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Persian Complex Predicates: Evidence for Verb Movement from Ellipsis and Negation

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Evidence for Verb Movement from Ellipsis and Negation

by

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Abstract

Persian has two main verb forms, Simplex Predicates and Complex Predicates (CPr). CPrs consist of a Non-Verbal element (NV), which can be a noun, adjective, adverb or proposition, and a Light Verb (LV) (Vahedi-Langarudi 1996). There has been a controversy on the relation and syntactic position of these two elements. Megerdoomian (2001, 2012) believes that these two elements form a constituent and therefore, treats the CPrs as one syntactic unit. On the other hand, Folli, Harley and Karimi (2005) believe that the NV takes the internal argument as its complement and projects its own phrase, which then merges with the LV.

In the present thesis, I provide evidence in support for Megerdoomian's proposal building on two main lines of argumentation from ellipsis in VPs and the scope of negation. These two argumentations lead me to suggest that the NV and the LV project a head, which I name the Complex-Verb (CV).

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List of Symbols, Abbreviations and Nomenclature

Symbol	Definition
1, 2, 3	First, Second, Third person
ACC	Accusative
ADJ	Adjective
COMP	Complementizer
CPr	Complex Predicate
CSE	Colloquial Singapore English
DECL	Declarative
DN	Double Negation
DUR	Durative
EZ	Ezafeh
GEE	Generalized Estimating Equation
GEN	Genitive
INF	Infinitive
LF	Logical Form
LV	Light Verb
MG	Multiple Grammars
NEG	Negation
NCI	Negative Concord Item
NPI	Negative Polarity Item
NSI	Negative Sensitive Item
NOM	Nominative
NV	Non-Verbal element
PART	Particle

PAST	Past tense
PERF	Perfective
PF	Phonological Form
PL	Plural
PRES	Present tense
QR	Quantifier Raising
SG	Singular
SOV	Subject Object Verb
TOP	Topic
VPE	Verb Phrase Ellipsis
VVPE	Verb-stranding Verb Phrase Ellipsis
U of C	University of Calgary

Chapter 1

Introduction

The structure of Complex Predicates (CPrs) in Persian has been a controversial matter because of the complexities that these types of verbs exhibit in their lexical versus syntactic behaviour. Some scholars believe that they are single syntactic constituents while others treat them as two separate units. In this thesis, I address this dispute taking perspectives from VP ellipsis and negation scope.

1.1 Persian Verbs

Persian or Modern Farsi is a verb-final language as it follows the SOV word order and adverbs precede the main verbs (Mahootian & Gebhardt 1997, Frazier & Foreman 2003, Karimi 2003, Folli, Harley and Karimi 2004, Family 2014). Persian has either simple or complex verbs. Complex verbs/predicates (CPr) include a Light Verb (LV) which is preceded by a Non-Verbal element (NV) (Vahedi-Langrudi 1996), or what Megerdoomian (2001) calls a pre-verbal element. This NV can be of different categories, including Noun, Adverb and Particle, Adjective and Past Participle, and a Preposition or a Prepositional Phrase (Vahedi-Langrudi 1996, Karimi 2005, Folli et al. 2004, Toosarvandani 2009, Family 2014). Examples of each category are in (1) to (4), respectively:

(1) jâru kardan
broom do.INF
"to sweep"

(2) birun kardan
out do.INF
"to fire (someone)"

(3) bidâr shodan
awake become.INF
"to wake up"

(4) az dast dâdan
from hand give.INF
"to lose"

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As the examples show, these CPrs' equivalent in English is generally a simple verb. According to Family (2014) there are fourteen light verbs that are most frequently used in the CPrs in Persian, and they are listed below in (5):

(5)   List Of The Most Common Light Verbs In Persian

âmadan	"to come"	kardan	"to do"
andâxtan	"to throw"	gereftan	"to obtain, to hold"
âvardan	"to bring"	keshidan	"to pull"
bordan	"to take"	oftâdan	"to fall"
dâdan	"to give"	xordan	"to eat, to collide"
dâshtan	"to have"	zadan	"to hit"
shodan	"to become"	raftan	"to go"

It is interesting to know that CPrs started replacing the simplex predicates in Modern Farsi in the 13th century and it is still an ongoing process (Folli et al. 2005, Family 2014). In most cases, the NV element of the CPr is a simple nominalization of the simplex predicate that the CPr stems from (Family 2014), examples of which can be seen in (6).

(6)   The Replacement Of Simplex Predicates With Complex Predicates In Persian

kooshidan →	kooshesh kardan	"to try"	(lit. "try do")
geristan →	gerye kardan	"to cry"	(lit. "cry do")
âvixtan →	âvizân kardan	"to hang (something)"	(lit. "hang do")
âgâhânidan →	âgâh kardan	"to inform"	(lit. "knowledgeable do")

The fact that CPrs were historically single lexical and syntactic units reinforces the possibility of them having preserved this property in time.

The merger of the NV element and the LV does not happen arbitrarily and freely, meaning that different LVs can only combine with specific sets of NV elements. For instance, we can combine the NV element *telefon* "phone" with the LVs *zadan* "to hit" or *kardan* "to make" to mean "to phone (somebody)", but not with *xordan* "to eat" or *andâxtan* "to throw". Family (2014), attempting to classify the LVs as to what type of NV elements they can combine with, acknowledges that the majority of Persian speakers and L2 learners of Persian are unaware of the constructional meanings associated with these LVs. Therefore,

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it is probable to think that these verbs are stored in the lexicon as fixed combinations of NVs and LVs. The following section discusses the lexical properties of this set of verbs.

1.2   Lexical Properties of the CPrs

There are a number of factors that might lead to the diagnosis that Persian CPrs are single lexical units. Undergoing the same derivational processes as simplex verbs, resisting separation in a sentence, and taking a single main stress are the main factors for this claim (Family 2014).

Starting from the derivational similarities between the simplex and complex predicates, we know that for instance, the NV and the LV of the CPrs can form compound nouns as the example (7) shows (Karimi 2003). They can also undergo adjective formation behaving like single lexical items as the example (8) shows.

(7)   [$_{CPr}$ Davat   kardan]-e Kimea kâr-e   dorost-i na-bud.
       [$_{CPr}$ invitation do.INF]-EZ Kimea work-EZ right-EZ NEG-be.PAST.3SG
       "Inviting Kimea was not the right thing to do."   (Karimi 2003, ex.38)

(8)   In   kelid [$_{CPr}$ peydâ shodan]-i   ni-st.
       this key   [$_{CPr}$ found become.INF]-ADJ NEG-be.PRES.3SG
       "This key is not to be found."   (Family 2014:27)

Moreover, it is not possible to separate them in a sentence meaning that adverbs (9) or direct objects (10) cannot appear in between the two elements of these verbs as the examples below illustrate. As these examples show, when there is an intervening adverb or a direct object between the two elements of the CPr, the sentence is ungrammatical[1].

---

[1]The accusative marker *râ* in Persian can take two different forms in colloquial Persian *ro* or simply *o* depeneding on the phonological environment it appears in. When the accusative marker is preceded by a vowel, *ro* would surface, while *o* appears after consonants (Jasbi 2015). There is no semantic or syntactic distinction between these forms.

(9)   a.   * Âpârtman [$_{NV}$ ejâre] zood   [$_{LV}$ raft].
            apartment [$_{NV}$ rent] quickly [$_{LV}$ go.PAST.3SG]

            "Intended: The apartment was rented out quickly."

      b.   Âpârtman zood   [$_{CPr}$ ejâre raft].
            apartment quickly [$_{CPr}$ rent go.PAST.3SG]

            "The apartment rented out quickly."   (Family 2014:28-29)

(10)   a.   * Farhad [$_{NV}$ nejât] Shirin râ   [$_{LV}$ dâd].
            Farhad [$_{NV}$ save] Shirin ACC [$_{LV}$ give.PAST.3SG]

            "Intended: Farhad rescued Shirin."

      b.   Farhad Shirin râ   [$_{CPr}$ nejât dâd].
            Farhad Shirin ACC [$_{CPr}$ save give.PAST.3SG]

            "Farhad rescued Shirin."   (Family 2014:29-30)

Lastly, the stress pattern on the CPrs also provides more support that these verbs form a single syntactic constituent. According to Kahnemuyipour (2003), stress falls on the rightmost syllable at word level, while it is on the leftmost word at the phrase level.

In simplex predicates with one word, stress falls on the rightmost syllable (11) while CPrs take single main stress on the final syllable of the NV elements. Example (12) elaborates on this point (Family 2014). Following Kahnemuyipour (2003), the fact that stress falls on the rightmost syllable of the NV element in a CPr indicates that the CPr can form a phonological phrase on its own, making it a continous unit.

(11)   Ali mard râ   zád.
       Ali man ACC hit.PAST.3SG

       "Ali hit the man."   (Family 2014:30)

(12)   Ali bâ   Babak [$_{CPr}$ haŕf zad].
       Ali with Babak [$_{CPr}$ word hit.PAST.3SG]

       "Ali talked with Babak."   (Family 2014:30)

Given the lexical properties of the CPrs, it is plausible to propose that these verbs are in fact single lexical items, the phonological evidence suggests that CPrs form a unit though

possibly larger than a single word. In fact, they exhibit more complicated behaviour in regard to the syntactic processes they can undergo.

1.3   Syntactic Properties of The CPrs

Despite their similarities with simplex predicates in regard to their lexical characteristics, CPrs show complexities in their syntactic behaviour.

One of these irregularities is that the two parts of the CPrs can separately undergo morphological derivations. Consequently, inflectional affixes like imperative, progressive and negative marker intervene in between the NV and the LV (Folli et al. 2005, Family 2014). An example of such derivation can be seen in (13) which shows an imperative marker attached to the LV.

(13)   Kabâb-ha ro   bâd **be**-zan.
       kebab-PL ACC wind **IMP**-hit.PRES
       "Fan the kebabs."   (Family 2014:31)

Modals can also appear in between the two elements of the CPrs (Family 2014)[2]. The sentence in (14) shows the future marker *xâh* "will" appearing in between the two elements of the CPr *dur andâxtan* "to throw away".

(14)   In zobâle ro   dur xâh-am andâxt.
       this trash   ACC far will-1SG throw.PAST.3SG
       "I will throw this trash away"   (Family 2014:31)

Moreover, we can have coordination of two different NV elements taking one single LV commonly. Family (2014) describes this as Gapping in CPrs. For instance, in the sentence

---

[2]According to Family (2014), different types of modals like *tavânestan* "to be able to" and *dâshtan* "to have" can also appear in between the two elements of the CPrs. However, this would require scrambling or topicalization of the NV element. Therefore, the only modal than appears in between the NV and LV in neutral word order is the future marker *xâstan* "to want (to do something in future)".

in (15), the NV elements of two CPrs, *shekanje dâdan* "to torture" and *azâb dâdan* "to torment" have been coordinated.

(15)   Sâl-hâ Sasan ro   shekanje va azâb   dâd-and.
        year-PL Sasan ACC torture   and torment give.PAST-3PL
        "They tortured and tormented Sasan for years"   (Family 2014:33)

Because of these complexities in the lexical and syntactic behaviour of the CPrs, it is difficult to establish their syntactic structure. This is the reason why there are controversies amongst scholars in their treatment of the CPrs as single lexical but not single syntactic units, or as both single lexical and syntactic units. Despite acting as single units semantically, the focus of the current work is to determine the syntactic properties of these set of verbs using the Minimalist Program framework, because of examples like (14) and (15)[3].

1.4   The Structure of CPrs

There are two contrasting proposals in regard to the structure of Persian Complex Predicates, suggested by Megerdoomian (2001, 2012) and Folli, Harley and Karimi (2005). While Megerdoomian treats CPrs as one syntactic unit whose elements form a constituent broken by later movement, Folli et al. believe that these two elements start off separately. In other words, in Folli et al.'s structure, the two elements of the CPr, namely the NV and the LV, do not form a constituent at any stage of the derivation. The sections below elaborate on this difference.

---

[3]Despite having complex internal structure, the CPrs may be stored as a unit, similar to idioms which can undergo inflectional processes or even movement (Jackendoff 2015). For a thorough discussion on how constructive and productive these verbs are, see Family (2014). This thesis focuses on the syntactic properties which show the CPrs to be made up of divisible parts.

1.4.1 Folli, Harley and Karimi's CPr Structure

Adapting Hale and Keyser's (1993) structures, Folli, Harley and Karimi propose three basic structures for Persian Complex Predicates.

Hale and Keyser have a "constructionalist" approach towards syntax in that their effort is meant to simplify the lexicon by eliminating lexical rules and creating argument-structure alternations in syntax. As a result, the syntactic structure of the VP becomes more complex since the verb would be the element that determines the location and interpretation of each of the arguments in the verb phrase. Therefore, for Hale and Keyser, verbs have underlyingly transitive structure with the internal argument being incorporated into an abstract verbal head. For instance, the verb "to work" is underlyingly "do work" and takes the structure such as the one below in (16):

(16)

```
                        vP
                       /  \
                     DP    v′
                     |    /  \
                   John  v    N
                        DO   work
```
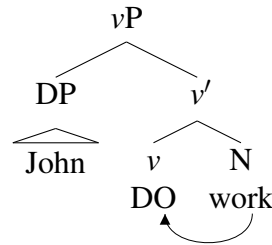
Other types of verbs with other aspectual readings would require those readings to be incorporated in the VP as well. Therefore, the unaccusative form of the verb "to open" would have the aspectual reading of BECOME incorporated into its VP as (17a) shows, while the accusative form of the very similar verb incorporates an additional meaning of causality, via CAUSE, as in (17b).

(17)

```
a.            vP                    b.            vP
             /  \                               /  \
            v    AP                            DP   v′
         BECOME  / \                          |   /  \
               DP   A                        John v    AP
               |   open                         CAUSE / \
            the door                                 DP   A
                                                     |   open
                                                  the door
```

7
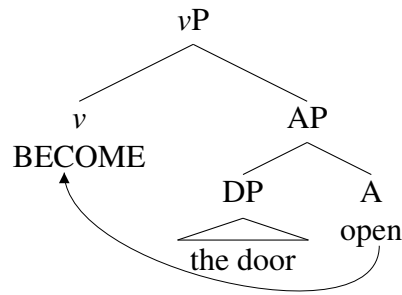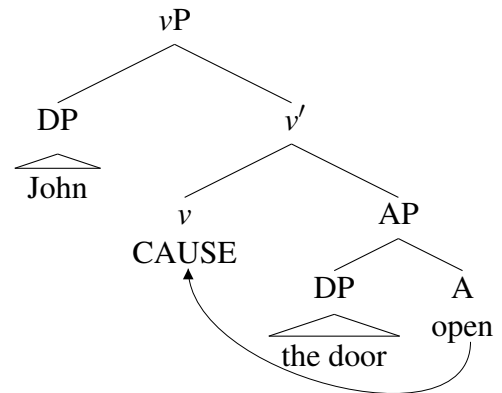
Adapting these trees and keeping in mind that Persian already has a light verb denoting the aspectual reading, Folli, Harley and Karimi propose the following trees in (19), (21), and (23) for various Persian verbs. In each of these structures, the tree in (a) models an English sentence, while the tree in (b) maps that onto its Persian equivalent, respecting the fact that Persian is a verb-final language as well as the structure of CPrs which consist of a LV and a NV (Folli et al. 2004: 1368).

For instance, an unergative sentence such as the one in (18) would have a structure as in (19). The verb "cry" has an underlying transitive structure, "do cry" in English. As for Persian, it is already a CPr *gerye kardan* with a noun as its NV *gerye* "cry" and an LV *kardan* "do" yielding an unergative CPr.

(18)   Kimea [*CPr* gerye kard].
        Kimea [*CPr* crying do.PAST.3SG]
        "Kimea cried."

