PARALLELISM AND SPECIFICITY IN PERSIAN NON-VERBAL ELEMENT ELLIPSIS

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1 Introduction

The subject of this paper is a previously unstudied type of ellipsis in Persian: *Non-verbal element ellipsis*, or *NVEE*. NVEE occurs in Persian light verb constructions, also known as complex predicates, and involves ellipsis of the non-verbal element of a complex predicate, leaving behind the direct object and the light verb. This is illustrated in (1).

(1) Bahâr miz -o tamiz kard, vali panjera -ro na- kard Bahar table -DOM clean do.PST but window-DOM NEG- do.PST 'Bahar cleaned the table, but she didn't the window.'

NVEE is of interest in part because it is subject to a very tight constraint: it is only grammatical if both the direct object in the antecedent and the one in the clause containing the ellipsis site are $specific^{l}$, that is, marked by the differential object marker $-r\hat{a}$. What's more, this specificity sensitivity is not observed with other types of ellipsis in the language; for instance, sluicing and gapping are grammatical regardless of the presence or absence of $-r\hat{a}$ on an overt direct object.

We propose that this peculiar restriction on NVEE arises from the interaction of a general Parallelism condition on the licensing of ellipsis (Takahashi & Fox 2005, Hartman 2011) with the syntax of specific objects in Persian. In particular, specific, but not non-specific, objects move to the specifier of νP , creating a new, larger parallelism domain. The fact that the object must be specific in both the antecedent and the clause containing the ellipsis falls out from the

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¹ For the purposes of this paper, we will use the term "specific" to refer to $r\hat{a}$ -marked NPs, and "non-specific" to refer to NPs without $-r\hat{a}$.

requirement that the antecedent and ellipsis site be parallel. We then propose that, given an analysis of sluicing and gapping along the lines of that proposed by Toosarvandani (2015), in which objects move to FocusP before ellipsis occurs, the lack of specificity restrictions on these types of ellipsis can also be captured by the Parallelism condition.

The paper is structured as follows. In section 2, we discuss various types of ellipsis in Persian, including NVEE, and illustrate the specificity sensitivity of NVEE and the lack of such sensitivity in other ellipsis types. Section 3 motivates the various syntactic differences between specific and non-specific objects. Section 4 details an analysis of NVEE in terms of the interaction of object specificity with the Parallelism condition on ellipsis, and extends the analysis to explain the lack of a specificity requirement on other types of ellipsis. Section 5 discusses predictions of the analysis outside of the domain of object specificity. Section 6 concludes the paper with a discussion of future work and potential problems.

2 Ellipsis in Persian

Persian possesses many types of ellipsis, instantiating many of the most well-studied types of ellipsis cross-linguistically. These include sluicing (2), gapping (3), and light verb-stranding verb phrase ellipsis (4) (Toosarvandani 2009).

- (2) Bahâr yechizi xord, vali ne- mi- dun -am chi Bahar something eat.PST but NEG- IMP- know.PRS -1.SG what 'Bahar ate something, but I don't know what.'
- (3) Bahâr miz tamiz kard, Rezâ panjere Bahar table clean do.PST Reza window 'Bahar cleaned tables, and Reza windows.'
- (4) Sohrâb piran -â -ro otu zad, vali Rostam na- zad Sohrab shirt -PL -DOM iron hit.PST but Rostam NEG- hit.PST 'Sohrab ironed the shirts, but Rostam didn't.'

An as of yet unstudied type of ellipsis is *non-verbal element ellipsis* (*NVEE*). This is in effect a type of pseudogapping, in which only the non-verbal element of a complex predicate is elided, leaving behind the semantically bleached light verb and the direct object. As (5) demonstrates, this type of ellipsis exhibits an unusual restriction: it is only possible when both the direct object in the antecedent and the one in the clause containing the ellipsis site are *specific*, or marked by the differential object marker $-r\hat{a}$.

(5) Bahâr miz *(-o) tamiz kard, vali panjera *(-ro) na- kard Bahar table -DOM clean do.PST but window-DOM NEG- do.PST 'Bahar cleaned the table, but she didn't the window.'

