Sue, in a ballroom dancing class:] Only I made you swirl.
    a. No other dancer makes his partner swirl.
    b. No other dancer makes Sue swirl.

Turning to the second problem, are shifted indexicals ‘semantically equivalent’ to their unshifted counterparts, for the purposes of evaluating binding configurations in a binding locality framework? (Anand 2006, 2007) shows that de se ascription is not taken into account during binding competition – this must be true in order for the dream report example in (7) to be derived via binding locality. However, Anand does maintain that in order to function as semantically equivalent, two pronouns do still need to be denotationally equivalent – that is, they must both refer to the same individual. I propose relaxing the definition of ‘semantic equivalence’ for binding competition, and allowing indexicals to be considered equivalent regardless of the individual they identify. I leave the justification and formalization of this notion to future research.

A consequence of the binding approach to indexical shift, in contrast to the approach based on context-shifting operators (Anand & Nevins 2004), is that it does not provide any explanation for Shift Together (3). While we must allow that not all speakers enforce Shift Together, we still require an explanation for why it seems so robust generally. I speculate that the route to indexical shift expounded here, in which shifting is a special case of binding and in which Shift Together is not predicted as a consequence, may co-exist alongside the route to indexical shift that involves a context-shifting operator, and in which Shift Together is predicted.

In the next section, I use Tsez data from Polinsky (2015) to provide further evidence that indexical shift may be a special case of pronominal binding, and that we may require two routes to indexical shift.
4. Shifting as binding: evidence from Tsez

Polinsky (2015) shows that Tsez has indexical shift, as in (15a), and long-distance reflexives, as in (15b).

(15)  
a. *Indexical shift*\(^5\)

\[
\text{Mariyat-}^{á} \text{arza boy-s } [\text{di } \text{magazine-y-á-yor}]
\]
\[
\text{Mariyat-ERG complain-PST } [\text{I.ABS.(II) store-OBL-LOC-VERS y-ik’-án=ñin}].
\]
\[
\text{II-go-FUT.DEF=QUOT}
\]

“Mariyat\(_i\) complained that \(\text{I/she} \_q\) must go to the store.”

b. *Long-distance reflexive*

\[
\text{Kid-b-}^{á} \text{tungi } [\text{nelátow}]
\]
\[
\text{girl-OBL-ERG jug.ABS.II } [\text{LD.REFL.LOC.ESS inside záw-ru-zo } \text{li-d } \text{esay-s}].
\]
\[
\text{be.PST-PST.PTCP]-ATTR.OBL water-INS wash-PST}
\]

“The girl washed the jug with the water that was in itself.”

Polinsky also shows that long-distance reflexives may be based on 1\(^{st}\) and 2\(^{nd}\)-person pronouns, and that these may be bound by anteceding 3\(^{rd}\)-person DPs. That is to say, long-distance reflexives may receive shifted interpretations (and indeed, they cannot receive unshifted interpretations in the absence of a binder that shares the same person-features):

(16)  
\[
\text{Nes-}^{á} [\text{dáqtow } q^{á} \text{anoquno } \lambda \text{eb yol}=\lambda \text{in}]
\]
\[
\text{DEM-ERG } [\text{LD.REFL.1SG forty year } \text{be.PRES=QUOT } \text{say-PST}}
\]

“He\(_i\) said that \(\text{he} \_q\)/*I was 40 years old.”

If Tsez indexical shift works like it does in the Turkish variety discussed here, then this pattern is expected. Under this model, indexical shift is essentially pronominal binding. Therefore, when a pronoun is reflexive and so *must* be bound, if its binder is a 3\(^{rd}\)-person DP it necessarily receives a shifted interpretation. We also predict that we should see a similar pattern of intervention to that found in Turkish: that is, it should not be possible for an unbound indexical pronoun to intervene between a bound pronoun and the operator which binds it. And, to some extent, Polinsky’s data provides some evidence of this. In (17a), we see that a non-reflexive indexical pronoun dow-\(’\text{o-r} \) ‘with you’ may happily co-exist in the same clause as a shifted reflexive indexical pronoun ditow ‘I-self’. In (17b), however, the non-reflexive pronoun \(\text{di } \text{I} \) intervenes between the reflexive pronoun dow\(’\text{o rtow} \) ‘with yourself’ and its binder, and the resulting sentence is degraded.

\(^{5}\)Polinsky uses language-internal diagnostics to show that (15a) is an instance of clausal embedding rather than quotation.
Locality Restrictions on Indexical Shift: Evidence from Turkish

(17) a. Irba-ä_Zarema-q-or [ditow]_dow-y‘o-r bixzi_Ibrahim-ERG_Zarema-POSS-LAT [LD.REFL.1SG.ABS you-SUPER-LAT angry oq-si=xin]_eXi-s.
become-PST=QUOT say-PST
“Ibrahim, told Zarema that he was angry with her”

b. ? Irba-ä_Zarema-q-or [di]_dowx’ortow
Ibrahim-ERG_Zarema-POSS-LAT [1SG.ABS LD.REFL.2SG.SUPER-LAT bixzi_oq-si=xin]_eXi-s.
angry become-PST=QUOT say-PST
“Ibrahim, told Zarema that he, was angry with her”

The degraded nature of (17b) can be blamed on the De Re Blocking Effect – an unbound pronoun intervenes between the bound (shifted) pronoun and its antecedent. However, this explanation crucially relies on the non-reflexive pronoun di ‘I’ being unbound. If di was bound, then it would not function as an intervener, and there would be nothing odd about (17b). Because di is both shifted and unbound, it then follows that there must be an alternative route to indexical shift available in Tsez. Given that Polinsky describes Tsez as exhibiting Shift Together, I assume that Tsez also makes use of context-shifting operators to shift indexicals.