(19)   Unergatives
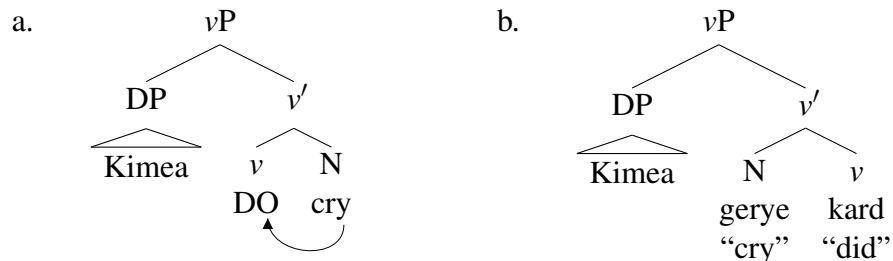
One of the light verbs that bears an unaccusative reading in Persian is the verb *shodan* literally meaning "to become". Therefore, we can pair a CPr which includes the LV *shodan* with Hale and Keyser's structure for unaccusative verbs like the one in (17a) above. For instance, for the sentence (20) below and the CPr *bidâr shodan* "to wake up", we can have a structure such as (21b).

(20)   Kimea [*CPr* bidâr   shod].
        Kimea [*CPr* awake become.PAST.3SG]
        "Kimea woke up."

(21)   Unaccusative

a.
```
              vP
           /      \
          v        AP
       BECOME    /    \
          ↑     A      DP
              awake   Kimea
```

b.
```
              vP
           /      \
          AP        v
        /    \     shod
       DP     A   "became"
      Kimea  bidâr
            "awake"
```
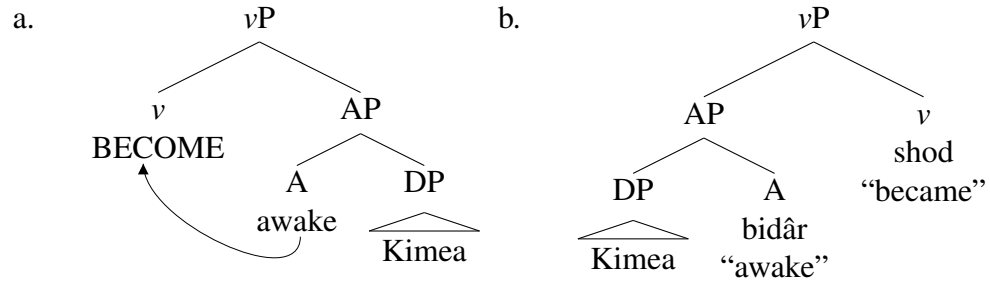
The exact same match can be found between accusative verbs in English and the CPrs including an accusative LV in Persian. We saw earlier that the verb *kardan* can have an ergative reading, but it can also give a causative reading to the sentence like the sentence in (22) below. The structure for such a sentence can be seen in the tree in (23). In this sentence the agentive reading of the sentence is satisfied by another form of LV, namely *kard* which means "made" here.

(22)   Papar Kimea ro   [*CPr* bidâr   kard].
        Papar Kimea ACC [*CPr* awake make.PAST.3SG]
        "Papar woke Kimea up."

(23)   Causative

a.
```
                vP
             /      \
            DP       v'
          Papar    /    \
                  v      AP
               CAUSE    /   \
                 ↑     A     DP
                    awake   Kimea
```

b.
```
                 vP
              /       \
             DP         v'
           Papar      /    \
                     AP      v
                   /    \   kard
                  DP     A  "made"
               Kimea ro bidâr
              "Kimea ACC" "awake"
```
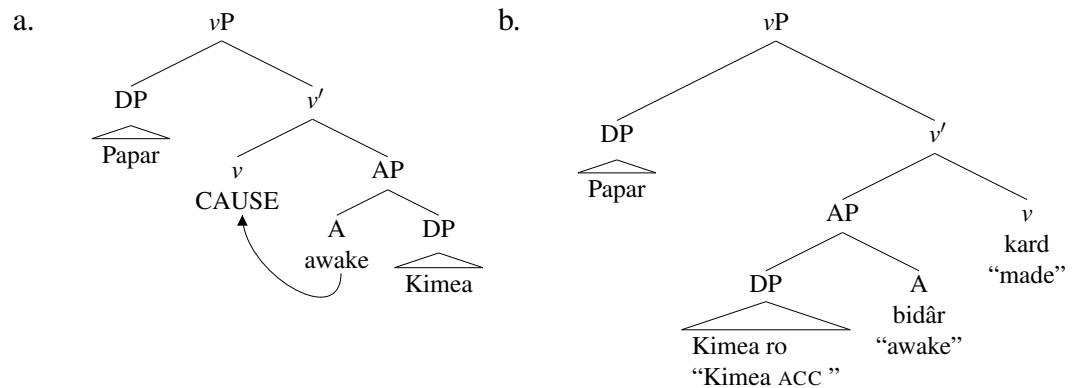
As one can notice, these trees suggest that CPrs in Persian consist of a NV element, which projects its own phrase taking the object or the internal argument as its complement. In other words, in none of the above trees except for the unergative one in (19), do the NV and LV form a constituent. The underlying structure for these examples is illustrated in (24) from Hornstein et al. (2005:104).

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(24)

vP
├── external argument
└── v′
    ├── XP
    │   ├── internal argument
    │   └── X
    └── v⁰
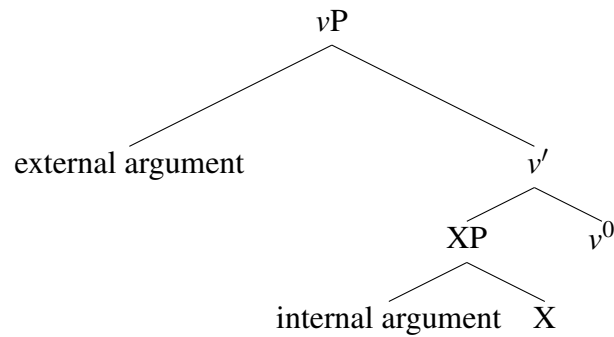
As this tree shows, the XP stands for any type of the phrase that can merge with the little *v* (our LV here). In other words, it is the NV element phrase that combines with the LV and constitutes a CPr (Hornstein et al. 2005).

1.4.2   Megerdoomian's Structure For CPrs

Like Folli, Harley and Karimi, Megerdoomian also believes that the little *v* node is the host for the aspectual readings. However, unlike Folli, Harley and Karimi whose CPr structure entails the two elements of these predicates being separated, Megerdoomian (2001, 2012) proposes that the NV, or what she also calls "pre-verbal" element, combines with a verb and together they form a single syntactic predicate where "...the NV contributes the encyclo-pedically contentful part of the predicate (Megerdoomian 2012)". Moreover, she proposes that there are *v* layers or shells, the lower one denoting the BECOME event which is associ-ated with inchoative or intransitive verbs, like the one in (26), while the outer shell denotes the CAUSE event associated with causative verbs and projects the external arguments (28). In other words, the reading on the little *v* does not need to alter, rather the BECOME read-ing is always available and when there is another aspectual reading, it would be added to a higher layer. To clarify, let us have a look at some examples taken from Megerdoomian (2012)[4].

---

[4]Megerdoomian's proposal has further received support by Pantcheva (2008). Looking at a specific subset of these CPrs, Pantcheva (2008) proposes that nominal NV elements directly compose with the LV making a joint predicate together.

For instance, in an inchoative/intransitive sentence like (25), she has proposed a structure which is presented in (26).

(25) Âdam-barfi [_CPr_ âb   shod].
      man-snow   [_CPr_ water become.PAST.3SG]
      "The snowman melted."

As the example shows, the LV *shodan*, which we encoutered before in example (20) bears the inchoative reading and therefore, the *v* node is realized as BECOME. More importantly, as the structure illustrates, the two parts of the CPr merge together and constitute the V' node which then takes the internal argument as its specifier. Comparing this tree to a similar one by Folli, Harley and Karimi, in (21b), would elaborate on this point.

(26)   Inchoative/Intransitive   (Megerdoomian 2001, ex.37)
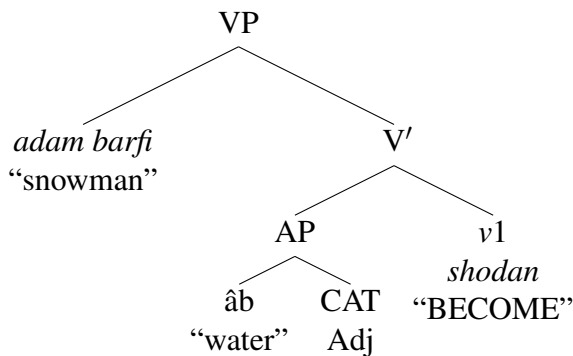
Let us take a further step and have a look at the structure in (28) for a causative verb *âb kardan* "to cause to melt" as in the sentence (27). The LV that denotes the causality here is the verb *kardan*, which is one of the light verbs in Persian bearing this reading as we have already discussed. The structure here also supports the fact that for Megerdoomian, the CPr is a single syntactic unit. However, since we have a causality reading here which needs to be added to the tree on a higher *v*P shell, the LV needs to undergo movement to get the desired reading.

(27) Âftab âdam-barfi ro   [_CPr_ âb   kard].
      sun   man-snow ACC [_CPr_ water make.PAST.3SG]
      "The sun melted the snowman."

(28)   Causative   (Megerdoomian 2001, ex.38b)

*v*P=outer event
- *âftâb* "sun"
- *v*′
  - VP=inner event
    - *adam barfi ro* "the snowman"
    - V′
      - AP
        - *âb* "water"
        - CAT Adj
      - t_i1
  - *v*2 kardan$_i$ "MAKE"
    - CAUSE   BECOME
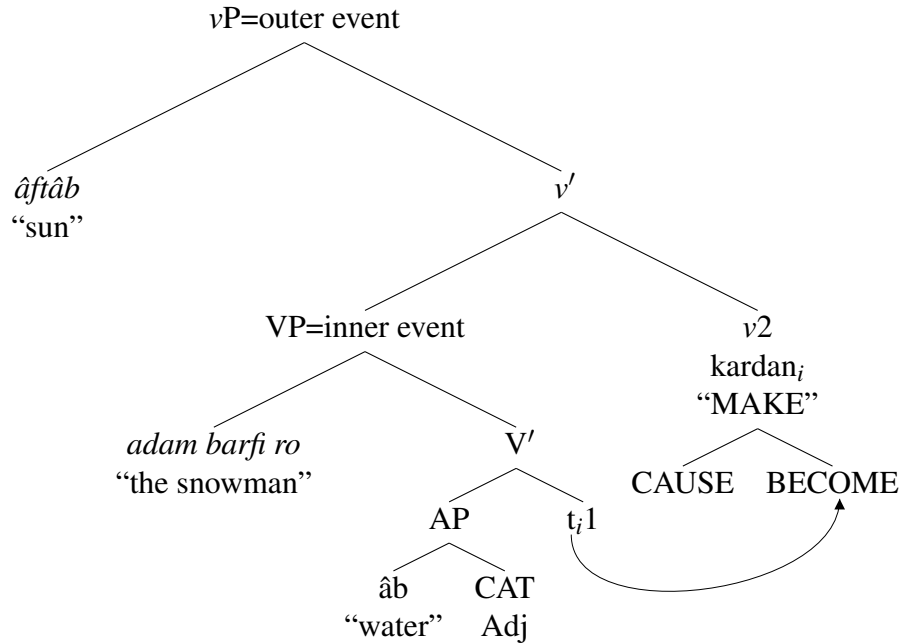
These structures suggest that the NV element and the LV merge together before taking the internal argument. Moreover, they illustrate that the LV moves to get the additional unergative/cauastive reading.

1.5   The Road-map Of This Thesis

In the current work, I will provide evidence from two different phenomena in support of an updated version of the structure proposed by Megerdoomian (2001, 2012). The evidence I provide comes from ellipsis inside verb phrases (VP-Ellipsis) and Negation. Using these sources of evidence, I will show that the CPr is indeed a single syntactic unit. I will also show that the LV of the CPr moves to a higher level. One piece of evidence for that comes from Megerdoomian (2001, 2012), as discussed above, where the LV gets different aspectual readings after moving to a higher level. In this thesis, I will provide more evidence for this movement and will show that verb movement is how we can account for *v* stranding VP-Ellipsis (*v*VPE) as well the scope of negation. Below, I explain the reasons why these arguments are of interest.

It is essential to investigate the VP-Ellipsis phenomenon in this language because of sentences such as (29b) and (29c) below. The example shows that when we have an antecedent sentence as in (29a), we can delete the NV element together with the internal arguments, namely *mâshinesh* "his car" and *be Sohrab* "to Sohrab", as in (29b). On the other hand, we can also keep the NV element and elide only the internal arguments as in (29c).

(29)   a.   Shahram mashin-esh   ro   be Sohrab [$_{CPr}$ neshun dâd].
              Shahram car-GEN.3SG ACC to Sohrab [$_{CPr}$ show   give.PAST.3SG]
              "Shahram showed his car to Sohrab."

        b.   Ali ham [~~mashin-esh ro be Sohrab neshun~~]   dâd.
              Ali also [~~car-GEN.3SG ACC to Sohrab show~~] give.PAST.3SG
              "Ali also did."

        c.   Ali ham [~~mashin-esh ro be Sohrab~~]   [$_{NV}$ **neshun**] dâd.
              Ali also [~~car-GEN.3SG ACC to Sohrab~~] [$_{NV}$ **show**]   give.PAST.3SG
              "(lit.) Ali also showed."

This fact has not been discussed previously in the literature and cannot be captured by Folli, Harley and Karimi's structure of CPrs. This is because their structure does not allow for the presence of the NV while targeting the internal arguments as a single constituent. This phenomenon is discussed in detail in Chapter 2 of this thesis.

The second argument comes from the scope of negation in Persian sentences. Negation can be revealing about the structure of the CPrs because the negative marker appears in between the two elements of these verbs, as the example (30) shows. In general, verb inflections, including the imperative, progressive, and negative markers, are attached to the LV (Family 2014).

(30)   Mahsa soâl   ro   [$_{CPr}$ javâb   **na**-dâd].
        Mahsa question ACC [$_{CPr}$ answer **NEG**-give.PAST.3SG]
        "Mahsa didn't answer the question."

Looking at this example, one might think that it aligns well with Folli et al.'s structure

of Persian CPrs since the two elements are already distant from each other and therefore, negation can project its own phrase right above the NV and below the LV which it can attach to through a movement operation. However, I will show that we can explain different scopes of the negative marker by a movement operation on either LV or the whole CPr. This phenomenon is discussed in Chapter 3 of the current work.

1.6   Summary

There is no consensus on the structure of complex predicates in Persian. According to Folli, Harley and Karimi (2005), the two elements of these verbs are separate heads each of which projects its own phrase with the non-verbal element taking the internal argument as its complement. On the other hand, Megerdoomian (2001, 2012) suggests that the NV and LV parts of the CPr make a constituent which then takes the internal argument as its complement and the LV can undergo movement being motivated by aspectual readings.

In the chapters to come, I will provide evidence from VP-ellipsis and negation in Persian sentences in support for the fact that CPrs are indeed one single syntactic unit and that these facts are the pieces of evidence which show the LV indeed undergoes a movement operation.

Chapter 2 of this thesis will discuss VP-Ellipsis and how the movement of LV can be supported using these facts. Chapter 3 will focus on the scope of negation in Persian, showing that the LV can undergo further movements. Chapter 4 restates the main analysis and discusses topics for future work.

Chapter 2

Ellipsis in Verb Phrases

This chapter deals with ellipsis inside the verb phrase in Persian, and reveals some facts about CPrs. These facts lead me to propose a new structure for CPrs that enables me to account for the ellipsis facts.

2.1　What Is Verb Phrase Ellipsis?

Ellipsis has been defined as "omission of a syntactic constituent under identity with an antecedent in the preceding [or surrounding] discourse" (Lobeck 1995), or as Johnson (2001) puts it "VP Ellipsis is the name given to instances of anaphora in which a missing predicate ... is able to find an antecedent in the surrounding discourse".