Notably, neither sluicing (6) nor gapping (7) is subject to this specificity restriction; the object in the antecedent and ellipsis-containing clause may be either marked with $-r\hat{a}$ or not, with no effect on the grammaticality of the sentence.

- (6) Bahâr yechizi (-ro) xord, vali ne- mi- dun -am chi (-ro) Bahar something -DOM eat.PST but NEG- IMP- know.PRS-1.SG what-DOM 'Bahar ate (a certain) something, but I don't know what.'
- (7) Bahâr miz (-o) tamiz kard, Rezâ panjere (-ro) Bahar table -DOM clean do.PST Reza window -DOM 'Bahar cleaned (the) table, and Reza (the) window.'

We are now presented with a puzzle: why should NVEE exhibit such a tight restriction unobserved with other types of ellipsis in Persian? In order to shed light on this question, we first must understand how specific objects differ syntactically from non-specific objects, the topic of the next section

3 Specific Objects in Persian

Specific and non-specific objects in Persian exhibit many well-studied differences with regard to their syntactic behavior (Ghomeshi 1997, Karimi 1999, 2005, a.o.). One of these differences involves neutral word order: although non-specific objects strongly prefer to be left-adjacent to the verb (8a), specific objects precede many other elements of a sentence in neutral word order, such as PPs (8b).

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(8) a. man be Mohsen ketâb dâd -am
I to Mohsen book give.PST -1.SG
'I gave books to Mohsen.'
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b. man ketâb –o be Mohsen dâd -am
I book –DOM to Mohsen give.PST -1.SG
'I gave the book to Mohsen.'
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As Karimi (1999) showed, specific objects license parasitic gaps, but non-specific objects do not. This contrast is illustrated in (9).

(9) Kimea [NP ketâb*(-ro)]_i [CP ghablaz inke *pro* e_i be- xun -e] be man dâd Kimea book -DOM before that pro SUBJ- read.PRS -3.SG to 1.SG give.PST 'Kimea gave me the book before reading (it).'

Finally, specific objects are able to act as antecedents for reflexive pronouns, but non-specific objects are not able to do so.