5. Conclusions

We have seen that Shift Together is not a universal fact about indexical shift, and that some speakers treat certain Shift Together violations as grammatical. Crucially, the impossible Shift Together violations are always the ones where an unshifted pronoun intervenes between the shifted pronoun and its antecedent. In this way, they resemble the cases of pronoun binding that are ruled out by the De Re Blocking Effect, itself a reflex of a rule of binding locality. As such, I have proposed that speakers who allow violations of Shift Together do in fact have a route to indexical shift that involves pronoun binding.

Note that so far, I have left ambiguous the structural framing of the binding relationship that may be ‘intervened’. This is because it does not clearly involve either linear precedence or c-command; if the indirect object in (6) is scrambled over the direct object, as in (18), the original judgments remain in place. That is to say, there is a kind of local scrambling that neither feeds nor bleeds the shiftability of a pronoun:6

(18) Tunc Ayşe‘-ye [patron sen-inle ben-i nere-de tanış-tur-acak] de-miş?

“Where did Tunc say to Ayşe that the boss would introduce me to her?”

6The judgments for (18) are somewhat trickier than for the other examples. This stems from the fact that there is a competing reading of (18) in which sen-inle ben-i ‘you-COM me-ACC’ is interpreted as a coordinated phrase (‘you and me’), rather than two separate arguments of the verb. Özyıldız (2012) shows that indexical pronouns in coordinated phrases must shift together, and so reading (iii) is only available under the non-coordinated interpretation.
This indicates that the relevant relation is computed over some abstract representation – the exact nature of this representation is a topic for future work.

References

Özyıldız, D. 2012. When I is not me: A preliminary case study of shifted indexicals in Turkish. ENS.
Tyler, Matthew. 2015. Reflexes of locality and A’-movement in indexical shift. Yale University.
An Ultrasound Study of the Articulatory Correlates of Vowel Anteriority in three Turkic Languages

Jonathan North Washington
Indiana University

1. Introduction

This paper examines the extent to which a difference in tongue body and tongue root position is correlated with the vowel anteriority ("backness") contrasts in three Turkic languages—Kazakh, Kyrgyz, and Turkish—using ultrasound imaging of the tongue. The motivation for this study is the assertion by Vajda (1994) that Kazakh’s “front-back” vowel contrast is actually associated with the position of the tongue root, and not the position of the tongue body as normally assumed. There appears to be no mention in the literature on any other Turkic language of a tongue-root contrast in relation to the vowel anteriority system; instead, all other sources on Turkic vowels (including all other sources on Kazakh) presume a tongue-body contrast as the correlate of vowel “backness”.

This study briefly overviews the literature on vowel anteriority and claims of tongue-root vowel systems in languages of Central Eurasia (section 2), explains the methodology used for data collection (section 3), presents (section 4) and discusses (section 5) the results, and draws preliminary conclusions (section 6).

2. Background

Vowel backness is normally associated articulatorily with the front-back position of the arched part of the tongue body during vowel production: for front vowels, the highest part of the tongue body is further forward than for that of back vowels.

Some languages of the world have two types of anteriority contrast in their vowel systems: both a backness contrast and a tongue root contrast. In these languages, any given vowel is either front or back, as well as tongue-root advanced or retracted.¹ Each vowel must match one of the four logical combinations, and vowels of all four types are present.

¹Such vowel systems appear to vary in terms of whether they contrast tongue-root advanced / neutral, advanced / retracted, or even neutral / retracted.
This pattern is found most notably among quite a few Western African languages belonging to a range of language families (Ladefoged & Maddieson 1996, ch. 9).

A number of Central Eurasian languages have also been described as exhibiting this sort of system (i.e., one involving both a tongue body contrast and a tongue root contrast), including both Mongolic and Tungusic languages. The Mongolic languages include Western Buriat (Kang & Ko 2012), Buriat (Быраев 1959), Tsongol Buriat (Kang & Ko 2012), Halh (Svantesson 1985, Svantesson et al. 2005), Baarin (Svantesson 1985), and Šiliingol (Svantesson 1985). The Tungusic languages of this type include Solon (Svantesson 1985) and Eastern Ewen (Kang & Ko 2012).

Vajda (1994) describes Kazakh not as a typical tongue root language, as the Mongolic and Tungusic languages are described, but as having a vowel system which contrasts only tongue root position, and not tongue body position.

The purpose of this study is to investigate whether the anteriority contrast in Kazakh and two related languages—Kyrgyz (a close relative) and Turkish (a well studied but more distant relative)—can be attributed in any way to tongue root position as claimed by Vajda (1994) for Kazakh, or whether a tongue body analysis is more viable.

The above-mentioned Mongolic and Tungusic languages, as well as Kazakh, comprise a set of Central Eurasian languages for which a tongue root system has been described. The map in (1) displays the areas where these languages are primarily spoken, as well as the additional languages examined in this study (Kyrgyz and Turkish), and the origins of the six participants in this study.

3. Methodology

Native speakers of Kazakh, Kyrgyz, and Turkish read stimuli embedded in carrier phrases. The stimuli and carrier phrases are presented in §3.1. Audio recordings were made, and the position of the tongue was recorded using ultrasound imaging. How ultrasound imaging of
the tongue works is discussed in §3.2 and how the specific measures for this study were produced is discussed in §3.3.

3.1 Stimuli

The stimuli used in this study were mostly multi-syllabic morphological forms of CVC stems. The vowel of these stems was the target of analysis. The stem consonants were varied within each language so that the short vowel phonemes of each language occurred in a range of contexts. The shapes of the stems for each language (and the total number of stimuli of each shape) and the vowels found in each shape are presented in (2) for Kazakh, (3) for Kyrgyz, and (4) for Turkish.