Goldberg (2005) proposes two approaches to ellipsis, PF deletion and LF copying. According to the PF deletion approach, the elided phrase is fully fledged in the syntactic structure but it does not get any reading at PF. In other words, there is a full deletion of the elided XP. On the other hand, the LF copying approach believes that the elided XP has no syntactic, semantic, or phonological content and is only interpretable at LF under reconstruction.

Since the mechanism of these two approaches differ, adapting one or the other results in different outcomes. If we adapt the PF deletion approach, since the elided VP is already base-generated with fully fleshed-out internal syntactic structure, any bound elements inside this VP are already indexed and re-indexing are not possible. As a result, the interpretation of the elided VP is going to be fixed. However, under an LF copying approach the elided VP has no internal content or structure. This would allow for the elided element to be reconstructed with new binding relations, giving rise to ambiguity in the sentence with

VPE. In this chapter, I adopt the LF copying approach and show that the predictions by the PF deletion approach are not necessarily met.

According to Goldberg, for languages which allow for verb raising, like French, the verb is stranded by moving out of the VP which undergoes elision. These languages are called Verb-raising Verb Phrase Ellipsis (VVPE) languages. On the other hand, for languages like English, there is no V-stranding as the verb does not raise to T. However, there is VPE which can only happen when the T is filled with either an auxiliary verb or dummy *do* (Lobeck 1995: 141). The following trees in (31) elaborate on the schematic difference between VPE and VVPE languages.

(31)

    a.   VPE Languages   b.   VVPE Languages
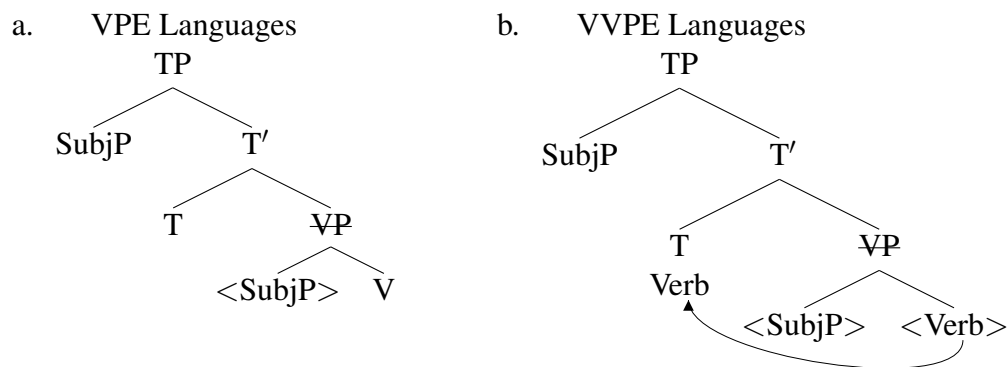
The sentences in (32) from English support the fact that it is the whole VP that is elided because the presence of the verb would render the sentences ungrammatical.

(32)   a.   Arthur brought a present to Hal.

        b.   and Julia did [$_{VP}$ ~~bring a present to Hal~~] too.

        c.   * and Julia brought, too; *and Julia will bring, too.   (Goldberg 2005)

Whereas, in other languages, such as French, Hebrew, Irish, and German (to name some), VP cannot be elided as the examples in (33) and (34) illustrate for French and German, respectively. These sentences would be grammatical if the verbs were pronounced.

(33)   *On a demandé si ils ont déjà mangé, et ils ont [$_{VP}$ ~~déjà mangé~~].

We asked if they had already eaten, and they had [$_{VP}$ ~~already eaten~~].

(Lobeck 1995: 158)

(34)   *Hans wird heimfahren und Maria wird [$_{VP}$ ~~heimfahren~~] auch.

Hans will drive home, and Maria will [$_{VP}$ ~~drive home~~] too.

(Lobeck 1995: 142)

Persian is similar to French and German in this respect in that it does not allow the V to go missing when there is elision in the sentence. Example (35) illustrates this fact with a simplex predicate.

(35)   * Mâdar-am   ketâb râ   xând-e   ast, barâdar-am   ham [$_{VP}$
         mother-GEN.1SG book ACC read-PAST.3SG PERF, brother-GEN.1SG also [$_{VP}$
         ~~ketâb râ xânde~~]   ast.
         ~~book ACC read-PAST.3SG~~] PERF

"My mother has read the book, and my brother has [$_{VP}$ ~~read the book~~], too."

Consequently, one might think that Persian is a language which allows for verb raising as does French. However, Karimi (2005) suggests that in Persian there is neither V to T movement except for topicalization or focus, nor anything resembling do-support. On the other hand, it is also possible to think that it is only the object that undergoes elision (Argument Ellipsis, Rasekhi 2014); however, there are facts that prove it is not always only the object that can be deleted. For instance, in sentence (36b), in addition to the internal arguments *dâneshju* and *be mehmuni*, the NV element of the CPr *davat* is also deleted.

(36)   a.   Nilufar be mehmuni dâneshju [$_{CPr}$ davat   ne-mi-kon-e].
             Nilufar to party   student [$_{CPr}$ invitation NEG-DUR-do-3SG]
             "Nilufar doesn't invite students to the party."

        b.   vali man [~~be mehmuni dâneshju davat~~] mi-kon-am.
             but I   [~~to party student invitation~~]   DUR-do-1SG
             "But, I do [~~invite students to the party~~]."   (Toosarvandani 2009, ex.33)

These contradictory facts resulted in different claims in regards to what is elided in a Persian sentence. Toosarvandani (2009, to appear) claims that Persian is a *v*-stranding VPE language; while Rasekhi (2014) believes that it is an argument ellipsis language.

In the sections to come, I provide an overview of what has been done in the field of Persian VP-Ellipsis discussing the works of Toosarvandani (2009) and Rasekhi (2014). Then, I elaborate on the notion of strict/sloppy and E-type/quantificational readings referring to the studies done by Şener and Takahashi (2010) and Sato (2014). Building on their analysis of VPE, I introduce a novel approach to Ellipsis in Persian which will motivate a new analysis for Persian CPrs.

2.2 Previous Works on Persian VP Ellipsis

There are two main research studies on VP ellipsis phenomenon in Persian, one by Toosarvandani (2009) and another by Rasekhi (2014). Toosarvandani proposes that like verb-raising languages, Persian is a *v*VPE language, while Rasekhi believes that Persian does not exhibit the characteristics of the VVPE languages, and the ellipsis site in this language is limited to the arguments in sentences.

2.2.1 Toosarvandani's Approach towards Argument Ellipsis in Persian

Toosarvandani (2009) adopts the CPr structure proposed by Folli, Harley and Karimi (2005) in which the two parts of the CPr are separated. He claims that during the process of ellipsis, it is the complement to *v*, namely XP, which is elided and that is how *v* is stranded and does not undergo elision. Since *v* is stranded, Toosarvandani claims that Persian is a *v*-stranding VPE language. The schematic structure in (37), repeated from Chapter 1 example (24), illustrates his point where the XP stands for any type of NV element phrase.

(37)

```
                              vP
                        ╱          ╲
           external argument        v′
                                 ╱      ╲
                               XP        v⁰
                             ╱    ╲
              internal argument    X
```
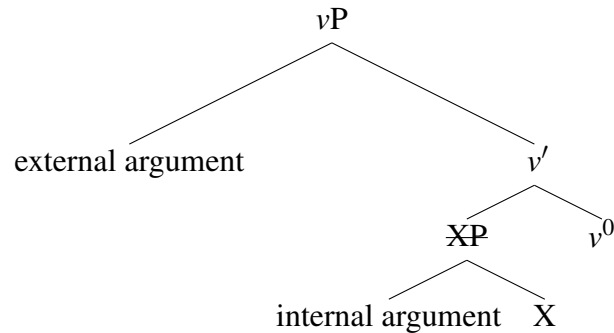
To elaborate, let us have a look at an example in (38) below. In this example, the verb is a CPr with *davat* "invitation" being its NV element and *kardan* (here conjugated as *kone* "to do" as its LV). With the NV element being elided together with the internal arguments, we will get the sentence in (38b).

(38) a. Nilufar be mehmuni dâneshju [$_{CPr}$ davat   ne-mi-kon-e].
          Nilufar to party   student   [$_{CPr}$ invitation NEG-DUR-do-3SG]
          "Nilufar doesn't invite students to the party."

     b. vali man [be mehmuni dâneshju davat] mi-kon-am.
          but I   [to party student invitation]   DUR-do-1SG
          "But, I do [invite students to the party]."   (Toosarvandani 2009, ex.33)

The structure for the sentence (b) in (38) would look like the tree in (39) (Toosarvandani 2009:73), which shows that the NV element, which is a Noun Phrase here, is elided leaving the *v* behind. In other words, *v* is stranded while the NP undergoes deletion.

As this tree shows, the two parts of the CPr are separated and do not make a constituent at any level of the derivation. This tree would also predict that the NV element, which forms a constituent with the internal argument, has to always be elided together with the internal arguments.

(39)

TP
├─ DP
│   man
│   "I"
└─ T′
    ├─ vP
    │   ├─ ⟨DP⟩
    │   └─ v′
    │   ├─ NP
    │   │   ├─ PP
    │   │   │   be mehmuni
    │   │   │   "to the party"
    │   │   └─ N′
    │   │   ├─ DP
    │   │   │   dâneshju
    │   │   │   "student"
    │   │   └─ N
    │   │   davat
    │   │   "invitation"
    │   └─ v
    │   mikonam
    │   "do"
    └─ T
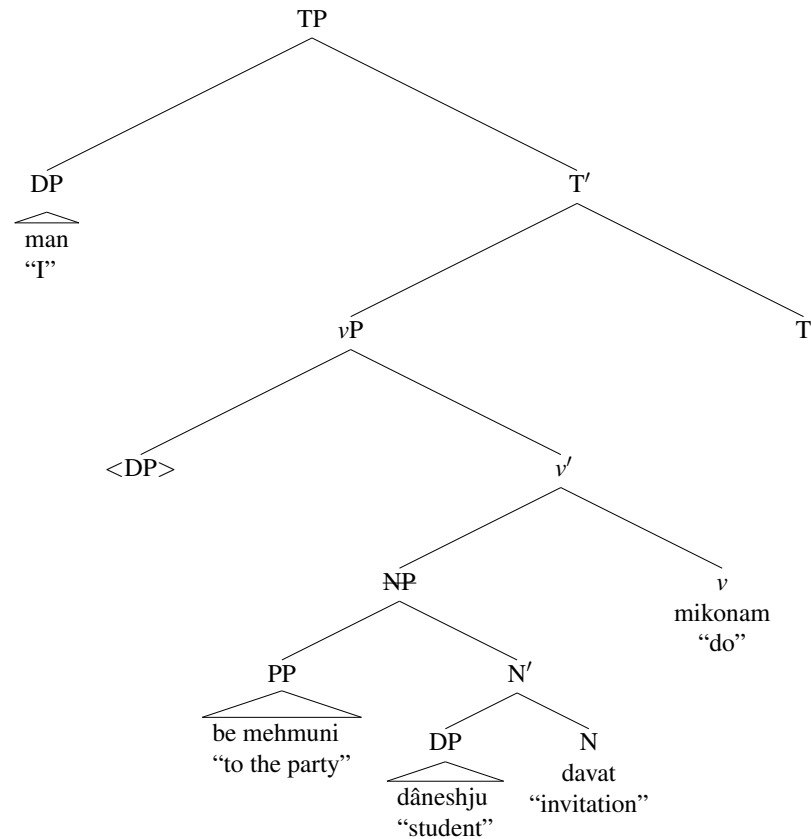
2.2.2 Rasekhi's Approach towards Argument Ellipsis in Persian

Rasekhi (2014), on the other hand rejects the idea that there is any kind of VVPE in Persian. She rather believes that Persian missing arguments are either Definite NPs or PPs. For instance, in the following examples in (40) and the tree in (41) only the indirect object PP is elided.

(40) a. Ali bâ   deghat ketâb ro   be doxtar-esh   dâd.
          Ali with care   book ACC to daughter-GEN.3SG give.3SG.PAST
          "Ali carefully gave the book to his daughter."

      b. az   in-ke   bâ deghat gooshi ro   [be doxtar-esh]
          from this-that with care   phone ACC [to daughter-GEN.3SG]
          na-dâd   tajjob   kard-am.
          NEG-give.3SG.PAST surprise do.PAST-1SG
          "the fact that he didn't give the phone [to his daughter] carefully surprised

          me."   (Rasekhi 2014, ex.33)

20

(41)

```
                              vP
                    ┌──────────┴──────────┐
                   DP                     v′
                   /\          ┌──────────┴──────────┐
                  Ali         VP                      v
                      ┌────────┴────────┐           dâd
                     DP                 V′         "gave"
                     /\         ┌───────┴───────┐
                 gooshi ro     PP               V
                "the phone"    /\             <dâd>
                          be doxtar-esh
                        "to his daughter"
```
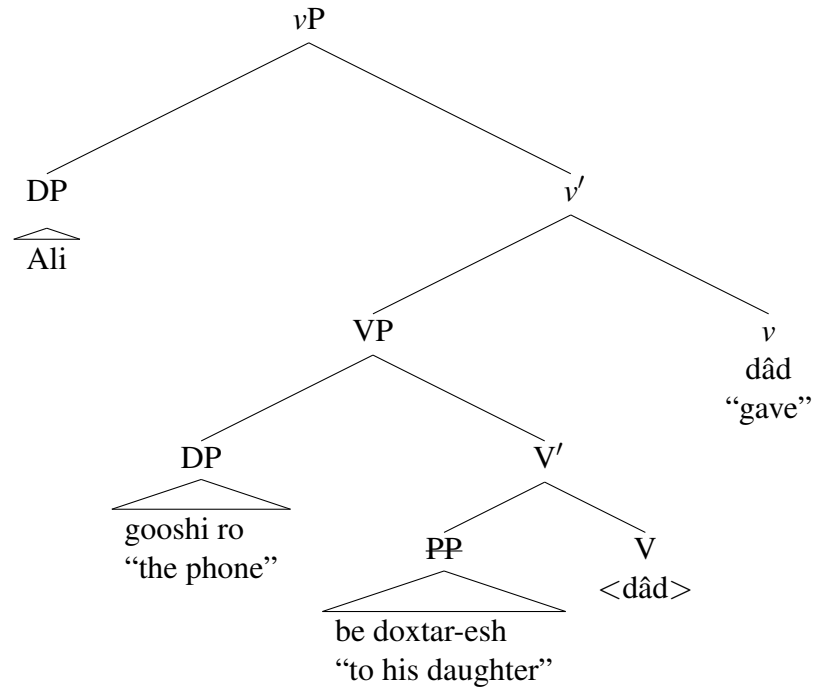
As the above structure[1] for the sentence in (40) shows, it is only one of the the verb's argument, the PP, is elided[2].

2.2.3 Some Issues with Toosarvandani and Rasekhi's Proposals

Both of the proposals seem appealing and plausible; however, they do not cover all the possibilities. To begin with, Toosarvandani's analysis does not discuss the cases when the NV is pronounced; and Rasekhi's proposal does not address the fact that in ditransitive sentences more than one argument can be elided and therefore, the Argument Ellipsis analysis is severely challenged. More explicitly, none of these analyses can account for a sentence like (42), where we have elision of both direct and indirect object, and presence of NV element:

---

[1]Pay attention to the V to *v* movement in Rasekhi's tree. There have been arguments against V to T movement in Persian (see Karimi 2005), but it does not rule out the possibility of verb raising to a position other than T. See section 3.6.2 for more discussion.

[2]Let us not worry about negation for now. I am glossing over negation throughout this chapter to focus on constituency. Chapters 3 and 4 discuss negation and its syntactic position.

(42) Ali ham [~~mashin-esh ro be Sohrab~~] [_NV_ **neshun**] dâd.
      Ali also [~~car-GEN.3SG ACC to Sohrab~~] [_NV_ **show**] give.PAST.3SG
      "Ali also showed."