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(10) man [bachcha*(-ro)]<sub>i</sub> be xodesh<sub>i</sub> tu âyne neshun dâd -am
I child -DOM to self in mirror sign give.PST -1.SG
'I showed the child itself in the mirror'
```

These data show that specific objects pattern quite differently from non-specific objects in many environments.

Authors generally agree that specific objects occupy a different, structurally higher position from non-specific objects; Ghomeshi (1997), for instance, analyzes $-r\hat{a}$ -marked objects as adjoined to VP, while Karimi (2005) places them in Spec-vP. Both authors place the non-specific object as the complement of the verb or predicate. Where authors differ is in whether the specific object is base-generated in such a position (Ghomeshi 1997, Karimi 1999, Toosarvandani 2009), or moved there (Karimi 2005).

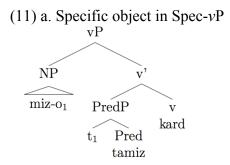
Although either analysis is in fact compatible with the account of NVEE we develop below, for the sake of explicitness, we follow Karimi (2005) and assume a movement analysis, according to which the specific object and non-specific object start in the same position as complement to the predicate/V, with the specific object undergoing movement to Spec-vP in order to escape Existential Closure (Diesing 1992).

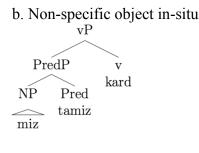
4 Analysis

In this section, we develop our account of the specificity (non-)sensitivity of NVEE and other types of ellipsis in Persian, respectively. First, we briefly describe the syntactic structures we assume for complex predicates and (non-)specific objects. Then, we define the notion of parallelism, and, lastly, show how applying it to the ellipsis data derives the relative sensitivity of each type of ellipsis to object specificity.

4.1 The Syntax of Complex Predicates and Specific Objects

Following Folli, Harley, & Karimi 2005, we analyze Persian complex predicates as involving a Predicate Phrase (PredP), headed by the non-verbal element and possibly containing a complement, and a projection of different flavors of v, headed by the light verb. As stated in the last section, we follow Karimi (2005) in adopting a movement analysis of specific objects; specific objects move from the complement of Pred to the specifier of vP. Non-specific objects, on the other hand, remain in-situ. This is summarized for in the trees in (11), which illustrate the analysis of the complex predicate *tamiz kardan* 'to clean (lit. clean do)' with both a specific and a non-specific object².





² We assume that unergative and transitive subjects are outside of vP, and are instead introduced in the specifier of VoiceP (Kratzer 1996), though this is not particularly crucial for our analysis. It may just as well be the case that the object moves to Spec-vP in a tucking-in style á la Richards (1997), with the subject base-generated in the specifier of vP.

4.2 Parallelism

Following Takahashi & Fox (2005) and Hartman (2011), among others, we adopt a parallelism condition on ellipsis. Following these authors, we define the notion of Parallelism Domain (PD) and Parallelism in (12) and (13) below.

(12) Parallelism Domain (PD)

For the ellipsis of EC [elided constituent] to be licensed, there must exist a constituent, which reflexively dominates the EC, and satisfies the parallelism condition. Call this constituent the Parallelism Domain (PD).

(13) Parallelism

PD satisfies the parallelism condition if PD is semantically identical to another constituent AC [antecedent constituent], module focus-marked constituents.

The parallelism condition in (13) is essentially a semantic identity condition on ellipsis, permitting ellipsis only when the ellipsis site possesses an identical meaning to that of the antecedent. However, the condition interacts in important ways with the definition and size of the PD.

The size of the PD is left underspecified in the definition in (12), and given that it is a constituent that *reflexively* dominates the EC, in many cases the EC and PD can be identical. However, as Takahashi & Fox (2005) and Hartman (2011) point out, there are cases in which the PD *must* be a constituent that is larger than, and thus contains, the EC. These are cases of *variable rebinding*, in which a variable inside of the EC is bound by a binder in a position outside of the ellipsis site. This type of configuration arises in cases of syntactic movement, where the trace (interpreted as a bound variable) is associated with a lambda binder higher in the structure, below the moved phrase.

Armed with the analysis of complex predicates, the syntax of object specificity in Persian, and the parallelism condition, we now turn to the analysis of NVEE ellipsis.

4.3 The Specificity Sensitivity of NVEE Follows From Semantic Identity

When the specific object moves to Spec-vP, as we have proposed, a variable binding relationship is created between the trace in the complement of Pred and its binder. Because the elided constituent contains a rebound variable (the trace), the PD must be extended to include the binder. The PredP is then elided, just like in Toosarvandani's (2009) analysis of Persian light verb-stranding VPE. This is illustrated in (14). Underlined text represents the PD in both the antecedent and the elided constituent, and struck-through text represents the ellipsis. We include in this example a translation to aide in illustrating our point.

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(14) [<sub>vP</sub> miz-o [λx [<sub>PredP</sub> x tamiz]] kard] ... [<sub>vP</sub> panjere-ro [λy [<sub>PredP</sub> y tamiz]] na-kard] table-DOM clean did.PST window-DOM clean NEG-did.PST '...cleaned the table...didn't clean the window.'
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Notice that (14), a representation of sentence (1) with specific objects in both the antecedent and the clause containing the EC, satisfies the parallelism condition; the antecedent and elided

constituents are semantically identical in that they both contain the predicate *tamiz* 'clean' and a bound variable. We have thus shown how parallelism explains the possibility of NVEE with specific objects.

Let us now turn to cases in which there is a mismatch in object specificity between the antecedent and the ellipsis containing clause. These are represented as in (15) and (16).

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(15) * [_{vP} miz-o [\underline{\lambda x} [_{PredP} x tamiz]] kard] ... [_{vP} [_{PredP} panjere tamiz] na-kard]
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(16) * [
$$_{\text{vP}}$$
 [$_{\text{PredP}}$ miz tamiz] kard] ... [$_{\text{vP}}$ panjere-ro [$\frac{\lambda x}{P_{\text{PredP}}}$ x tamiz]] na-kard]

In both (15) and (16), the PD is not semantically identical to the AC; in the case of (15), this is because the AC contains a bound variable while the PD contains the direct object (*panjere* 'window'), while in (16) the AC contains the direct object (*miz* 'table') while the PD contains a bound variable. Because there is no constituent to which the PD is semantically identical, the PD does not satisfy the parallelism condition, and ellipsis of PredP is not licensed. This explains why mismatch in object specificity between antecedent and ellipsis-containing clause is ungrammatical.

Finally, consider a case in which both the antecedent and the clause containing the ellipsis site possess non-specific objects, as schematized in (17).