(2) Stimuli shapes for Kazakh: 12 K_sVCCV, 11 t_sVC(CV)
   a. K_s stems (12): [ɘ, iɘ, ʉ, yʉ, æ, ɑ, uʊ, ʊ, ə]
   b. t_s stems (9): [ə, iə, u, yu, a, uʃ, ʊ, ə]
   c. t_sVC stems (1): [æ]

(3) Stimuli shapes for Kyrgyz: 8 tʃVCCV, 11 K_rVCCV(r), 10 K_lVCCV(r)
   a. tʃ stems (8): [i, y, e, oe, a, u, u]
   b. K_r stems (11): [i, e, oe, a, o, u, u]
   c. K_l stems (10): [y, e, oe, a, o, u, u]

(4) Stimuli shapes for Turkish: 7 b_zCVCV(m), 6 d_SCVCVC, 10 k(j)_rCVCVC
   a. b_z stems (7): [i, y, e, a, o, u]
   b. dʃ stems (6): [i, y, o, u, u]
   c. k(j)_r stems (10): [i, y, o, a, o, u, u]

A number of filler stimuli were also recorded, but not analysed. Each target word was recorded once in each of two carrier sentences. The stimulus sentences were randomised and presented in a series of “slides” on a screen; each slide contained 6 sentences (corresponding roughly to the upper limit of the ultrasound system’s recording buffer), and there were up to around 150 slides presented, varying some by language.

The carrier phrases positioned the stimuli in similar prosodic environments, and always after a bilabial stop. One carrier sentence each was used containing an anterior vowel and a posterior vowel before the bilabial stop. The sentences were roughly equivalent in the three languages, not only having very similar forms and consisting of cognates, but also having similar semantics.

Examples (5), (6), and (7) present the carrier phrases for Kyrgyz, Kazakh, and Turkish, respectively. Each example presents the anterior- and posterior-vowel carrier phrase, and includes their orthographic forms, their general phonetic realisation, a morphophonological representation, a morpheme-by-morpheme gloss, and a smooth English translation.

(5) Kyrgyz anterior-vowel and posterior-vowel carrier phrases
   a. Ыйго кирип, _______ деп айттым.
      yjɣœ yirip _______ dep ajtʰum
3.2 Ultrasound tongue imaging

Ultrasound imaging was used in this study to capture the shape of the tongue during the articulation of vowels. Ultrasound imaging allows for reasonably high-speed recording of the shape of the tongue surface during speech production (Stone 2005). A transducer is held in place under the chin, and standard 2-dimensional ultrasound systems are able to capture an area like that shown in (8).
In this study, a Philips EPIQ 7 ultrasound system was used with an X6-1 transducer. An Articulate Instruments Probe Stabilisation Headset (Articulate Instruments Ltd. 2008) was used to stabilise the probe. An image of the author wearing the headset and probe in a similar configuration as participants did is presented in (9).

There are several limitations to ultrasound imaging of the tongue. While the area from the tip of the tongue to the tongue root may be captured, the mandible and hyoid bones, respectively, create “shadows” in these areas. Also, because of how ultrasound imaging...
works, it is usually not possible to image anything beyond the tongue-air interface; in other words, any parts of the vocal tract above the surface of the tongue are not generally imaged. A typical output frame from the ultrasound system is presented in (10).

A raw frame of the ultrasound-imaged tongue. In the left-most of the two subframes, the front of the tongue is to the right, and the back is to the left.

The right side of the midsagittal view of the imaged tongue surface to the left demonstrates the “jaw shadow” caused by the mandible bone. The view to the right is of a plane perpendicular to the midsagittal plane, that was not used for this study.

### Measures

Both acoustic and articulatory data were considered in this study. The data extracted from the acoustic signal included the first formant (F1), the second formant (F2), and the duration (D) of the vowel. For monophthongs, the formants were measured at the half point of the vowel (1/2), and for diphthongs measurements were taken at the one-third (1/3) and two-thirds (2/3) points. These measures were made using Praat (Boersma 2001), as depicted in (11).
An Ultrasound Study of the Articulatory Correlates of Vowel Anteriority

(11) A Praat TextGrid aligned to the Kazakh vowel [yu] in the word [tyus], indicating the acoustic measures taken in this study.

The articulatory data consisted of measurements of the ultrasound images at the time indexes for the midpoint of monophthongs and the one-third and two-thirds points of diphthongs. Measurements were taken using a Python script written by the author. Two points were marked, from which three measurements were extracted. The intersection of a line placed consistently across the bottom of frames with the imaged tongue surface was marked as an approximation of the location of the tongue root, and the distance of the line to that point was measured (TR). In addition, the “highest” point of the tongue (or point furthest from the transducer) was marked, and the vertical distance (TBy) and horizontal distance (TBx) of this point were measured from the edge of the subframe. These measurements are summarised in (12).

(12) An image depicting the three articulatory measures used in this study: the relative backness of the tongue body (TBx), the relative height of the tongue body (TBy), and the relative position of the tongue root (TR).
4. Results

This section presents the results of the various measures for the two speakers of each of the three languages.

4.1 Formant measures

In the graphs of formant measures, anterior vowels are encoded in blue, and posterior vowels are encoded in red. Each vowel token measured is plotted, with diphthong components connected using dark grey lines.

The measurements of the formants for the Kazakh speakers are presented in (13).

Some of the vowels for the Kazakh speakers exhibit some spurious measurements, due to voiceless articulation and measuring errors. Also, there were not tokens available for all vowel categories in P02’s data. These facts, together with the fact that the diphthongs have monophthong-like components, account for some of the overlap seen with many of the vowels. Overall, the posterior vowels appear both lower (i.e., have a higher F1) as well as backer (i.e., have a lower F2) than the anterior vowels.

As with the Kazakh vowels, there are a few errors in the measurement of the Kyrgyz vowels. Despite this, it is clear that the posterior vowels in Kyrgyz are lower (have a higher F1) and backer (have a lower F2) than the anterior vowels. Anterior from posterior vowels are not separated by F2 as might be predicted, nor by any combination of F1 and F2.
An Ultrasound Study of the Articulatory Correlates of Vowel Anteriority

The formant measurements for the Turkish speakers, P06 and P07.