One might posit that we are dealing with two instances of argument ellipsis when the two internal arguments are missing rather than an ellipsis on VP. It is true that both of these arguments can undergo elision individually, as Rasekhi (2014) also points out, and we are able to have either the NP or PP deletion. However, deletion of an argument-adjunct sequence, as in (43), should only be VPE type.

(43) a. Shahla seshanbe bâ   Hootan harf zad.
          Shahla Tuesday with Hootan word hit.PAST.3SG
          "Shahla talked with Hootan on Tuesday."

      b. Arman ammâ   [~~seshanbe ba Hootan harf~~/harf]   na-zad.
          Arman however [~~Tuesday with Hootan word~~/word] NEG-hit.PAST.3SG
          "(Lit.) But, Arman didn't [talk/~~talk with Hootan on Tuesday~~]."

In the example above, the adverbial phrase "on Tuesday" is deleted together with the indirect object. This shows that VPE can occur no matter whether the NV is deleted or not. We can further argue for the presence of VVPE using some tests such as conjunction, disjunction and negation constructions (Gribanova 2013).

Gribanova (2013) argues that it is difficult to distinguish argument ellipsis from VVPE in Russian since Russian is an object-drop language. She (citing Godlberg 2005) states that for VVPE to occur, more than one argument has to undergo elision, meaning the internal arguments of the VP (DPs or PPs). Since it is possible to elide only one of these arguments in Persian (as argued by Rasekhi 2014), we must diagnose the ellipsis site using some other tools. One of the tests that can be used to decide whether it is only the argument that is deleted or whether VVPE is responsible for the missing elements is the coordination test. For instance, let us have a look at an example from Gribanova (2013):

(44) a. Kažetsja, čto Anja položila   ručku   na stol, *i* knigu   na
          seems   that Anya put.PAST.SG.F pen.ACC on table and book.ACC on
          stul.
          chair

          "It seems that Anya put the pen on the table and the book on the chair."

      b. Net, ne   položila.
          no, NEG put.PAST.SG.F

          "No, she didn't put (the pen on the table and the book on the chair)."

                                                              (Gribanova 2013, ex.3)

The grammaticality of the sentence in (44) shows that multiple constituents can be elided together with the coordinator "and", which in turn supports the claim that VVPE is responsible for the deletion of a rather big part of the sentence (Gribanova 2013). This in fact holds for Persian as well and as the sentences in (45) illustrate, the coordinated internal arguments along with the coordinator can be elided:

(45) a. Ali xodkâr ro   ruye miz va ketâb ro   ruye sandali gozâsht.
          Ali pen   ACC on table and book ACC on   chair   put.PAST.3SG

          "Ali put the pen on the table and the book on the chair."

      b. Na, na-zâsht.
          no, NEG-put.PAST.3SG

          "No, he didn't put (the pen on the table and the book on the chair)."

Gribanova (2013) argues that some scholars might believe that the coordinator "and" here, in (44b), is null and we have two instances of argument ellipsis. However, she explains that the same test also works for disjunctions like *but* which can also be eliminated together with the internal arguments (Gribanova 2013). Moreover, the negative response negates both of these constituents yielding the meaning that the listener did not do any of these actions showing that negation takes scope outside the disjunction that is being deleted (Gribanova 2013). These facts provide more support for the existence of the VVPE in Russian and also Persian which acts like Russian in these cases. The example in (46) illustrate this point:

(46) a.   (To) xodkâr ro   ruye miz **vali** ketâb ro   ruye sandali gozâsht-i?
            (you) pen   ACC on   table **but** book ACC on   chair   put.PAST-2SG

            "Did you put the pen on the table but the book on the chair?"

      b.   Na, na-zâsht-am.
            no, NEG-put.PAST-1SG

            "No, I didn't put (the pen on the table but the book on the chair)."

Furthermore, the same ellipsis can happen in "neither...nor" constructions as the sentences in (47) show:

(47) a.   Ali na xodkâr ro   ruye miz (va) na ketĉ ro   ruye sandali
            Ali no pen   ACC on   table (and) no book ACC on   chair
            gozâsht.
            put.PAST.3SG

            "Ali put neither the pen on the table and nor the book on the chair."

      b.   Na, na-zâsht.
            no, NEG-put.PAST.3SG

            "No, he didn't put (the pen on the table but the book on the chair)."

These facts are difficult to be accounted for by argument ellipsis (NP/PP ellipsis). Giving such examples, Gribanova (2013) concludes that the disappearance of the two constituents together with the coordinator, disjunction or "neither...nor" structures show that a conjunction of non-constituents is elided and are evidence for the existence of VVPE in such languages.

However, it is worth noting that when only one of the arguments is missing, VVPE is not necessarily responsible and we may have an argument ellipsis. Moreover, argument ellipsis is responsible when the antecedent is more *situational* as Gribanova states rather than linguistic (48).

(48)   Something falls, someone wants to get it.

      Ne vstavaj,   ja podnimu.
      NEG get-up.2SG, I pick-up.1SG.FUT

      "Don't get up. I'll get (it)."   (Gribanova 2013, ex.25)

Therefore, the challenge for Rasekhi's (2014) proposal is not that there is no argument ellipsis in Persian, rather the challenge is that it is not generalizable when more than one argument is missing and it cannot account for the elision of NV either. That is to say, we cannot dismiss the possibility of argument drop, but we need to come up with an analysis that addresses the ellipsis of adjuncts, the NV element and conjuncted non-constituents.

I discussed the possibility of having more than one deleted or missing argument which raised questions about Rasekhi's analysis. However, it might be the case that we have a null pronoun in the missing sites rather than elision. The next section introduces tests to determine which of these two possibilities, null pronoun or ellipsis, is responsible.

2.3   Another Perspective on Argument Ellipsis

Having shown structural issues with previous analyses, I am going to deal with the possibility of argument ellipsis from a different viewpoint. I adopt the works of Şener & Takahashi (2010) and Sato (2014), and introduce the data in support of LV to *v* movement, which was indirectly touched upon by Rasekhi (2014), as well as *v*-stranding VPE, originally proposed by Toosarvandani (2009).

To begin with, I would like to familiarize the reader with the terminology I will be using throughout the chapter, which are taken from Ş&T and Sato.

2.3.1   Strict versus Sloppy Identity Readings

Johnson (2001), Ş&T (2010) and Sato (2014) clarify the fact that if a missing element allows for more than one reading, the sentence contains ellipsis rather than a phonologically null argument. In other words, if the missing argument, copied at LF, can take a new binder at the ellipsis site, the sentence would have what is called a Sloppy reading, which is associated with ellipsis. To clarify, let's take a look at the example in (49), from Sato in Colloquial Singapore English (CSE).

(49) a. David like his school.   CSE

      b. John also like *e*.   (Strict **OK**, Sloppy **OK**)

      c. John also like it.   (Strict **OK**, Sloppy **NO**)

Sato supports the argument by referring to (49), explaining that the sentence in (b) can have two possible meanings, one being "John also likes David's school.", which is the strict reading; and the second being "John likes his own school.", which is the sloppy reading. However, the main issue is to decide whether the empty slot is a phonologically null argument (*pro*) or an elided argument. Sato draws the reader's attention to (49c) in which there is an overt pronoun replacing the object *his school* and yet, we only get the strict reading. Consequently, he concludes that if the empty slot is a null pronoun, only the strict reading would be available to the reader; however, when there is also a sloppy reading, ellipsis is responsible.

The same test has been used by Ş&T (2010) to analyze ellipsis in Japanese and Turkish. For instance, the sentence in (50) in Japanese[3], can have two possible readings, namely strict and sloppy.

(50) a. Taro-wa   zibun-no hahaoya-o   aisiteiru.
          Taro-NOM self-GEN mother-ACC loves.
          "Taro loves self's mother."

      b. Hanako-wa *e* nikundeiru.
          Hanako-TOP *e* hates.
          "Hanako hates *e*."   (Strict **OK**, Sloppy **OK**)

1st reading (strict): Hanako hates his (= Taro's) mother.

2nd reading (sloppy): Hanako hates her own mother.

So, up to now, we have seen at least two languages that allow for ellipsis, namely CSE and Japanese; however, this is not true of every single language, Spanish is one such language (Ş&T 2010). The sentence in (51) can only have one strict reading.

---

[3]I have adapted the original glossing for this particular example.

(51) a. María cree   que su propuesta ser   aceptada.
          Maria believes that her proposal   will.be accepted.

          "Maria believes that her proposal will be accepted."

     b. Juan tambin cree   que *e* ser   aceptada.
          Juan also   believes that it will.be accepted.

          "Juan also believes that it will be accepted."   (Strict **OK**, Sloppy **NO**)

Strict: Juan believes that Maria's proposal will be accepted.

Sloppy:*Juan believes that Juan's proposal will be accepted.

Ş&T discuss this contrast by referring to Oku (1998), who considers a connection between

Ellipsis and scrambling in the languages which allow for it. However, Ş&T conclude that

the fact that Spanish does not allow for ellipsis in subject position is because this language

shows subject-verb agreement. I will refer back to this fact in section 2.3.3.

2.3.2 E-Type/Quantificational Identity Readings

Another type of interpretation contrast that is observable in sentences with Ellipsis, is E-

type versus Quantificational readings (Sato 2014). For instance, consider the set of sen-

tences in (52) and (53), from Sato and Ş&T, respectively:

(52) a. David like three students in the class.

     b. John also like *e*.   (E-type **OK**, Quantificational **OK**)

     c. John also like them.   (E-type **OK**, Quantificational **NO**)

The CSE sentence in (52b) can have both E-type and Quantificational readings. It can

either mean that "John also likes the same three students in the class that David likes",

which is the E-type reading. Moreover, it can mean that "John likes three students in the

class other than the ones that David likes", which is the Quantificational reading. Similar

to that of Sloppy/Strict readings, Sato reasons here that if the empty slot is a *pro*, the

only available reading would be the E-type reading as in (52c). Therefore, when there

is both E-type and Quantificational readings, ellipsis must be responsible at least for the

Quantificational reading.

Ş&T (2010) have a similar argument in support of ellipsis when there is more than one meaning, strict or E-type, available in the empty slot. Let us have a look at English examples in (53) from Ş&T (2010):

(53)   a.   John respects three students.

       b.   Mary does, too.   (E-type **OK**, Quantificational **OK**)

       c.   Mary respects them too.   (E-type **OK**, Quantificational **NO**)

The sentence in (53b) can have both E-type and Quantificational readings. It can mean that the three teachers that are respected by Mary are the same as the ones respected by John, which is the E-type identity reading. It can also mean that the three teachers that Mary respects are different from those three that John does, which is the Quantificational identity reading. However, the sentence in (53c) can only mean that the teachers being respected by John and Mary are the same.

2.3.3   Asymmetries in Argument Ellipsis in Subject and Object Positions

Besides what was covered in sections 2.2.1 and 2.2.2, Ş&T and Sato investigate the Ellipsis phenomenon in subject and object positions, concluding that in languages with subject-verb agreement, such as Turkish, only Strict and E-type readings are possible when the subject is elided. In other words, Sloppy and Quantificational readings are not available in these languages in such a situation. For object elision, on the other hand, all types of readings are available only if the language does not exhibit object-verb agreement. Let's have a look at some Turkish examples below, (54) and (56) (from Ş&T, repeated in Sato), to see this contrast. It is worth mentioning that Turkish exhibits subject-verb agreement, but not object-verb agreement[4].

---

[4]Turkish shows syntactic similarities with Persian in being a head-final language with subject-verb agreement. Both of these languages also allow for scrambling.

(54) a. Can anne-si-ni   eleştir-di.
          John mother-GEN.3SG-ACC criticize-PAST
          "John criticized his mother."

      b. Mete-yse   [anne-si-ni]   öv-dü.
          Mete-however [mother-GEN.3SG-ACC] praise-PAST
          "Mete, however, praised [his mother]."   (Strict **OK**, Sloppy **OK**)

In this example, the empty slot in (55b) can either refer to John's mother or to Mete's mother. In other words, the sentence can either have the strict reading where "Mete praised John's mother", or it can have the sloppy reading where "Mete praised Mete's mother". This also holds for E-type and Quantificational identity readings as the example in (55) illustrates.

(55) a. Can üç hırsız yakala-dı.
          John three burglar catch-PAST.3SG
          "John caught three burglars."

      b. Filiz-ise   [üç hırsız]   sorgula-dı.
          Filiz-however [three burglar] interrogate-PAST.3SG
          "Phylis, however, interrogated [three burglars]."   (E-type **OK**,

          Quantificational **OK**)

In this example, Phylis either interrogated the same three burglars that John caught (E-type reading), or she interrogated three burglars other than the ones John caught (Quantificational).

The above examples in (54) and (55) support the fact that when there is a missing argument in object position in Turkish sentences, this argument has undergone ellipsis because of the presence of more than one reading. However, when it comes to missing subjects in Turkish, this story does not hold. The examples in (56) and (57) illustrate this point for singular and quantified subjects respectively.

(56) a. Can oğl-u   İngilizce öğren-iyor   diye bil-iyor.
          John son-GEN.3SG English   learn-DUR.3SG COMP know-DUR.3SG
          "John knows that his son learns English."

b. Filiz-ise   *e* Fransızca öğren-iyor   diye   bil-iyor.
Phylis-however *e* French   learn-DUR.3SG COMP know-DUR.3SG
"Phylis, however, knows that e learns French."   (Strict **OK**, Sloppy **NO**)

(57)   a.   Üç   öğretmen Can-ı   eleştir-di.
three teacher   John-ACC criticize-PAST.3SG
"Three teachers criticized John."

b.   *e* Filiz-i-yse   övdü.
e Phylis-ACC-however praise.PAST.3SG
"*e* praised Phylis, however."   (E-type **OK**, Quantificational **NO**)

Sentence (56) is an example of elision in subject position, and the strict reading is the only one available for (56b), meaning that it can only mean that Phylis thinks that John's son is learning French. Moreover, when there is a quantified subject in the matrix clause, the same fact holds and the sentence with the missing argument can only have the E-type reading. For instance, sentence (b) in (57) can only mean that "the three teachers that criticized John are the ones that praised Phylis". As a result, the LF copy is blocked in Turkish subject position (Sato 2014); or in other words, there is no subject Ellipsis in Turkish, rather the missing subjects are null pronominals (Ş&T 2010).

Given the facts above, one could predict that Persian, which is also a subject-verb agreement language (Mahootian and Gebhardt 1997), would show the same behaviour. This is the issue that the rest of this chapter deals with.

2.4   Missing Arguments in Persian Sentences

Adapting Ş&T and Sato's diagnostic for ellipsis, I tested the judgments of eleven Persian native speakers on twenty different Persian sentences with missing arguments in their object and subject positions (See appendix A for the test sentences).

The two proposals by Toosarvandani and Rasekhi do not address variable binding or anaphors, which actually tend to reveal the behaviour of predicates having missing arguments. An example like the one in (59b) with a missing anaphor would have a different

reading than the one in (58b) with a missing object. (59b) can either mean that "Arman loves Shahla's mother.", which is the Strict Reading; or it can mean that "Arman loves his own mother.", the Sloppy Identity Reading. Sentence (58b) however, can only refer to one specific carpet and can only have one reading, namely the Strict identity reading.

(58) a. Rostam farsh-o   jâru   na-kard.
       Rostam carpet-ACC broom NEG-do.PAST.3SG .
       "Rostam didn't sweep the carpet."

    b. vali Nilufar [farsh-o jâru]   kard.
       but Nilufar [carpet-ACC broom] do.PAST.3SG .
       "But, Nilufar did."   (Toosarvandani 2009)

(59) a. Shahla mâdar-esh   ro   doost dâre.
       Shahla mother-GEN.3SG ACC love   have.3SG
       "Shahla loves her mother."

    b. Arman ham [mâdar-esh ro]   doost dâre.
       Arman also [mother-GEN.3SG ACC] love   have.3SG .
       "Arman also loves [self's mother]."