```
(17) * [vP [PredP miz tamiz] kard] ... [vP [PredP panjere tamiz] na-kard]
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Here, the PD and the AC fail to be semantically identical due to the non-identity of the object DPs in each constituent; table-cleaning is not identical to window-cleaning. As such, the PD once again fails to satisfy the parallelism condition. This explains why NVEE is ungrammatical with non-specific objects in both the antecedent and the clause containing the ellipsis.

In fact, we can take this a step further by considering what would happen if both non-specific objects in (17) were identical, resulting in (18).

```
(18) \lceil_{VP} \lceil_{PredP} \rceil panjere tamiz kard ... \lceil_{VP} \rceil \lceil_{PredP} \rceil panjere tamiz na-kard
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Here, the PD *does* satisfy parallelism; the PD is semantically identical to the AC, so ellipsis is predicted to be licensed. However, note that in this case the non-specific object is still inside of the ellipsis site. As such, the result of ellipsis will not be NVEE, but rather light verb-stranding VPE á la Toosarvandani (2009). This example is therefore very much in line with the predictions of our analysis.

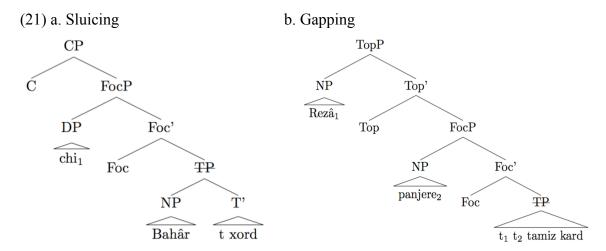
As an interim conclusion, we have thus far shown that the restriction of NVEE to specific objects falls out naturally from the interaction of the parallelism condition on ellipsis with the syntax of specific objects and complex predicates in Persian.

4.4 The Specificity Insensitivity of Sluicing and Gapping

Recall that other types of ellipsis in Persian, namely sluicing and gapping, do not show the same sensitivity to object specificity observed with NVEE. We reproduce the data from example (6) for sluicing and example (7) for gapping in (19) and (20), respectively.

- (19) Bahâr yechizi (-ro) xord, vali ne- mi- dun -am chi (-ro) Bahar something -DOM eat.PST but NEG- IMP- know.PRS-1.SG what-DOM 'Bahar ate (a certain) something, but I don't know what.'
- (20) Bahâr miz (-o) tamiz kard, Rezâ panjere (-ro)
 Bahar table -DOM clean do.PST Reza window -DOM
 'Bahar cleaned (the) table, and Reza (the) window.'

A relevant fact to consider when addressing these data is that, although non-specific objects do not move to (or, most crucially, remain in) the specifier of ν P, they *are* able to scramble to higher projections in the left periphery, such as Spec-FocP (Karimi 2005). In fact, Toosarvandani (2008, 2015) has proposed an analysis of sluicing and gapping in Persian according to which the object (or whichever NP is the remnant of a sluice or gap) moves to Spec-FocP, after which the complement of Foc is elided. This is schematized for our examples in (21) below.



Adopting such an analysis, we can see why sluicing and gapping are not subject to the specificity constraint observed with NVEE. In these cases, the PD will contain everything c-commanded by FocP, due to the fact that the rebound variable left behind by the object is in the complement of Pred and is bound by its binder in FocP. Because both specific and non-specific objects may move to Spec-FocP, sluicing and gapping should be possible with both, which is exactly what we find.

What's more, our analysis in fact predicts that ellipsis in a sentence involving an object that has undergone movement to Spec-FocP can *only* result in sluicing or gapping, due to the effect of the constraint MaxElide, derived from the parallelism condition, which requires that the ellipsis target the largest deletable constituent within the PD (Merchant 2008, Takahashi & Fox 2005). Movement of the object to Spec-FocP will cause the largest deletable constituent within the PD to be much larger than PredP, and will most likely be at least as large as TP. As such, even if non-specific objects may move to Spec-FocP, MaxElide ensures that a constituent much larger than PredP must be deleted, and thus successfully predicts that NVEE is not possible with non-specific objects that have moved to a position higher in the tree.

5 Additional Predictions

Karimi (2005) presents evidence that non-specific subjects of passives and unaccusatives remain in-situ within the PredP/VP. Much like objects, they move to the edge of ν P only when they are specific. This can be shown with the relative order of subject and a PP, as in (22):