The Turkish vowels have a somewhat more standard distribution than the Kazakh and Kyrgyz vowels. The front rounded and back unrounded vowels overlap to a certain degree in F2 measurements, as might be expected, and [a] appears to be the only low vowel. Otherwise, there is only a small degree of difference in F1 between anterior and posterior vowels, and F2 distinguishes the two sets well on its own.

4.2 Duration measures

In the graphs of duration measures, anterior vowels are encoded in blue, and posterior vowels are encoded in red. Non-high vowels are in the middle of the plots and high vowels are at the edges. Box plots represent first to third quartiles, with a median line in the middle, and whiskers represent the full range of measurements.

The duration measurements for the Kazakh speakers, P01 and P02.

While there were not measurable tokens for all of the vowels in P02’s recordings, and high vowels were sparse in P01’s recordings as well, it is clear that the traditionally defined “high” vowels ([ɘ ʉ ə ʊ]) are much shorter than non-high vowels in Kazakh.
There is more overlap in the duration of high and non-high vowels among the Kyrgyz speakers than among the Kazakh speakers, but even for the Kyrgyz speakers, the tendency for non-high vowels to be longer is present in Kyrgyz as well. There may be one or two measurement errors affecting the length of [ɯ] tokens for P04.

The durations of vowels in the recordings of Turkish speakers were in general longer than those of Kyrgyz and Kazakh speakers, but as in Kyrgyz and Kazakh, the non-high vowels appear to be significantly longer than the high vowels.

4.3 TR measures

In the graphs of tongue-root distance measures (TR), anterior vowels are encoded in blue, and posterior vowels are encoded in red. Distances measured are the number of pixels to the intersection with the imaged tongue surface of a line overlaid onto the ultrasound frame beginning from an arbitrary point (kept consistent for each speaker) extending roughly parallel to the edge of the graph. Box plots represent first to third quartiles, with a median line in the middle, and whiskers represent the full range of measurements.
As seen from the plots in (19), the anterior and posterior vowels of Kazakh can be distinguished from one another almost entirely by the TR measure for these speakers. The [æ] vowel, however, appears to be somewhat intermediate between anterior and posterior vowels. This correlates to the vowel’s occasionally ambiguous behaviour in the phonology of Kazakh.²

The plots in (20) appear to reflect two different behaviours. P04’s data is similar to the Kazakh pattern, in that the TR measure corresponds well to the anteriority contrast of Kyrgyz vowels. For P03, however, this measure appear to correspond more to vowel height than to vowel anteriority.

²Normally vowels harmonise to /æ/ as if it were a front vowel, e.g. /æn-GA/ [æŋgiɘ] ‘song-da t’; however, stems ending in /æ/ behave as if they end in a back vowel, e.g. /kʉnæ-GA/ [kʉnæʁɑ] ‘sin-da t’.
The TR measures for the Turkish speakers, shown in (21), appear slightly different from one another. For P06, the TR measure entirely divides the anteriority classes from one another. For P07, this is true except for [ø], which overlaps with posterior vowel measures. The vowel [ɯ] for both speakers appears to have an intermediate quality.

4.4 TBx measures

In the graphs of tongue-body “backness” measures (TBx), anterior vowels are encoded in blue, and posterior vowels are encoded in red. Distances measured are the number of pixels from the edge of the ultrasound frame to the highest point on the tongue horizontally. Box plots represent first to third quartiles, with a median line in the middle, and whiskers represent the full range of measurements.

(22) The TBx measurements for the Kazakh speakers, P01 and P02.

The TBx measures shown in (22) appear to mostly divide the anterior and posterior vowels for Kazakh speakers. However, the ability of this measure to separate the two anteriority classes is not as strong as that of the TR measure.

(23) The TBx measurements for the Kyrgyz speakers, P03 and P04.

For the Kyrgyz speakers, P03 and P04, the TBx measures shown in (23) do a better job at dividing the anteriority classes than the TR measures in (20).
The TBx measurements for Turkish speakers, P06 and P07, show a good separation of anteriority classes. For P06, it is not as good as the TR measure, but for P07 it is somewhat better.

4.5 TBy measures

In the graphs of tongue-body “height” measures (TBy), anterior vowels are encoded in blue, and posterior vowels are encoded in red. Distances measured are the number of pixels from the edge of the ultrasound frame to the highest point on the tongue vertically. Box plots represent first to third quartiles, with a median line in the middle, and whiskers represent the full range of measurements.

The Kazakh TBy measures in (25) show more or less a correspondence to height (as would be expected) for both speakers. There were very few “high” vowel tokens measured for P02. For P01, the unrounded diphthongs pattern with high vowels and the rounded diphthongs appear to be more like mid vowels. For P02, the rounded diphthong appears to have a wider range and a much “higher” extent than the unrounded diphthong. It appears that all three diphthongs are falling diphthongs for both speakers.
No consistent correlation with height (or backness) is clear in the TBy measurements for Kyrgyz speakers (26).

While [ɑ], [u], and [ø] have a wider range than might be expected in the TBy measures for P06, the TBy measurements of P07’s vowels show a nice correlation with vowel height.

4.6 TBx by TBy

The TBx by TBy graphs plot the highest point of the tongue during the production of each vowel in a two-dimensional space. Anterior vowels are shown in blue and posterior vowels are shown in red. A grey line links the first and second data points for diphthongs.
While not as neat or well organised as a vowel formant plot might be expected to be, the TBx by TBy plots for Kazakh speakers in (28) are quite reminiscent of vowel formant plots. The TBx measure (as seen before) separates the vowels by anteriority.

(29) The TBx by TBy plots for the Kyrgyz speakers, P03 and P04.