The results show that for the majority of adult Persian speakers, missing arguments in object position are instances of ellipsis, while they unanimously interpreted the missing subjects as null pronouns. I provide evidence for the elision of various objects and null subjects in the sections to come.

2.4.1 Missing Definite Objects

(60) a. Shahla ketâb ro   xund.
       Shahla book ACC read.PAST.3SG
       "Shahla read the book."

    b. Arman ham [ketâb ro]   xund.
       Arman also [book ACC] read.PAST.3SG
       "Arman also read [the book]."   (Strict **OK**, Sloppy **NO**)

The sentences above include a definite object *ketâb ro* "the book" that is missing in the second sentence. However, the only available reading is the strict identity, as indicated.

Based on our previous discussion, we would need to conclude that the missing object here is a null argument rather than an elided one. To make sure judgments on these types of sentences are consistent, other sentences with definite objects were also included in the list of stimuli, one of which is given in (61).

(61)   a.   Rostam piran-â   ro   otu mi-zan-e.
            Rostam shirt-PL ACC iron DUR-hit-3SG
            "Rostam irons the shirts."

       b.   Man [piran-â ro otu]   ne-mi-zan-am.
            I   [shirt-PL ACC iron] NEG-DUR-hit-1SG
            "I don't iron [the shirts]."   (Strict **OK**, Sloppy **NO**)

In this example, we only have access to the strict identity reading which means that both sentences refer to the same set of shirts. Therefore, at first glance, one might think that Persian is not an elliptical language, but there is always more than meets the eye. Let us have a look at an English example in (62).

(62)   Laura left Texas, and Lena did so, too.

This example can only mean that Lena left Texas and not somewhere else[5]. Remember from the introduction that Goldberg (2005) defines two approaches to ellipsis, one of which is LF copying. According to the LF copying approach the elided XP has no syntactic, semantic, or phonological content and is only interpretable at LF under reconstruction. This is called the *LF Identity Condition on Ellipsis* by Heim and Kratzer (1998):

"LF Identity Condition on Ellipsis: A constituent may be deleted at PF if it is a copy of another constituent at LF."

This is compatible with the LF copying idea that identical overt forms may be subject to re-binding under ellipsis.

This would give us an explanation why a sentence like (62) can only mean that "Lena also left Texas" and not somewhere else. The reason being that a definite object already

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[5]Proper names are definite by default (Frege 1948, Heim and Kratzer 1998).

has a referent and cannot be re-bound by something else. This is also the reason why the Persian sentences in (60) and (61) can only have strict readings. The arguments being elided in these sentences are definite objects[6] which already have referents in real world. More complex objects with the accusative marker *râ*, such as (59b), can have bound elements inside distinguishing them from the definite objects. These cases are discussed in section 2.4.5.

2.4.2 Missing Indefinite Objects

According to Karimi (2003), definite objects are considered specific, while indefinite objects are ambiguous and the specific object, either definite or indefinite, is always followed by the particle *râ*, whereas the non-specific object does not have this requirement. Indefinite objects can either be specific or non-specific. They can only be specific if they have an antecedent in the discourse. So, if an object is indefinite and non-specific (lacking an antecedent) it denotes novelty of reference (Karimi 2003). Based on what we observed with definite objects (which are always specific), for missing indefinite objects, we would expect to have two readings since it would require finding a new antecedent. The following example in (63) supports this claim.

(63) a. Shahla se   tâ   ketâb xarid.
          Shahla three PART book buy.PAST.3SG
          "Shahla bought three books."

      b. Arman ammâ [se tâ ketâb]   na-xarid.
          Arman but   [three PART book] NEG-buy.PAST.3SG
          "But, Arman didn't buy."   (E-type **OK**, Quantificational **OK**)

The presence of both E-type and Quantificational identity readings indicate that the missing argument is elided in this sentence, as was predicted.

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[6]Definite objects in Persian are marked by the accusative marker *râ* (Karimi 2005). For further discussion on definite objects and their structural position please read section (3.6.1) of the current work.

2.4.3 Missing Variables In Object Position

The following sentences in (64) and (65) include a variable. The interpretation of the genitive marker *esh* "his/her", shows that these are among the arguments that undergo elision and cannot be considered null arguments.

(64) a. Rostam mâshin-esh   ro   be Sohrab [$_{CPr}$ neshun dâd].
          Rostam car-GEN.3SG ACC to Sohrab [$_{CPr}$ show   give.PAST.3SG]
          "Rostam showed his car to Sohrab."

      b. Vali Ramin [~~mâshin-esh-ro be Sohrab neshun~~/neshun]
          but   Ramin [~~car-GEN.3SG -ACC to Sohrab show~~/show]
          na-dâd.
          NEG-give.PAST.3SG
          "But, Ramin didn't [show /~~show his car to Sohrab~~]."

          (Strict **NO**, Sloppy **OK**)

(65) a. Amir doost-esh   ro   davat   kard.
          Amir friend-GEN.3SG ACC invitation do-PAST.3SG
          "Amir invited his friend."

      b. Va Sahar ham [~~doost-esh ro davat~~/davat]   kard.
          and Sahar also [~~friend-GEN.3SG ACC invitation~~/invitation] do-PAST.3SG
          "And Sahar also did [invite/ ~~invite one's friend~~]." (Strict **OK**, Sloppy **OK**)[7]

I would like to draw the reader's attention to the fact that no matter if the NV element is present or absent, the result remains consistent. When the NV is deleted, we know that the VP needs to have undergone deletion. So, when we have two missing arguments, we might as well say that it is the VP that is elided following Gribanova (2013). This would allow us to capture the facts by referring to only one operation, which is more economical. Moreover, the (conjunction, disjunction and negation) tests in section 2.2.3 showed that

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[7]There is a difference in acceptance of the strict reading between these two examples. Note that the sentences in example (64) contain two internal arguments whereas the sentences in (65) contain only one. This suggests that when only a single argument is not pronounced, speakers may have easier access to more than one operation.

we can elide a conjunction of non-constituents which can only be captured by the VVPE operation.

2.4.4 Missing Reflexives In Object Position

We expect to get Sloppy/Quantificational readings when the missing object includes an anaphor since the LF-copying would provide a new binder for the anaphor in the second sentence (Johnson 2001). As the sentence in (66) shows, the results support this prediction. It is worth mentioning that the results do not change if the NV element is pronounced.

(66)   a.   Navid xod-esh   ro   [$_{CPr}$ tashvigh   kard].
           Navid self-GEN.3SG ACC [$_{CPr}$ encouragement do.PAST.3SG]
           "Navid encouraged himself."

       b.   Amir ham [~~xod-esh ro tashvigh~~/tashvigh]
           Amir also [~~self-GEN.3SG ACC encouragement~~/encouragement]
           kard.
           do.PAST.3SG
           " Amir did/encouraged, too."   (Strict **OK**, Sloppy **OK**)

2.4.5 Are Variables and Reflexives Definite?

The preceding two sections might have created some questions in the readers' mind as to "why in spite of having the accusative marker *râ*, which predicts only the strict reading, we had both sloppy and strict readings available in sentences with missing variables and reflexives?".

To help us distinguish between the syntactic categories that *râ* can attach to, it is necessary to discuss its semantic properties to some degree. Semantically, *râ* obligatorily attaches to proper nouns, personal and demonstrative pronouns, reflexive pronouns, reciprocal pronouns, demonstrative nouns, superlatives, question-words *kodâm* "which" and *ki* "who", strong quantifiers such as *hame* "all" or *har do* "both", and plurals with the plural marker *hâ*. *Râ* may also attach optionally to generics (Jasbi 2015). Jasbi further notes that

the presence of *râ* does not always mark definiteness. For instance, in the sentence in (67), the presence of *ye* "one" cancels out the definiteness of the object.

(67)   Amir ye keyk o   xord.
        Amir one cake ACC eat.PAST.3SG
        "Amir ate a cake."   (Jasbi 2015, ex.12)

Comparing this sentence with sentences in (68) without the accusative marker *râ*, and (69) with no numeral, we can see that the numeral *ye* in (68) results in an indefinite reading while (69) has a definite reading.

(68)   Amir ye keyk xord.
        Amir one cake eat.PAST.3SG
        "Amir ate a cake."   (Jasbi 2015, ex.10)

(69)   Amir keyk o   xord.
        Amir cake ACC eat.PAST.3SG
        "Amir ate the cake."   (Jasbi 2015, ex.11)[8]

Based on the contrastive readings among these three sentences, Jasbi (2015) concludes that the accusative marker *râ* can occur on both definites which additionally presuppose uniqueness, (69), and presuppositional indefinties which do not presuppose uniqueness, (68). Jasbi proposes that *râ* triggers an existential presupposition rather than definiteness and he proposes that Persian "definites" in the direct object position with *râ* cannot be preceded by a numeral. In Chapter 3, there will be more discussion of these *râ*-marked elements as being specific rather than definite.

Following Jasbi, we need to consider Persian objects including variables or reflexive pronouns to be definite as they match the structure of definite objects he proposes. If they are in fact definite objects, we would expect to get only Strict or E-Type identity readings

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[8]To make the difference between Jasbi's examples clearer, note that *man ham hamintor* "I did too" can be added to the end of the sentences in (67) and (68), but not to (69) because it is impossible for two people to eat the same whole cake.

but we don't. These objects contain *anaphoric* pronouns which, according to Heim and Kratzer (1998), pick up their reference from another phrase in the surrounding text. For instance, in the sentence (70) below, the pronoun *he* refers to Smith because it has been made salient to the audience by being used in the previous sentence.

(70)   I don't think anybody here is interested in Smith's work. He should not be

         invited.   (Heim and Kratzer 1998: 240)

On the other hand, we might also have *deictic* pronouns which receive their readings from the extralinguistic utterance context. The sentence in (71) is an example of such pronouns where *he* refers to a man who (for example) just left the room.

(71)   I am glad he is gone.   (Heim and Kratzer 1998: 239)

So, these pronouns can refer to an entity which for any reason is the most salient to a given listener at the time of utterance (Heim and Kratzer 1998).

However, not all pronouns can be treated as being referential, some of them are bound variables (Heim and Kratzer 1998). For instance, in a sentence such as (72), the pronoun *him* is bound by *every man*.

(72)   Every man put a screen in front of him.   (Heim and Kratzer 1998: 241)

Pronouns, therefore, can either be *anaphoric* or *co-referential* (Heim and Krazter 1998). If we expand this to Persian sentences with missing pronouns and reflexives, we can say that the reason why we can get both strict and sloppy readings in definite objects, is the availability of both *anaphoric* or *co-referential* readings to the listener, and which one is more salient to the listener.

2.4.6   Subject/Object Asymmetry In Persian

The sentence below in (73) is an example of a missing subject. A sloppy identity reading is not available, which shows that this missing subject is in fact a null pronoun. This is

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what was actually predicted. For languages with subject-verb agreement, like Turkish and Spanish, they were shown by Ş&T not to exhibit ellipsis in their subject positions. They connect agreement to the presence of a null pronoun with ϕ-features. Therefore, it was anticipated that Persian, which is also a subject-verb agreement language, would lack this characteristic as well.

(73)   a.   Shahla fekr   mi-kone   pesar-esh   ingilisi mi-xune.
           Shahla thought SUBJ-do.3SG son-GEN.3SG English SUBJ-study.3SG
           "Shahla thinks her son studies English."

       b.   Arman fekr   mi-kone   *e* farânse mi-xune.
           Arman thought SUBJ-do.3SG *e* French SUBJ-study.3SG
           "Arman thinks *e* studies French."   (Strict **OK**, Sloppy **NO**)

In the previous sections, I presented data which suggest that ellipsis occurs with various types of objects. What is important to recall is that in the sentences (64) to (66) the NV can either be elided or pronounced; a fact which has not been accounted for in the previous studies. Furthermore, I established that there is VPE even when the NV is intact[9]. Therefore, we need an analysis that captures both these possibilities. The next section addresses this issue, leading to the proposed analysis.

2.5   CPr Structure

As mentioned earlier, and as the sentences (64) to (66) illustrate, the problems with the previous analyses can be captured by the example in (74).

(74)   Ali ham [~~mashin-esh-ro be Sohrab~~]   [$_{NV}$ **neshun**] dâd.
       Ali also [~~car-GEN.3SG ACC to Sohrab~~] [$_{NV}$ **show**]   give.PAST.3SG
       "Ali also showed."

This example shows that when we have ellipsis, we can delete both the direct and indirect object, *"his car"* and *"to Sohrab"*. This challenges Rasekhi's proposal which only

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[9]I am using VPE as a general term throughout the thesis to distinguish it from argument drop.

allows for arguments to be elided one by one. Furthermore, we can keep the NV element and not delete it and this is in contrast with Toosarvandani's proposal which predicts the NV element to be elided. The grammaticality of this sentence in (74) is the evidence against the two proposals. The fact that the two arguments can be deleted with the NV being intact supports the idea of *v*VPE. That is why I want to propose a single operation which assimilates all of these facts.

Based on the examples above, I conclude that neither Rasekhi's argument ellipsis nor Toosarvandani's *v*VPE analysis is able to capture all the data. This leads me to conclude that firstly, it is not argument ellipsis that happens in Persian sentences but rather VPE. As a result, there needs to be a structure which allows for the NV to escape the ellipsis site because the proposed CPr structure cannot explain this phenomenon.

2.5.1 What I Propose for Persian CPr

Folli, Harley, and Karimi's structure is not able to capture the fact that the NV element can be intact in some cases. The reason is that the phrase that includes the internal argument, which normally undergoes elision, also includes the NV element. Therefore, there is not a chance for the NV to escape the deletion site and consequently, it is deleted as well.

The structure proposed by Megerdoomian can easily account for the fact that LV can escape elision by undergoing a movement operation. However, the NV element is still trapped and would be deleted together with the internal arguments.

To solve this problem, I propose that the NV and LV make a CPr which acts like a head, which I name Complex-Verb (CV). Matushansky (2006) argues that not only can a head select for a phrase, but it can also select for another head and project a head. She calls this operation m-merger. We know that the NV elements can either be noun or adjectival heads, as they are fresh from the lexicon (Adger 2003), or they can be prepositional phrases. What I propose happens in these cases is that the LV selects for a head or a phrase to merge with and projects the CV head. This head, CV, can take arguments just like a simplex verb and

project its own CV Phrase (CVP).

There are some reasons why this label was preferred over other potential labels like LV' or simply V. Firstly, labeling this node as LV' would indicate that the NV element is an argument of the LV, which I already argued against[10]. Secondly, I needed to choose a name which allowed me to distinguish simplex and complex predicates. Labeling this node as V, like simplex predicates, would indicate that CPrs behave like simplex predicates. Therefore, we would expect affixes like the negative marker to attach to the beginning of the verb, the NV element in these verbs, yielding the "Neg+NV+LV" sequence, however, this is not grammatical in Persian. For these reasons, I chose the label CV to specify that this group of predicates are verbs, which are different from simplex ones.

There is only one issue with this proposal. Matushansky (2006) specifies that excorporation out of the derived head, after the m-merger operation, is impossible. She states that this complex head is syntactically opaque because m-merger is an operation of the morphological component. However, I am proposing that in the case of CPrs, the LV that c-selects what it can merge with is still accessible for syntactic operations and in particular movement. In other words, excorporation of only the LV out of this complex CV head is possible. The tree in (75) captures this idea, in which X stands for any type of argument that can combine with a LV, namely NP, AdjP, AdvP and PP.

A very similar proposal can be found in Aydemir (2004), Göksel and Kerslake (2005) for Turkish, where they argue that in this language, the pre-verbal bare Noun is incorporated with the verb to make a compound verb. Moreover, following Kornfilt (1994), Aydemir proposes that "...the head noun of the object without overt case morphology is

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[10]Piñango et al. (2006) use a reaction time study in English to argue that the syntactic composition of a light verb with a nominal pseudo-argument "give an order" is distinct from the composition of the same verb and a canonical theme "type an order." While a full replication of this study is beyond the scope of this thesis, I am taking these results as evidence for a different syntactic structure than simple argument-taking, supporting a complex head analysis.

incorporated into the verb, forming a complex predicate at D-Structure, and that the head of this complex predicate governs the entire NP...". Although Aydemir only discusses pre-verbal bare Nouns[11], I propose that this rule is generalizable to all the NV elements in Persian.