```
(22) a. be Parviz gol dâde shod
to Parviz flower given become.PST
'Flowers were given to Parviz.'
b. un gol -â be Parviz dâde shod
that flower -PL to Parviz given become.PST
'Those flowers were given to Parviz.'
```

Our analysis predicts that unaccusative and passive subjects should exhibit the same kind of behavior as direct objects under light verb-stranding VPE, namely, that VPE should be acceptable with specific, but not with non-specific, *subjects*. This appears to be borne out: (23a) is degraded compared to (23b), which is perfect.

```
(23) a. *dar -i
                bâz
                       shod,
                                           panjere- yi
                                                         na-
                                                                shod
                       become.PST but
                                           window-IND NEG- become.PST
       door-IND open
       Intended: 'A door opened, but a window didn't.'
    b. dar -â
                       shod
                bâz
                                     -an,
                                            vali
                                                  panjere-hâ na- shod
                                                                              -an
                open
                       become.PST -3.PL but
                                                  window-PL NEG-become.PST-3.PL
      door-PL
      'The doors opened, but the windows didn't.'
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To see why this should be the case, consider the representations in (24a-b).

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(24) a. *[_{\nu P} [_{PredP} dar-i bâz ] shod] ... [_{\nu P} [_{PredP}-panjere-yi bâz ] na-shod] b. [_{\nu P} dar-â _{\Delta X} [_{PredP} x bâz ] shod-an] ... [_{\nu P} panjere-hâ _{\Delta Y} [_{PredP} y bâz ] shod-an]
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In (24a), the PredP in the antecedent and the one in the clause containing the ellipsis site are not semantically identical, because of the mismatch in identity between the two unaccusative subjects. Therefore, ellipsis is not licensed. In (24b), on the other hand, both unaccusative subjects have moved into the specifier of ν P, leaving traces in the complement of Pred. In this case, both PredPs are semantically identical, and ellipsis of the second PredP is therefore licensed.

The parallelism-based analysis that we have developed thus not only accounts for the core set of data concerning NVEE, sluicing, and gapping with which we are primarily concerned in this paper, but also makes correct predictions about other cases of interaction between specificity and internal arguments.

6 Conclusion

In this paper, we have introduced a novel type of ellipsis in Persian, non-verbal element ellipsis, which consists of the deletion of the non-verbal element of a complex predicate, and demonstrated that it possesses the peculiar property of being grammatical only if the direct object is specific in both the antecedent and the clause containing the ellipsis site, a restriction not observed with other types of ellipsis in the language. We proposed an account of this according to which specificity sensitivity emerges as a side effect of the interaction between the parallelism condition on ellipsis and the syntax of specific objects and complex predicates in Persian. We

then extended the account to show that the fact that non-specific objects may undergo movement to Spec-FocP accounts for the lack of specificity sensitivity in sluicing and gapping. Finally, we demonstrated some additional predictions of the account.