Like for Kazakh, the Kyrgyz TBx by TBy plots in (29) are reminiscent of vowel formant plots, with the TBx dimension dividing vowels by anteriority. The data for P03, however, is quite messy, and may reflect incorrectly extracted ultrasound frames. 3

(30) The TBx by TBy plots for the Turkish speakers, P06 and P07.

The TBx by TBy plots for Turkish (30), like for those of Kazakh and Kyrgyz, are reminiscent of vowel formant plots. There appears to be an incorrectly measured [a] vowel for speaker P07, but otherwise TBx divides the anteriority classes for P07 well. For P06, a combination of TBx and TBy can be used to divide the anteriority classes.

4.7 TR by TBx

The plots in this section show the correlation between TR and TBx, the two anteriority measures in this study. Anterior vowels are shown in blue and posterior vowels are shown in red. A grey line links the first and second data points for diphthongs. A best fit line is presented in each plot in purple.

As seen in the plots for Kazakh (31), Kyrgyz (32), and Turkish (33), there is a reasonable level of correlation between the TR measures and the TBx measures.

3Ultrasound frame extraction was automated, though the particular algorithm appears to have had trouble with some of the Kyrgyz data. This will be investigated in future work.
(31) The TRTBx measurements for the Kazakh speakers, P01 and P02.

(32) The TRTBx measurements for the Kyrgyz speakers, P03 and P04.

(33) The TRTBx measurements for the Turkish speakers, P06 and P07.

The correlation is most “clean” in the Turkish data. The overlap of measurements in both dimensions for P03 may be due to measurement errors or improper processing of the data.

5. Discussion of Results

While not the primary target of this study, some interesting generalisations appear in the duration measures.

For the Kazakh speakers, the “high” vowels, [ɬ, u, ɬ], are very short, and are often devoiced or deleted in the first syllable of words. Hence very few tokens were recorded or able to be measured, and those that were measured appear to have suffered from errors in formant analysis. This makes the results of this study not fully interpretable for Kazakh.
For the Kyrgyz and Turkish speakers, the high vowels also appear to be—overall—shorter than the low vowels. However, there are apparent errors in the measurements made for some of the data, especially concerning P03’s data.

In general, the formant measurements are very messy, and a simple F2 value is not able to separate anterior and posterior vowels from one another in any of the languages. Stated differently, anterior and posterior vowels have overlapping values of F2 for the phonologically short vowels as uttered by Kazakh, Kyrgyz, and Turkish speakers in the specific environments examined by this study.

The TR measure examined in this study (roughly, tongue root position), though, does appear to be a good predictor of vowel anteriority in the languages studied, especially for Kazakh speakers. It is not as strong a predictor for Turkish speakers, and is only predictive for one Kyrgyz participant—the data for the other Kyrgyz speaker (P03) appears to exhibit some measurement errors.

The TBx measure (roughly, tongue body backness) appears to be a robust predictor of vowel anteriority in all three languages. For the Turkish speakers, TBx is about as good a predictor of vowel anteriority as TR; for the Kyrgyz speakers, it is a stronger predictor; and for the Kazakh speakers, it is less strong a predictor.

These results for TR and TBx measurements taken together show that Kazakh vowel anteriority is best associated with tongue root position, Kyrgyz vowel anteriority is best associated with tongue body position, and Turkish vowel anteriority is associated equally well with the position of both. However, tongue root and tongue body position are well correlated in all three languages. This may simply reflect the fact that the position of the tongue root and tongue body are intrinsically linked, but it also may show that the results are not yet fully interpretable.

6. Preliminary Conclusions

The preliminary conclusions of this study are that Kazakh speakers differentiate anterior and posterior vowels primarily through the position of the tongue root, Kyrgyz speakers differentiate the two vowel classes primarily through the position of the tongue body, and Turkish speakers differentiate them using both equally.

Future work will investigate these preliminary conclusions in more depth. Besides examining more speakers of each language, investigating a wider range of languages (related and not), and reevaluating questionable measurements, more robust measures will be used. Among new, more powerful measures, the entire shape of the tongue should be considered as a whole. This will require fully traced tongue contours.

References


Aspect and Evidentiality in Azeri

Gita Zareikar

University of Ottawa

1. Introduction

Azeri is a Turkic language spoken in north-west Iran. In Azeri the verbal morpheme -miş has an aspectual or evidential reading in certain contexts. In this paper I present the double reading of miş and whether this overlap is due to polysemy or to morphological haplology. In order to answer these questions I suggest two hypotheses; first: there is only one morpheme and the evidential reading is just another reading of the perfect, and hence it is an epistemic modal (Izvorski 1997). This hypothesis predicts that it is the syntactic position of the morpheme that yields a distinct reading in each case. Second: there are two distinct morphemes, one that marks aspect and the other that marks evidentiality. In conclusion I claim that the morphological facts support the second hypothesis.

2. Miş morpheme as an aspect marker

The aspect sense of miş is seen in (1) and (2). (1) and (2) are perfects of result or present relevance. In both cases the result state of the telic event, namely “my being home” or “juice being available” hold at the time of utterance.

(1) Göl- miş-am. 
come-PARTP-1SG
‘I have come home.’
(And I am home now.)

(2) Şarbat tut-muş-am. 
drink make-PARTP-1SG
‘I have made some juice’
(And it is still there.)

Iatridou et al. (2001) propose that perfect locates an eventuality relative to some reference point. In all the examples above the reference time overlaps with the utterance time and hence the eventuality of the event extends to the utterance time. McCoard (1978) dis-

---

*I would like to thank Professor Andrés P. Salanova for supervising my qualifying paper and professor Ana Arregui for her enlightening comments. I would also like to thank the participants in the Tu+1 workshop for their questions and comments. My special thanks go to Laura Kalin and Hanzhi Zhu for their helpful suggestions. And I am grateful to the members of the syntax-semantics lab at uOttawa.
Gita Zareikar

tinguishes four types of perfect. These four types are introduced as universal perfect, experi-
tential perfect, perfect of results and perfect of recent past.