(75)
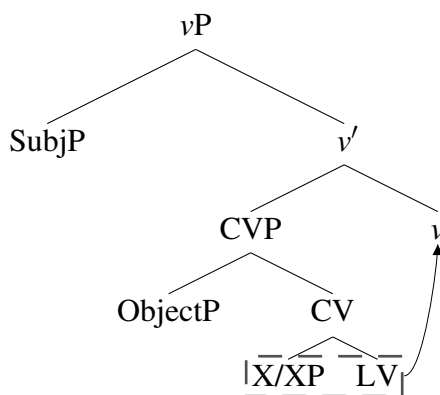
For Megerdoomian, the LV that moves up gets an aspectual reading. I want to add that the moved LV also escapes elision. I suggest that the little v has a selectional feature that can attract the LV. This LV can move on its own or it can pied-pipe the NV element with itself to little v. This pied-piping operation is optional and is dependent on individual speakers, the same way that pied-piping of prepositions in English wh-questions to the beginning of the sentence does not happen obligatorily.

I suggest that when there is elision, the v or the CPr that has moved is stranded when the CVP undergoes elision. The tree in (76) illustrates the occasions when the NV element is pronounced showing that the LV has pied-piped the NV while moving to little v. However, there are cases in which the NV element is also eliminated as in (77). I propose that in such occasions, the LV that is attracted by v does not pied-pipe the NV.

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[11]Turkish pre-verbal arguments are of bare noun type only.

(76)   When NV Is Pronounced
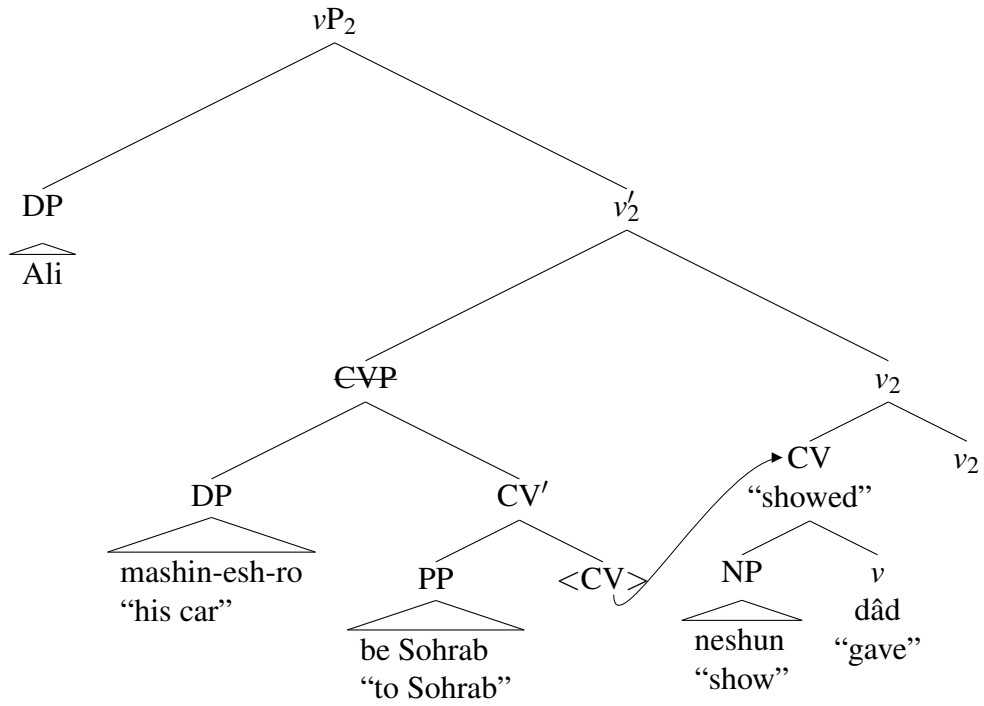
(77)   When NV Is Elided

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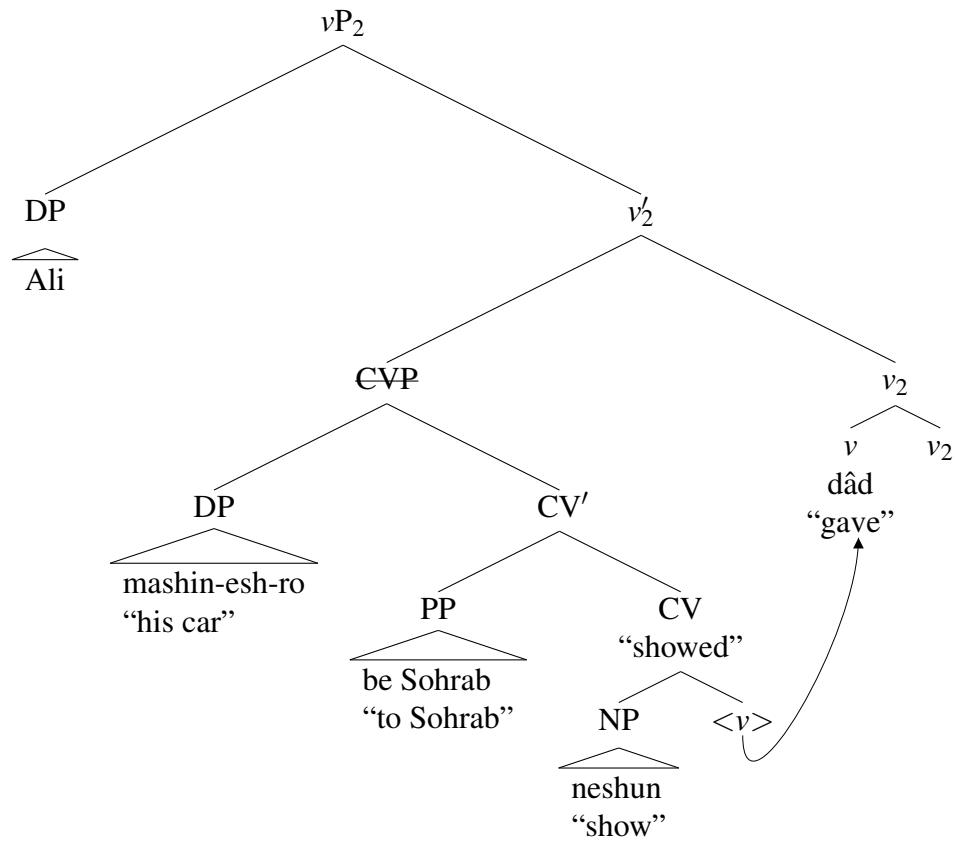
The reason why this optional pied-piping occurs is mainly discourse driven. In other words, it is the speaker who decides which parts are necessary to be uttered. An example of how discourse would affect the speaker's utterance is seen in (78) with the verb *lâk zadan* "to polish the nails".

(78) a. Mahsa nâxon-â-sh   o   lâk   zad.
          Mahsa nail-PL-GEN.3.SG ACC nailpolish hit.PAST.3SG
          "Mahsa polished her nails."

      b. Bebin mâmân, man-am [~~nâxon-â-m o lâk~~]   zad-am.
          look   mom, I-also [~~nail-PL-GEN.1.SG ACC nailpolish~~] hit.PAST-1SG
          "Look mom, I also did [~~polish my nails~~]."

A sentence like (78b) is perfectly fine if the speaker shows her nails to her mother while uttering the sentence or if the mother was present when the first sentence was uttered. But, if the mother is not attentive or has just entered the room, the speaker might prefer to use the whole CPr in order to avoid miscommunication because the LV on its own has a different meaning; here it means "hit" rather than "polish nails".

2.6 Conclusion

In this chapter, using Strict/E-type versus Sloppy/Quantificational identity readings, I gave evidence that Persian missing arguments are examples of ellipsis. Moreover, I provided examples which show that the NV element can either be present or deleted. I also showed that both direct object and indirect object can be elided. These facts led me to propose a new structure for Persian CPrs which allows for the NV element to sit beside the LV which it modifies. This in turn, allows for the NV element to move to a VP-external position together with the LV and in other words, to be stranded while the CVP undergoes elision. This V to *v* movement has been suggested by Rasekhi and Megerdoomian; however, more studies need to be done on how high the verb can go. To put it in other words, in Persian, the VP that undergoes elision can strand either the whole CPr (CV) or only the LV. Con-

sequently, Persian shows behaviour similar to VVPE languages, with the only difference being in the structure of its verbs.

My proposal is not uncontroversial in that it allows for the excorporation out of a complex head and it also relies on the optionality of pied-piping. However, given the fact that VPE has been shown to be possible no matter whether the NV is elided or not, optionally of this excorporation is necessary. Adding in the fact that argument ellipsis must be possible in some cases leads to the conclusion that for some sentences, multiple derivations are available. Given the data, a single unified analysis may not be possible, but this chapter presents an analysis of the necessary components of VPE.

Chapter 3

Negation and its Scope

In the previous chapter, I provided evidence from ellipis inside verb phrases in support of the claim that Persian CPrs are single syntactic units. Moreover, I showed that the LVs of these verbs can move out of this head.

This chapter provides more support for the movement of LV to *v* building on the argumentation from the position and scope of negation. In addition, evidence shows that the verb can (optionally) move even further.

3.1   Negative Marker In Persian

The negative marker in Persian is a pre-verbal affix with the underlying form of *na-* with its three allomorphs, *ne-*, *ni-* (Taleghani 2006, Kwak 2012) and *ma-*, which is no longer used in today's colloquial Persian (Kwak 2010). The allomorph *ne-* attaches to the durative marker mi- (Taleghani 2006, Kwak 2010), as the example in (79) shows. The allomorph *ni-* only attaches to the present form of *budan* "to be", example (80); and *na-* can attach to any other form of verb including simplex predicates as in (81), modals as in (82) and light verbs in complex predicates as in (83) (Kwak 2010).

(79)   Maryam **ne**-mi-re   sinemâ.
        Maryam NEG-DUR-go.3SG cinema
        "Maryam doesn't go to the cinema."

(80)   In   ketâb-e   Ali **ni**-st.
        this book-EZ Ali NEG-be.PRES.3SG
        "This is not Ali's book."

(81) Ali diruz   madrese **na**-raft.
Ali yesterday school   NEG-go.PAST.3SG

"Ali didn't go to school yesterday."

(82) Arman **na**-bâyad   be-re   xune.
Arman NEG-should SUBJ-go.3SG home

"Arman shouldn't go home."

(83) Mahshid golâbi [$_{CV}$ doost **na**-dâre].
Mahshid pear   [$_{CV}$ love   NEG-have.3SG]

"Mahshid doesn't like pears."

Because of this variation in the overt position of negation, the syntactic position of the negation head cannot be read from the word order.

3.2   Previous Accounts of The Structure Of Negation

The literature on negation in Persian is unfortunately not rich. There are only two works on this topic, one by Taleghani (2006) and the other by Kwak (2010), which I discuss in this section.

Both of these scholars propose that negation in Persian is always high in the sentence and that it is always above TP. Therefore, for the sentence in (84), Taleghani (2006) proposes the structure in (85). Kwak (2010) also offers a very similar structure for Persian negation. However, the sentences show that negation is pronounced very low. This fact has been accounted for using Distributed Morphology, through which the negative marker is realized on the verb below via an Agreement operation. This operation is able to function because, according to Kwak (following Ouhalla 1991), the prefixed negation carries a [-verb] feature, which can be checked against the [+verb] feature on the verb. This would leave us with no uninterpretable feature at the end of the derivation and therefore, the derivation would converge.

(84) Sarah in   ketâb ro   na-xarid.
      Sarah this book ACC NEG-buy.PAST.3SG

      "Sarah didn't buy this book."

(85) Taleghani's Structure For A Persian Negative Sentence

Agree ([Neg], xarid)
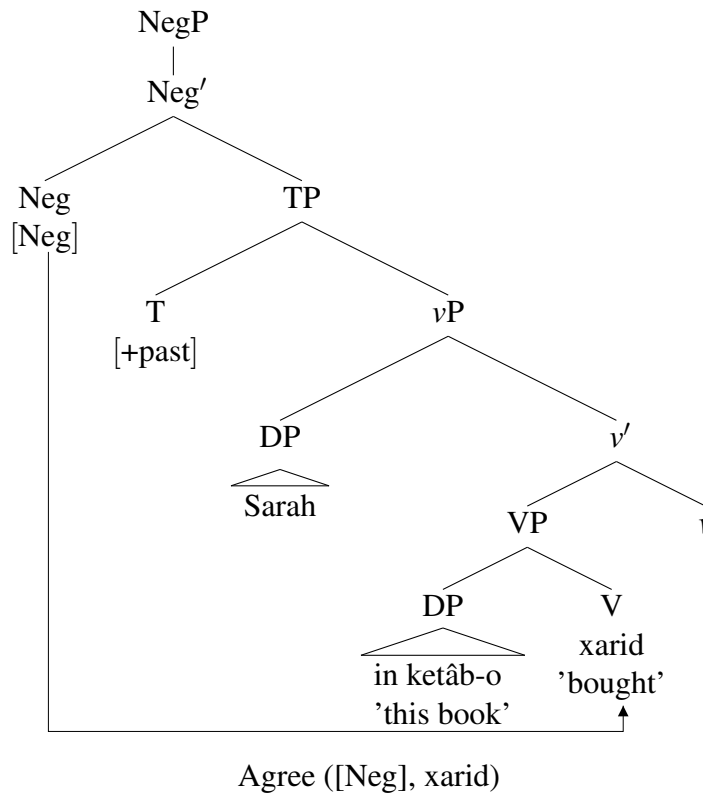
In other words, they argue that the fact that negation is spelled out on the verbs that are supposedly very low in the sentence is a PF process.

3.2.1 Their Line of Argumentation

Taleghani bases her claim on the condition on Negative Polarity Items (NPI). The NPI licensing condition suggests that the NPIs should be in the c-command domain of negation (Haegeman 1995, Kelepir 1999). This is the reason for the contrast in the sentences in the example (86) for English. The ungrammaticality of (a) is because the NPI *anybody* is not in the c-command domain of negation. This requirement is satisfied in (b).

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(86) a. * *Anybody* didn't come.

  b. I didn't say that *anybody* came.   (Kelepir 1999, ex.9)

Building on this condition and using a sentence like (87) with an NPI *hichkas* "no-body" in its subject position, Taleghani reasons that the sentence is only grammatical if the negative head is above TP where it can c-command the NPI.

(87)   Hichkas be in   mehmni na-raft.
        nobody to this party   NEG-go.PAST.3SG
        "Nobody went to this party."   (Taleghani 2005:127)

However, it has been shown that in some languages, like Japanese, Korean and Turkish, the NPIs do not always have to be c-commanded by the negative marker; and merely being a clause-mate with negation would suffice to license the sentence. This requirement is called the Clause-mate Condition (Kelepir 1999, Sells & Kim 2006, Han et al. 2007, Nakao & Obata 2007). All of these languages share the property of being SOV languages, which enhances the possibility that this condition is a property of these types of languages. The sentences below in (88) have been used as evidence for this claim. The grammaticality of the Korean examples in (88b) and (88c) which have a licensing negation in the same clause as the NPI, *celtaylo*, which is not necessarily c-commanded by the negation and the fact that they both have the interpretation in which *celtaylo* takes scope over the licensing negation shows that NPI licensing does not require a c-commanding negation.

(88)   a. Ku-nun celtaylo   kukos-ey ka-ss-ta.
            he-TOP absolutely there-to   go-PAST-DECL
            "He absolutely went there."

        b. Ku-nun celtaylo   kukos-ey ka-ci ani   ha-yess-ta.
            he-TOP absolutely there-to   go-CI NEG do-PAST-DECL
            "It is absolutely true that he did not go there."