The analysis we have proposed essentially assimilates NVEE to Toosarvandani's (2009) light verb-stranding VPE. This analytical move is not unprecedented: given NVEE's correspondence to pseudogapping in languages like English, we might expect that they are both derived from VP/PredP ellipsis plus movement of the object out of the ellipsis site, as proposed by Jayaseelan (1990) and Lasnik (1995), among others. Still, NVEE possesses properties that light verb-stranding VPE does not have, which we hope to address in future research. One of these differences is that, although VPE is acceptable with any complex predicate, NVEE is generally only acceptable with certain kinds of complex predicates, typically ones with very common light verbs like *kardan* 'do' and *zadan* 'hit'. For example, although both VPE and NVEE are acceptable with *tamiz kardan* 'to clean', only VPE is grammatical with a complex predicate like *yâd gereftan* 'to learn (lit. mind take)' (25). Use of NVEE results in ungrammaticality, regardless of whether the object is specific or not (26).

- (25) Bahâr alefbâ (-ro) yâd gereft, vali Rezâ na- gereft Bahar alphabet -DOM mind take.PST but Reza NEG- take.PST 'Bahar learned (the) alphabet, but Reza didn't.'
- (26) *Bahâr alefbâ -ro yâd gereft, vali zabun-o na- gereft Bahar alphabet -DOM mind take.PST but language-DOMNEG- take.PST Intended: 'Bahar learned the alphabet, but he didn't the language.'

Different complex predicates have been known to exhibit different syntactic behaviors regarding factors like their relative separability (Karimi-Doostan 1998; 2011), so the fact that some behave differently under ellipsis should not be too surprising. As such, one possibility for dealing with these examples is to assume a different syntax for these types of complex predicates. This may involve head movement of the verb, which, following Hartman (2011), would extend the parallelism domain and thus block deletion of the PredP.

Another way in which NVEE differs from VPE is that it exhibits a strong ban on the presence of an overt subject in the clause containing the ellipsis site. The presence of an overt subject results in strong unacceptability³, as (27) shows.

(27) Bahâr miz -â -ro tamiz kard, vali (*Rezâ) panjere -hâ -ro na -kard Bahar table -PL -DOM clean do.PST but Reza window-PL-DOM NEG-do.PST 'Bahar cleaned the tables but (*Reza) didn't the windows.'

This restriction holds even if the clause containing the elided constituent is embedded. In (28), for example, although there may be an overt subject in the matrix clause of the second conjunct, an overt subject in the embedded clause, where ellipsis takes place, is ungrammatical.

(28) Bahâr miz -ro tamiz kard, vali Rezâ goft ke (*Royâ) panjere -ro na- kard Bahar table-DOMclean do.PST but Reza say.PST that Royâ window-DOMNEG- do.PST 'Bahar cleaned the table, but Reza said that she(Bahar)/*Roya didn't the window.'

³ Preliminary research on NVEE in other Iranian languages suggests that this is a universal constraint, as it is replicated in every language we have investigated, including Sorani, Kurmanji, and Hawrami.

Note that the null subject in the embedded clause must be interpreted as referring to the subject of the antecedent. It seems likely, then, that this constraint on NVEE has to do with parallelism between the two clauses.

This restriction does not receive a straightforward explanation on our current analysis. One way to handle this is to propose a parallelism constraint that requires the antecedent and clause containing the ellipsis site to be focus alternatives to one another. This would differ from the Low Coordinate Parallelism condition proposed by Toosarvandani (2016) for gapping, in that while Toosarvandani's condition permits any argument of the predicate in the second conjunct to differ from those in its antecedent in the first conjunct, a condition on NVEE would permit only the object (or the subject) to be distinct. Essentially, other than the object, the entire νP would need to be semantically identical.

The proposed solutions we have provided here are tentative, and we hope to more carefully develop them in future work.

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