In the universal perfect the underlying eventuality continues at the utterance time and thus the universal perfect behaves in part like present (Brugger 1978).

The examples in (1) and (2) above are suggestive of the universal perfect in Azeri. Not all four types of perfect are found in all languages. Perfect in Azeri seems to align with some types suggested by McCoard (1978). Since the language does not distinguish distance in past, the perfect of recent past will be developed by means of an adverbial, as in (3).

(3)  \text{Təzə gəl-ip.}

\text{shortly come-PARTP.3SG}

\text{‘He has come a short while ago.’}

The combination of \text{-miş} and past tense marker, i.e. \text{-di} yields an anteriority reading, as in (5). The aorist reading is derived by \text{-di} in (4) and the presence of \text{miş} before the tense marker gives rise to pluperfect reading of the sentence.

(4)  \text{Al-di-m.}

\text{buy-PAST-1SG}

\text{‘I bought.’}

(5)  \text{Əri öl-müş-dü.}

\text{husband die-PARTP-PAST.3SG}

\text{‘Her husband had died.’}

3. Miş morpheme as an evidential marker

There are cases in which \text{-miş} may be used in a structure that derives an evidential reading, more specifically the one indicating that eventuality is indirect. In (6) similar in form to (1), an evidential meaning exists in the statement that the father arrived is marked as being deduced from available evidence rather than directly observed.

(6)  \text{Baba-n gəl-ip.}

\text{father-GEN come-PARTP}

\text{‘Apparentely, your dad has come home.’ (The lights are on.)}

Furthermore, a similar structure could be used to talk about an event that the speaker heard about and has no direct evidence for.

This is the hearsay interpretation of \text{miş} as in (7). In such case the speaker does not commit themselves to the truth of the statement, in (6) and (7).

(7)  \text{Saray adam-ı gör-müş.}

\text{Saray person-ACC see-PARTP}

\text{‘Reportedly, Saray has seen the person.’}

\footnote{The reader is invited to assume that \text{-ip} and \text{-miş} are allomorphs in Azeri. \text{Miş} has an extensive use and it is taking over the use of \text{-ip} in first and second person. The process of this shift is beyond the scope of this paper and is subject to a future study.}
In the above example, \(-mis\) is attached to the root. In this case \(mis\) refers to some time prior to the reference time but in addition this form indicates that the source of the speaker’s evidence is not direct. The event time precedes the reference time, \(E < R\). This reading is distinct from the aspectual reading discussed in the previous section. This happens because of the evidential component; however, it is not always aspectually different from the non-evidential readings observed in (1) and (2).

The examples below show that \(mis\) in the present perfect form could yield ambiguous readings. (8) gives only a perfect aspect, (9) recognizes an evidential reading and the verb maintains its perfect aspect.

(8) Uc saat-dir gol-\(mis\)-om.
    three hour-be come-PARTP.1SG
    ‘It has been three hours since I have come.’

(9) Çöörə-har-ı Aida yi-y-ip.
    bread-PL-ACC Aida eat-EP-PARTP
    ‘Reportedly, Aida has eaten the bread.’

It is undeniable that the perfect of evidentiality morphology cannot entirely preclude the temporal reading of the perfect. The perfect meaning can still be present on evidentials, as in (10).

(10) Sanam ömr-ü-ndo iki daʃa grizl tap-ip.
    Sanam life-POSS-DAT two times gold find-PARTP.3SG
    a. ‘Sanam has discovered gold twice in her life.’
       (I have witnessed that/present perfect.)
    b. ‘Reportedly, Sanam has discovered gold twice in her life.’
       (I have an external source of evidence/present perfect.)

4. **Correlation of \(mis\) with other aspectual morphemes**

Examples (11) and (12) are derived in a context where the speaker is telling a story that she has heard from someone else in the past. The reference time in this conversation is set in the past. The forms used in these examples contain two occurrences of \(mis\). The resulted reading is the one with a reportative component. In both cases the speaker claims that she has received indirect information about the event.

(11) Óri öl-\(müs\-ü-\(müs\).
    husband die-PARTP-PAST-PARTP.3SG
    ‘Reportedly, her husband had been dead.’

(12) Saray xalan ol-\(müs\-u-\(müs\).
    Sara aunt born-PARTP-PAST-PARTP.3SG
    ‘Reportedly, aunt Sara had been born.’
Miş with future presents its own peculiarities. Miş follows future -acak rather than preceding it, as in (13). This shows that -acak is a prospective marker. In the following example the speaker expresses his lack of awareness about doing the writing event. This event was expected to be completed in the past but never got completed because the agent was not aware that he had to do that.

(13) Yaz-acağ-ı-miş-am.
write-FUT-EP-PARTP-1SG
‘Apparently, I had to write it.’

The next section discusses the occurrence of the miş morpheme as an aspect and evidential marker in various contexts and provides an explanation for the double occurrence of this morpheme, as shown in (11) and (12) above.

5. Discussion and analysis

Various readings of -miş in Turkish have been examined in much previous work. To begin with, we will examine the analysis proposed by Izvorski (1997). Izvorski claims that there are languages with perfect of evidentiality in which the perfect morphology serves to indicate report or inference. Hence, it is common for languages to distinguish between direct and indirect evidence and it is normally the indirect evidentiality that is morphologically marked. Sentences without the perfect of evidentiality morphology should be used for direct evidence and cannot have the perfect of evidentiality reading either.

Izvorski argues that “the morphology of the present perfect or a form historically derived from the present perfect, expresses a particular evidential category, one that indicates the availability of indirect evidence for the truth of a proposition”. In Izvorski’s account, evidentiality is marked on perfects and an evidential reading is not available in forms other than perfect. In (14), the suffix miş is the present perfect inflection and it has an indirect evidential interpretation.