            "*It is not the case that he absolutely went there."

c.　Ku-nun celtaylo　kukos-ey an　ka-ss-ta.
　　he-TOP absolutely there-to　NEG go-PAST-DECL

"It is absolutely true that he did not go there."

"*It is not the case that he absolutely went there."　(Han et al. 2007, ex.19)

Meisel (1997) explains that in languages with pre-verbal negation, negation is cliticized to the verb and these two move up. Choi (1999) as cited in Hat et al. (2007), also argues that in languages with cliticized negation, there is a movement of negation together with the verb and that is how NPIs in object or subject positions are licensed[1].

As for Kwak (2010), she believes that sentential negation in Persian functions as a sentential operator. Her interpretation is that for a sentence like (89), the negative marker as a sentential operator should be placed above lexical categories, being *Ali*, *ketâb* "book" and *xundan* "to read". This means that it needs to be above the TP that contains all of the lexical categories.

(89)　Ali ketâb ne-mi-xun-e.
　　　Ali book NEG-DUR-read-3SG

"Ali does not read a book."　　　　　　　　　　　(Kwak 2010, ex.30)

What matters here, for the purpose of this thesis, is that subject NPIs cannot be indicators of high negation cross-linguistically, and there needs to be more investigation of where the negative head actually winds up. Moreover, although both Taleghani and Kwak propose that negation is high in Persian for different reasons, none of them actually test their claim. For this purpose, following the methods implemented in Han et al. (2007, 2008), I am going to investigate the scope interaction between the negative marker and the quantified object, which is believed to be a good diagnostic to determine the syntactic position of the negation head (Han et al. 2008). The results of my studies will be compared to the

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[1]Han, Lidz and Mosulino (2007), however, argue that the scope of negation and the NPI-licensing domain do not go hand in hand. So, as for Choi's proposal, I will show that the cliticized negation indeed moves with the verb, but it is for scope reasons and not to license the NPIs.

results in the earlier studies by Han et al. (2007, 2008) to see if a pattern can be observed. Additionally, Chapter 2 made a claim about verb movement. To support this claim, more independent evidence is required. The results of this chapter provide that evidence.

In the following sections, I explain the scope study used to determine the relative height of negation, its format, and the discussion of the results.

3.3 Scope Studies

To determine the position of negation, first I need to decide if the quantifiers can raise in this language or if they are interpreted in the place they surface. This will help us determine the position of negation in relation with the position of the quantifier. A sentence like (90) can have two different meanings for an English speaker:

(90)　　　Every kid climbed a tree.

a.　　　For every kid x, there is a tree y, such that x climbed y. $\rightarrow \forall > \exists$

b.　　　There is a tree y, such that for every kid x, x climbed y. $\rightarrow \exists > \forall$

（Kurtzman & MacDonald 1993, ex.1-3）

This ambiguity is possible through an LF operation called Quantifier Raising (QR). Interpretation (a) is available because in the surface word order "every" c-commands "a" and takes scope over it. The interpretation in (b) is available because of QR, by which means the lower quantifier, "a" here, moves or raises at LF to a higher position than "every" where it can c-command and take scope over it (May 1977).

This QR phenomenon is also the reason why a negative sentence such as the one in (91) can have two different readings in English. The meaning in (a) is available because the overt word order allows for the negation to c-command the quantifier and take scope over it. The interpretation in (b), on the other hand, is available due to QR through which the quantifier raises and takes scope over negation.

(91)   John didn't eat every apple.

    a.   It is not the case that John ate every apple. $\rightarrow \neg > \forall$

    b.   For every apple, it is not the case that John ate it. $\rightarrow \forall > \neg$

Given these facts about English, it is crucial to determine whether Persian is a scope-rigid language or whether it allows for QR to alter scope interpretations. Scope rigid languages are languages for which the scope relations between quantifiers are determined by their surface order or their surface c-command relationships (Han et al. 2008). This would enable us to infer the position of negation from its relative scope with quantifiers. If the quantifier is interpreted at its surface position and it takes scope over negation, we can conclude that negation is low. On the other hand, if negation takes scope over the quantifier, our conclusion would be that negation is higher than the quantifier where it can c-command and take scope over the quantifier. This will in turn give us a clue of where a verb can move to if negation is cliticized to the verb and moves together with it.

Using a truth value judgement task (Crain and Thornton 2000), two studies were designed. Study 1 investigates the scope interaction between negation and quantified objects. Study 2 examines his relation for negation in regard to quantified subjects[2].

As mentioned, Study 1 investigates the relation between negation and quantified objects. Therefore, it uses two quantifiers, the universal quantifier *har* "every" and the numeral quantifier *do* "two" in object positions of negative sentences, (92) and (93).

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[2]We also planned and ran a third study whose focus was to examine the relation between negation on modals with quantified objects and subjects. The motivation for doing this study is that modals appear before objects in Persian sentences -which is against the ordinary SOV order- and negation that is attached to them might be expected to always scope over the object. This study is not directly related to this chapter, rather it aims to answer a bigger question of "where is T in this language". For that reason, the results are not reported in this thesis.

(92)   Arman har   mive-i ro   na-xord.
       Arman every fruit-EZ ACC NEG-eat.PAST.3SG
       "Arman didn't eat every fruit."

(93)   Shabnam do tâ   nâme na-xund.
       Shabnam two PART letter NEG-read.PAST.3SG
       "Shabnam didn't read two letters."

Study 2 inspects the scope interactions between negation and quantified subjects, and so it includes negative sentences with the same quantifiers, *har* "every" and *do* "two" in subject positions as (94) and (95) show.

(94)   Har bache-i be mâmân-esh   zang na-zad.
       every kid-EZ to mom-GEN.3SG ring NEG-hit.PAST.3SG
       "Every child didn't call their mom."

(95)   Do ta   bache mâhi morde châl na-kard-and.
       two PART kid   fish dead hole NEG-do.PAST-PL
       "Two kids didn't bury dead fish."

These studies use equal numbers of simplex and complex predicates, and they also contain affirmative trials with two quantifiers, testing for scope rigidity as the examples in (96) and (97) illustrate.

(96)   Ye pesar-i har nooshidani-i ro   test kard.
       a boy-EZ evey drink-EZ   ACC test do.PAST.3SG
       "Some boy tasted every drink."

(97)   Ye doxtar-i har kolâh-i ro   did.
       a girl-EZ every hat-EZ ACC see.PAST.3SG
       "Some girl saw every hat."

All the test sentences are available in Appendix B.

3.3.1   Methodology

The methodology involves the Truth Value Judgement Task (TVJT) of Crain & Thornton and elicits the judgements of the participants on specific Persian sentences and examines

their perception of the negative sentences in this language. The task involved watching short videos which narrated a story and ended with a negative sentence including a quantifier. The participants were required to decide whether the final sentence was true or false and they needed to provide a reason for the false ones. Finally, they filled in a debriefing form which asked some general questions about the study. These forms are potentially valuable when participants have problems with certain types of stimuli and may explain outliers in the data. The full list of questions appears with the stimuli in Appendix B.

3.3.2 Participants

All the participants were adult first language speakers of Persian who had finished at least high school in Iran. This criterion was set to control for the influence of English in their judgements. All of the participants were residents of Calgary and the study took place at the University of Calgary, Linguistics, Languages and Cultures department. We had 48 participants (18 males and 26 females, and four of them did not provide demographic information). The youngest participant was 20 years old at the time of testing while the oldest one was 50; mean age of the participants was 31.6. The minimum amount of time in Canada for these participants was less than a month and the maximum amount of time was 17 years. All of the participants arrived in Canada after the age of 16. Since there was no particular pattern between the age of the participants and their responds, the responds by the participants whose age of arrival to Canada was 16 are also included in the results.

3.3.3 Stimuli

The stimuli are in the form of short videos, each less than a minute, in which the narrator/researcher tells a story to a puppet, here Mickey Mouse, with the help of some props. At the end of each story, she asks Mickey Mouse to give a sentence summary of what she has narrated. The sentences that Mickey Mouse says are the ones provided above. In other words, sentences with quantifiers *har* "every" and *do* "two" in their object positions

(Study 1), sentences with the same quantifiers in their subject positions (Study 2). All these sentences are negative utterances. In addition to these negative sentences, each study had two pairs of affirmative sentences with quantifiers both in subject and object positions to check for the relative scope readings between the two. Moreover, some fillers to test for the authenticity of the judgements were also included in the studies.

All components of the test were recorded in order to have standardized stimuli. In particular, it was important that in the final sentences uttered by Mickey Mouse a change of judgments due to differences in stress patterns was prevented. Studies 1 and 2 contained 17 stories/sentences including three training stories/sentences. The quantifier type was varied within subjects meaning that all the subjects heard sentences including both of these quantifiers. However, the scope readings were varied between subjects, meaning that some subjects heard the sentences in contexts with only wide scope of negation, other subjects heard the sentences in contexts of only narrow scope. This was done to prevent priming effects on the participants. Therefore, the study had a mixed 2x2 design, with 12 participants for each group. Participants were assigned to each group randomly.

To help the participants with the videos and as a reminder of what happened in the video, a picture of the final outcome of the story would appear on the screen. For example, the pictures below belong to sentence (92), repeated here in (98) and its different interpretations; the left one corresponds to the interpretation (99a) and the one on the right corresponds to the interpretation (99b).

Figure 3.1: *Example Of Stimulus for Study 1*

(98)   Arman har   mive-i   ro   na-xord.
Arman every fruit-EZ ACC NEG-eat.PAST.3SG
"Arman didn't eat every fruit."

(99)   Arman didn't eat every fruit.

     a.   Neg >Every: There are three apples on the kitchen table. Arman enters the kitchen and eats two of the apples. In this scenario "negation" takes scope over "every". This means that if this sentence is acceptable by the participants, negation needs to be high.

     b.   Every >Neg: There are three apples on the kitchen table. Arman enters the kitchen, looks at the apples and says: "I am hungry, but I don't like apples.". He does not eat any of them. If this scenario is accepted by the participants, it means that they have low interpretation of negation and they put "every" over "negation".

For sentences with the quantifier *do* "two", like the one in in (100), we used stories like the ones in (101).

(100)   Do tâ   pesar farsh o   na-sâb-id-and.
two PART boy   carpet ACC NEG-rub-3SG.PAST-PL
"Two boys didn't clean the carpet."

(101)   Two boys didn't clean the carpet.

     a.   The family is cleaning the carpets. The mother of the family asks her four sons to help cleaning, but only two of them do. This scenario puts the quantifier over negation (two >neg), and if it is judged as acceptable, the participant has the quantifier scoping over negation.

     b.   The family is cleaning the carpets. The mother of the family asks her two sons to help cleaning, but only one of them does. In this scenario, negation takes scope over quantifier (neg >two), and the person accepting this sentence would have a high negation.

The pictures below are the ones that the participants would see at the end of these two scenarios. The one on the right is for the story in (101a) and the one on the left is for the story in (101b).

Figure 3.2: *Example Of Stimulus for Study 2*

For the scope rigidity tests, we used scenarios with both surface scope and inverse scope readings. So, for the surface scope we had the sentence in (102) and the scenario in (103); for the inverse scope the story is as presented in (105) for the sentence (104).

(102)   Ye pesar-i har   nooshidani-i ro   test kard.
         a   boy-EZ evey drink-EZ   ACC test do.PAST.3SG
         "Some boy tasted every drink."

(103)   There is a party and there are three bottles of liquids on the table. A boy pours the
         content of the bottles one by one into his glass and tastes them. If this scenario
         corresponding to sentence (104) is judged acceptable, the person accepts the
         surface reading.

(104)   Ye doxtar-i har   kolâh-i ro   did.
         a   girl-EZ every hat-EZ ACC see.PAST.3SG
         "Some girl saw every hat."

(105)   There are three empty boxes on the table, the narrator puts a hat in each box and
         then three girls come one by one, and open the boxes. So, each of these girls
         sees one of the hats. If this scenario is judged acceptable, the person has inverse
         scope reading.

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In total, we filmed 41 stories and put them in random orders in a PowerPoint file for each study. Participants were given a consent form before the beginning of the session. After that, the instruction video was played for them and then, the three trial tests were played which was followed by the main task. They were given a True/False answer sheet to mark their judgements on. They were also asked to explain why a sentence was unacceptable if they marked it False. At the end of the study, they were asked to fill out a debriefing form which asked general questions about the study.

3.3.4 Discussion Of The Results

The results of the two studies are summarized in Tables 3.1 to 3.3.

The results show that only 3.1% of the inverse scope sentences were accepted, whereas the acceptance rate is 90.6% for the surface scope reading. This shows that Persian is a scope-rigid language and quantifiers are interpreted in their surface positions. Therefore, the syntactic position of negation can be inferred from its relative scope with quantifiers. Table 1 shows the percentages for both Study 1 and Study 2 individually.

Table 3.1: *% of Acceptance of Quantifier Scopes by Adult Persian Speakers*

	Surface Scope	Inverse Scope
Study 1	89.6	4.2
Study 2	91.7	2.1
Total	90.6	3.1

According to the results of Study 1, 43.7% of the sentences with object *har* "every" scoping over negation are accepted showing that negation can be low and that it can be interpreted where it overtly appears in the sentence because the surface word order allows for the quantifier to c-command the negation and take scope over it. On the other hand, we also have 60.4% acceptance of negation taking scope over the quantifier *har* in Study 1. The results are summarized in Table 3.2.

Table 3.2: *% of Acceptance of Low/High Negation in Relation To Quantified Objects*

	Neg >Object (High)	Object >Neg (Low)
∀	60.4	43.7
2	47.9	83.3

Data were analyzed using a Generalized Estimating Equation (GEE) in SPSS v.20. The statistical model tested for overall effects of quantifier type, negation scope, and for an interaction. While the statistical analysis uses a repeated measures design, considering each trial response individually, here I present overall acceptance rates for each condition. The analysis finds no overall effects of quantifier or scope ($\chi^2(1) = 2.621$, p=0.11 and $\chi^2(1) = 0.655$, p=0.42 respectively). However, a significant interaction is found, $\chi^2(1) = 9.847$, p=0.002, which suggests that the two quantifiers interact with negation in different ways. The fact that the only pairwise comparison to come out as significant is where we compare the two quantifiers in the narrow negation scope condition $\chi^2(1) = 7.473$, p=0.006, echoes this. Trials where negation scope is narrow are more likely to be rejected when the quantifier is *har* "every" than *do* "two".

The results in Table 3.2 are incompatible with the prediction that negation is always high and scopes over the TP in Persian. If this were the case, we would expect to see 0% (or close to 0) acceptance of low negation (Object >Neg) and also 100% (or close to 100) acceptance of high negation (Neg >Object). Secondly, the results suggest an inconsistency as to how wide the scope of negation could be, which is shown by the fact that the responses are not categorical, i.e. always true or always false.

To show that the split is between, rather than within, adult native speakers, I show a bimodal distribution in Figure 3.3. The *y*-axis in this graph is the number of participants who have taken the study which put object "every" over negation, and the *x*-axis is the count of the times they marked the sentences as true.
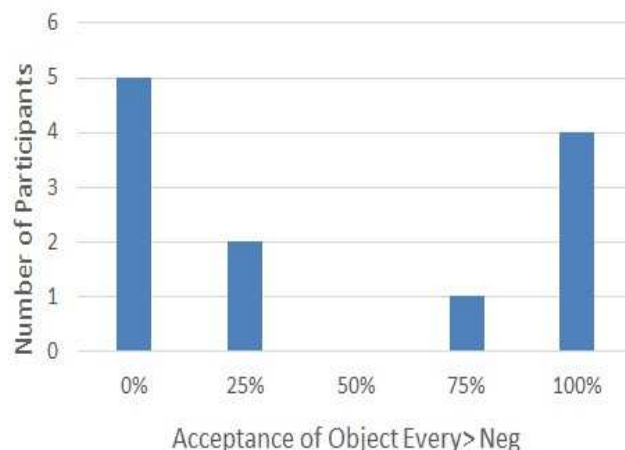
Figure 3.3: *Bimodal Distribution of Participants Accepting Every >Neg*

This figure shows that we have detected a split between participants. Since participants were consistent in their judgements, either accepting or rejecting "every >neg" or vice versa, this split can be said to be a between and not within the participant factor. In other words, negation can be high or low when there is a quantifier in the object position for different speakers. It is supported by the fact that none of the participants accepted both the "∀ >Neg" and "Neg >∀" half the time and it shows that for the majority of speakers judgments are consistent. This, in turn, indicates that there is split in adults' grammar.