(14) Gel-miş-im.
come-PERF-1SG
‘I have come.’ (present perfect) and/or ‘I apparently came.’ (Izvorski 1997, 222)

To support the idea that the ambiguity between the present perfect and an evidential reading is not accidental, Izvorski gives examples in which miş does not give rise to an evidential reading when it forms NP-modifying participles, as in (15). In other words, it is only the perfect form of the morpheme that yields an evidential reading.

(15) öl-müş adam
dead man
‘dead man’ ≠ ‘a man who is apparently dead’ (Izvorski 1997, 223)
Additionally, when mis surfaces with the past or future perfect or even when it occurs in non-finite clauses, the evidential interpretation is absent, as illustrated in (16) and (17).

(16) Gel-miş-tim. 
   come-PERF-1SG.PAST  
   ‘I had come.’ ≠ ‘I apparently came/had come.’

(17) Gel-miş ol-acak-im.  
   come-PERF be-FUT-1SG  
   ‘I will have come.’ ≠ ‘I will apparently come.’
   (Izvorski 1997, 223)

Examples in (18) from Azeri illustrate the -mis morpheme giving rise to both perfect of result readings (18a), (18c) and evidential readings (18b), (18d).

(18) a. Bir ev al-muş-am.  
    a house buy-PARTP-1SG  
    ‘I have bought a house.’  
    (I am telling a friend about the house I have bought.)

b. Gür-düm bir ev al-muş-am.  
    see-PAST-1SG a house buy-PARTP-1SG  
    ‘I had a dream that I have bought a house.’  
    (I am talking about my dream in which I was seeing myself buy a house.)

c. Bir ev al-ip.  
    a house buy-PARTP-3SG  
    ‘S/He has bought a house.’  
    (I know that and I was there.)

d. Sanam Paris-i gaz-ip.  
    Sanam Paris-ACC visit-PARTP-3SG  
    ‘Reportedly, Sanam has visited Paris.’  
    (I have heard about it.)

Examples above provide evidence for an ambiguity between present perfect and indirect evidentials. On the other hand, it is undeniable that an evidential interpretation of mis entirely preclude the temporal-aspectual reading of the perfect for the indirect evidence with a perfect aspect, in (18d). Accordingly, it is hard to strongly argue for the present perfect morpheme to be only the perfect of evidentiality morphology since evidentiality seems to be the secondary reading of the perfect, as illustrated in (18a) and (18c) above. In Azeri it is impossible to argue that the perfect of evidentiality morphology does not play an aspectual role and it is the source of modality instead. This has been studied for other languages as well. According to Matthewson et al. (2007) the elements which encode information source may or may not fall into the category of epistemic modals, contrary to Izvorski (1997). In (19), the sentence preserves its temporal reading and the present perfect morpheme is
Gita Zareikar

clearly marking an existential perfect interpretation in addition to being an epistemic modal in Izvorski’s terms. The expected aorist reading (perfective) is not available in this case.

(19) Sanam ˙omr-¨u-nd¨a  iki  dafo  gızıl tap-ıp.
Sanam life-POSS-DAT two times gold find-PARTP.3SG
a. ‘Sanam has discovered gold twice in her life.’
(I have witnessed that/present perfect/direct.)
b. ‘Reportedly, Sanam has discovered gold twice in her life.’
(I have an external source of evidence/present perfect/indirect.)

Another difference between Azeri and Izvorski’s Turkish data is that Azeri reveals an evidential reading in the future. In (20) (future indirect) the speaker is giving a statement without making any commitment to the truth of the information. (20) instantiates a morphological possibility that is absent in Turkish, in (17) (Izvorski 1997).

(20) a. B¨ug¨un  g¨ol- ¨oc¨ok-i-m¨is-¨om.
today  come-FUT-PAST-PARTP-1SG
‘Apparently, I should have come today’
b. *B¨ug¨un  g¨ol-m¨is- ¨oc¨ok-¨om.
today  comePARTP-FUT-1SG
‘(Intended:) Apparently, I should have come today.’

It is notable that in the example above miÅ is not able to precede the future morpheme, in (20b). The fact that the future morpheme cannot follow miÅ is an evidence that acak and miÅ are order sensitive. Further morphological evidence supports the idea that acak is occupying the aspect position, rather than tense in the language, as in (21).

(21) *G¨ol-ir- ¨oc¨ok.
come-PROG-FUT
‘(Intended:) S/he will be coming.’

The outcome of the discussion above reveals that in positions where acak precedes miÅ, the latter must scope over acak and hence cannot precede it. This leaves only one place for miÅ and that is somewhere higher than Aspect. The semantics of the example in (20a) suggests that miÅ is giving an evidential interpretation to the structure. This observation yields that miÅ with an evidential interpretation can occur in non-perfect structures, contrary to what is claimed by Izvorski for Turkish.

Similar cooccurrence facts are provided by the progressive and habitual aspect morphemes. These morphemes, similar to future, precede miÅ, as in (22).

(22) a. Yaz-ir-muÅ.
(*Yaz-muÅ-ir.)
write-DUR-PARTP.3SG
‘Reportedly, he was writing.’
b. Yaz-ar-miş.
  (*Yaz-miş-ar.)
  write-HAB-PARTP.3SG
  ‘Reportedly, he used to write.’

The facts are summarized as follows: in conjunction with other aspectual morphemes miş has an exclusively evidential interpretation; the morphological reflection of this is the inability of miş to occur inside the other aspectual morphemes.

So far the morphology and semantics of the above examples lead us to accept that there are two distinct slots for the miş morpheme, one for the aspect and the other for evidentiality but does not explain the existence of two distinct morphemes. In providing the examples I did not separate the occurrence of miş and -ip and assumed that they should alternate equally in all the examples, but a closer look reveals that the alternation of -miş and -ip is not possible when -miş follows an aspect marker, as in (23). This is extensible for all the other aspect morphemes. However, the question remains unanswered why in structures such as (23) -miş derives a grammatical indirect reading, (22), but -ip is unable to attain such a reading. The answer for the alternation of -miş and -ip is a topic for future study.

(23)  a. *Yaz-ir-ip.
  write-PROG-PARTP.3SG
  (Intended:) ‘Reportedly, he has been writing.’

  b. *Yaz-acak-ip.
  write-FUT-PARTP.3SG
  (Intended:) ‘Reportedly, he was going to write.’

Now that we have seen various correlations with miş of aspectual morphemes, we are ready to include the evidential pluperfect. The impossibility of the alternation of -miş and -ip becomes clearer by looking at the pluperfect. In addition to what was shown above we need to be able to explain the double occurrence of the morpheme in the evidential form of the pluperfect, as illustrated in (24).

(24)  O zaman gıl-miş-i-miş-lor.
  that time come-PARTP-PAST-PARTP.3PL
  ‘Reportedly, they had come at that time.’

Examples like (24) is a motivation to defend the second hypothesis which proposes there are two distinct -miş morphemes in the language. Hence, the morphological and semantic evidence is in favour of the existence of two distinct morphemes but we still need to explain how to distinguish the occurrence of two separate morphemes in the present perfect and that the second -miş is evidential.

Further independent evidence to show that the present perfect morphology is not the same as evidential morpheme in all cases comes from the examples below. In (25a) -di in combination with the -ir morpheme refers to an ongoing event in the past. It is expected for the progressive morpheme -ir to mark aspect and be closer to the stem than the tense
morpheme -di. In the case of (25a) it is not possible to insert an additional -miš into the structure; the result will be ungrammatical, as in (25b). Considering the latter example it is clear that the position of the aspect is already filled by the progressive morphology, hence, there is no position for a second aspect marker, admitting that miš and the other aspect morphemes are in complementary distribution. This is an indication that the -miš morpheme when preceding -di marks aspect.

Now looking at the next example from this set, in (25c) the combination of the imperfective aspect and -miš should exemplify a similar instance as we observed in (25b). The presence of the imperfective aspect marker is expected to immediately reject the occurrence of -miš as an aspect marker here. Though the two morphemes look morphologically the same, they seem to occupy two different syntactic positions. Furthermore their semantic interpretation is also distinct. While (25a) expresses a direct evidence, (25c) is about a reported event. The conclusion drawn here is that the -miš morpheme in (25c) is not the same morpheme as the one in the present perfect that gives an aspectual reading. This is another support for the claim that there are two types of -miš in the language.

   father-GEN work-PROG-PAST.3SG
   ‘My dad was working.’

b. *Baba-m işl-ir-miš-di.
   father-GEN work-PROG-PARTP-PAST.3SG
   ‘(Intended:) My dad has been working.’

c. Baba-m işl-ir-miš.
   father-GEN work-PROG-PARTP.3SG
   (i) ‘Apparently/reportedly, my dad is/was working.’
   (ii) ‘My dad is/was working.’

The table below summarizes the co-occurrence of the morphemes discussed in this paper. It considers allomorphs for tense and evidentiality. The examples in (27a) illustrate the occurrences presented in the table.

(26) Table 1. morphological co-occurrence

<table>
<thead>
<tr>
<th>ASP</th>
<th>TENSE</th>
<th>EV</th>
</tr>
</thead>
<tbody>
<tr>
<td>unmarked</td>
<td>-di</td>
<td>-miš/-ip→IND</td>
</tr>
<tr>
<td>perfect</td>
<td>-i</td>
<td>ø→DIR</td>
</tr>
<tr>
<td>future</td>
<td>ø</td>
<td></td>
</tr>
<tr>
<td>progressive</td>
<td>-o</td>
<td></td>
</tr>
</tbody>
</table>

2One might be tempted to consider the existence of double aspect markers but this is rejected as soon as the tense morpheme -di is inserted in (25b) which should not if there were two aspect markers.
When there is no -di the co-occurrence of two mış is possible in an environment of -i. In non-past cases the [V-mış-ø- ø] means present perfect [DIR] as the aspect is marked but in unmarked aspect cases [V-ø-ø-mış] there is an [IND] reading. So unmarked aspect + -di would mean aorist and unmarked aspect + ø + mış means present perfect evidential. The co-occurrence of the -mış is also explained in this model as the first one marks aspect and the second one conveys evidentiality. This table is able to account for the co-occurrence of tense, aspect and evidentiality morphemes but nonetheless has some shortcomings. There are certain occurrences that this model cannot account for. For example it will predict the occurrence of [acak-di-mış]. We also need to explain the cases in which the morpheme -i is selected rather than -di as in [mış-i-mış] and the impossibility of having [mış-mış] occurrences. The explanation of the latter is possible under the account of haplology. Further discussion on the haplology is a subject for future study. Haplology is not observable in simple past since the simple past takes the direct evidential marker above Tense which is null. Haplology happens in cases where the evidentiality morpheme is present.

6. Conclusion

The morphological facts indicate that the mış morpheme precedes the tense marker wherever it marks aspect. This is an indication of syntactic variation and is an evidence that supports the existence of the evidential morpheme above Tense in the derivation in the same way that Tense scopes over Aspect. Following the discussion above we can conclude that Izvorski’s argument about the perfect of evidential morphology and its marking the reports and inferences instead of playing a temporal-aspectual role is not explanatory enough for all the cases in Azeri. Further morphological evidence from imperfective and future also supported this claim.

References


Hankamer, Jorge, J. 2012. The exponence of Turkish aorist. *University of California*.


Gita Zareikar

g.zareikar@uottawa.ca