The results of this study show similarities with a similar study by Han et al. (2008) on Japanese in that negation can have both narrow and wide scopes in relation with a universal quantifier in the object position. This difference in the scope of negation was attributed to a split between Japanese speakers. However, these two studies have a difference in the way high negation was interpreted. For Japanese speakers, the high position of negation (neg > every) would entail the low position of negation as well (every > neg). That is to say, when negation was high, both readings were available for the participants. This phenomenon is referred to as the "entailment problem", and is not observable in Persian study. This might be an indication of a pragmatic process implemented by Persian speakers which prefers another quantifier, *hich* "(lit.) none", and blocks the low scope of negation

in such situations.

The results of Study 2, as shown in Table 3.3, also suggest a grammatical contrast. While there is 66.7% of acceptance of negation scoping over every in subject position, there is only 14.6% of acceptance of the quantifier scoping over negation. According to the results of this study, negation seems to be high to take scope over the subject when the subject is quantified[3].

The data analysis for Study 2 shows no effects for the quantifier or scope ($\chi^2(1) = 1.65$, $p=0.2$ and $\chi^2(1) = 0.45$, $p=0.5$ respectively) similar to Study 1. However, the interaction between the two quantifiers was once more found to be significant ($\chi^2(1) = 28.3$, $p<0.001$). These results support the findings of Study 1 as they suggest that the two quantifiers exhibit different behaviours in different scope situations. Additionally, all of the different pairwise comparisons are significant.

Table 3.3: *% of Acceptance of Low/High Negation in Relation To Quantified Subjects*

	Neg >Subject (High)	Subject >Neg (Low)
∀	66.7	14.6
2	18.75	85.4

Figure 3.4 summarizes the acceptance rate of low and high negation in relation with quantified subjects and objects where the quantifier is universal. As this figure shows, almost 2/3 of participants always have high interpretation of negation. However, although the percentage of acceptance of low negation is significant for quantified objects, it is not that high for quantified subjects when the quantifier in *every*.

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[3]The behaviour of universal quantifier *har* seems to differ from the numeral quantifier *do*. For further discussion on why they show this difference please read section (3.4).
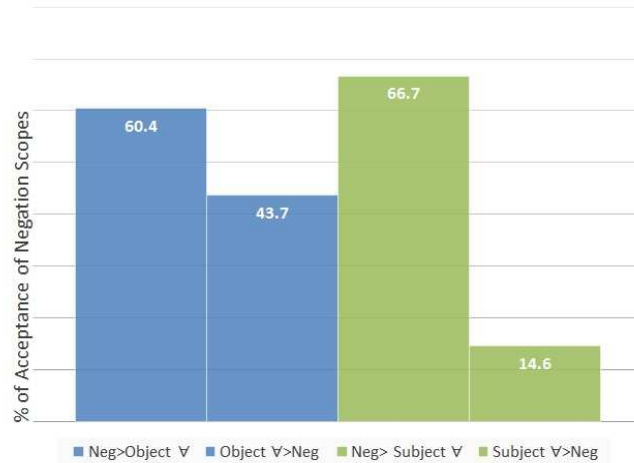
Figure 3.4: *Scope Readings Of Negation In Relation To The Universal Quantifier*

On the other hand, negation acts differently in the presence of numeral quantifiers especially in the case of subject numerals as Figure 3.5 illustrates.
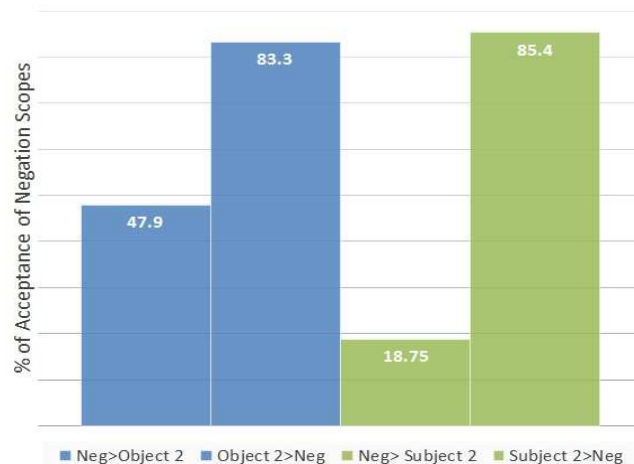
Figure 3.5: *Scope Readings Of Negation In Relation To The Numeral Quantifier*

Recall from my earlier discussion of Figure 3.3 that the acceptances of "every > neg" are consistent within speakers. This means that the 43.7% in Figure 3.4 does not reflect individual speakers with mixed judgments, but rather speakers with different consistent judgments. The same holds across other conditions. We need to account for this variation among the native Persian speakers. On the other hand, when the subject is quantified,

negation takes higher scope when the subject is universal, whereas the exact opposite holds when the subject is numeral. We also need to explain why this contrast exists.

3.4   Numeral Quantifiers

It is well known that indefinite noun phrases, including indefinite singular NPs, cardinal plurals (including *many*) and *wh*-NPs (Reinhart 1997) can take wide scope. Normally, the scope of a quantifier is dictated by its syntactic position (either overt or covert) and the fact that universal quantifiers can take either narrow or wide scope in some languages has been accounted for by QR (Reinhart 1997). However, quantified NPs with existential quantifiers do not follow this syntactic rule and they differ from universal quantifiers in their scope readings (Reinhart 1997).

One such difference is that existential quantifiers can scope out of islands (Reinhart 1997, Brennan 2012). For instance, in the sentence in (106a), the indefinite singular NP can yield the reading that "There was a building such that every fireman thought that building was unsafe". But, if we replace the indefinite article *a* with a universal quantifier like *every* in (106b), the reading "For every building, there was a potentially different fireman who thought that it was unsafe" would not be available. This is because the existential quantifier can take scope outside an island and take wide scope while the universal quantifier cannot have a wide scope.

(106)   a.   Every fireman thought that **a building** was unsafe.

   b.   A fireman thought that **every building** was unsafe.

   (Brennan 2012, ex.1-2)

Reinhart (1997) suggests that while the different scope readings of universal quantifiers can be attributed to the syntactic movement operation of QR, the wide scope of existential quantifiers is not a syntactic phenomenon. She proposes that "a subset of indefinite NPs,

which do not behave as standard generalized quantifiers are interpreted, locally, by choice-functions, and the function-variable can be existentially closed arbitrary far away, thus allowing them free scope". In other words, "...indefinite noun phrases are interpreted by a function which maps the set of entities described by the NP (NP-set) of the indefinite ... to some individual in that set (Brennan 2012)". Reinhart, herself, defines the function as the following:

"A function *f* is a choice function (CH(*f*)) if it applies to any non-empty set and yields a member of that set (Reinhart 1997: 372)".

To clarify, let us have a look at the following example:

(107)   a.   Every lady read some book.

       b. $\exists f$ (CH(f) $\wedge$ $\forall z$ (lady (z) $\rightarrow$ z read f(book))) .

       c. $\exists x$ (book(x) $\wedge$ $\forall z$ (lady (z) $\rightarrow$ z read x)).   (Reinhart 1997, ex.65)

The function in (107b) says that "there exists a function, such that for every z, if z is a lady, z reads the book selected by this function". This choice function applies to a *set of books* here in this example, and the function-variable can be bound by an existential operator arbitrarily far away, taking scope over $\forall$. The same interpretation can be achieved using the QR for this particular example. However, QR cannot always operate, but we can still get the wide reading of the existential quantifier. Besides, there is no evidence for QR at LF in Persian as the results of the studies show[4]. So, the fact that the numeral quantifiers can take wide scope cannot be accounted for using QR analysis.

The choice function can capture the facts that otherwise (syntactically) cannot be accounted for. This is clearer in the sentences with existential quantifiers in islands. For

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[4]Although Persian is a scope rigid language, this does not mean that the quantifiers do not move or raise in this language. However, even if there is such a movement, they retain their c-commanding relationship to match that of spell-out. Therefore, if there is such a covert movement of universal quantifiers in Persian, it needs to meet syntactic restrictions.

instance, in the sentence in (108), we can apply two different operations to get the wide scope of the quantifier.

(108) a. If we invite some philosopher, Max will be offended.

   b. some philosopher $_i$ [if we invite e$_i$ Max will be offended].

   c. Choice-function Interpretation $\exists f \, (CH(f) \wedge \forall z \, (\text{we invite } f(\text{philosopher}) \rightarrow \text{Max}$ will be offended)).   (Reinhart 1997, ex.47, 50, 66)

However, the QR here is not a conventional QR which is subject to movement restrictions, rather it is an island-free QR (Reinhart 1997). This is the reason why this behaviour of existential quantifiers has prompted a semantic approach.

This would explain the differences between the universal quantifier *har* "every" and the numeral quantifier *do* "two" in Persian sentences. We can justify this variation by suggesting that the numeral quantifier makes use of a choice-function in its interpretation and that is why it can freely take a wide scope, but the universal quantifier does not have this property and therefore needs to conform to syntactic restrictions on movement.

3.5   What Does Negation Reveal About CPrs

It was shown in the previous sections that negation can be interpreted low for some speakers and high for others. This contradicts the proposals by Taleghani (2006) and Kwak (2010) that negation is always above TP. This variation between speakers is evidence for verb movement. It has been proposed that negation is a functional head that projects its own phrasal category (Zanuttini 1997, Taleghani 2006, Kwak 2010). If we adopt the CPr structure proposed by Folli, Harley and Karimi (2005), following the hierarchy of projection for negation which is between the TP and *v*P (Adger 2003), we would need to posit a NegP right above the *v*P where the LV can move to and attach to the negative marker. This is illustrated in (110) for a causative sentence in (109).

(109) Papar Kimea ro   [_CPr_ bidâr   na-kard].
       Papar Kimea ACC [_CPr_ awake NEG-do.PAST.3SG]

       "Papar didn't wake Kimea up."

(110)

```
                              TP
                    _____
                   |                        |
                  DP                        T′
                  /\                _____
                Papar              |                |
                                   T               NegP
                                          _____
                                         |                   |
                                        vP                  Neg
                                  _____          _____
                                 |            |         |         |
                             <Papar>          v′       Neg        v
                                        _____      na      kard
                                       |          |
                                      AP          v
                                   _____    <kard>
                                  |       |    "made"
                                 DP       A
                                 /\     bidâr
                          <Kimea-ro>  "awake"
                         "Kimea-ACC "
```
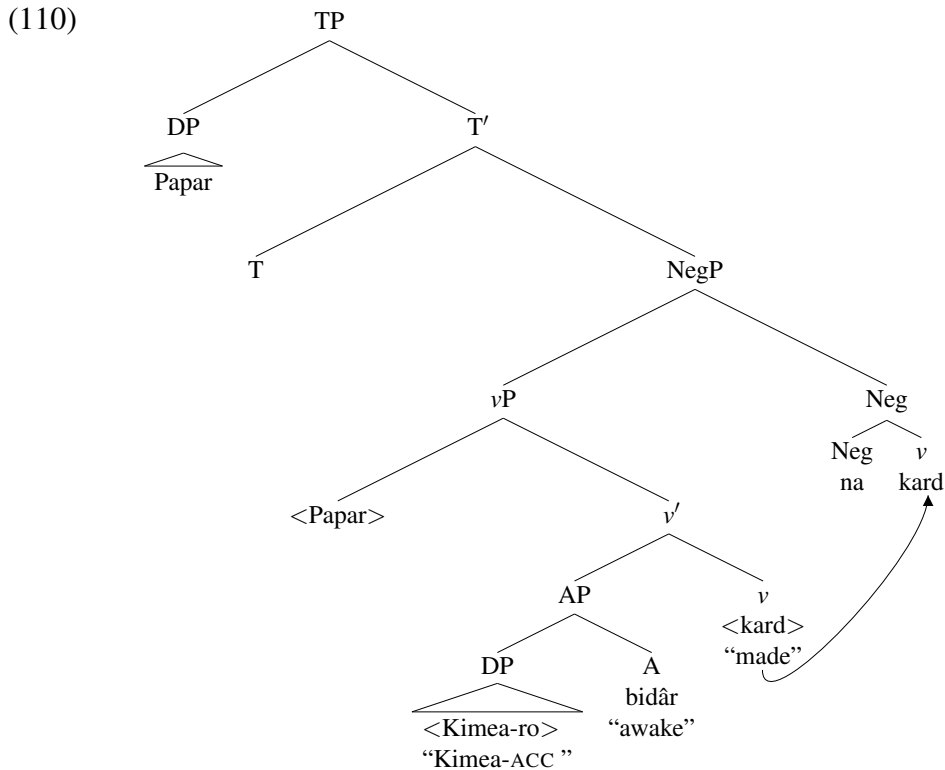
It might seem that this structure can nicely capture the reason for the intervening nega-
tion as it can provide a position for the LV enabling it to freely move to attach to the Neg
head. However, remember from the previous chapter that this structure fails to explain how
the NV element can be pronounced when the VP undergoes elision. This was the whole
point that led me reassess the structure of the CPrs and propose a new one. Moreover,
this tree would always predict high scope for negation with respect to objects, which is not
supported by our studies.

The structure that I proposed can also explain why the negative marker appears on the
LV. The original structure that I proposed was presented in (75) repeated here in (111). The
arrow here represents that the LV moves to a higher position and it can optionally pied-pipe
the NV.

(111)

vP
├── SubjP
└── v′
    ├── CVP
    │   ├── ObjectP
    │   └── CV
    │   └── X/XP — LV
    └── v
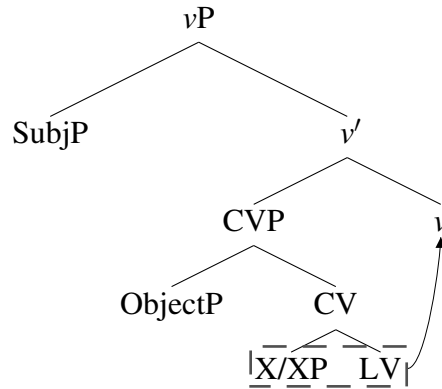
If we add a NegP right above the CVP, exactly as we did for Folli, Harley and Karimi's structure, we will be able to account for the inte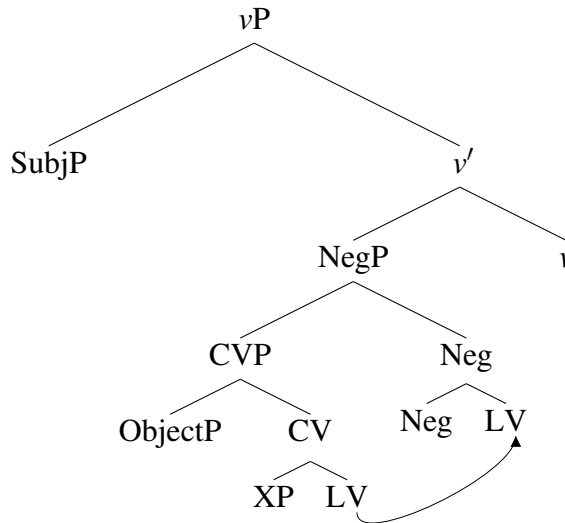rvening negation by positing a movement of the LV, which is allowed by our structure. Consequently, we would end up with a structure such as the one in (112)[5].

(112)

vP
├── SubjP
└── v′
    ├── NegP
    │   ├── CVP
    │   │   ├── ObjectP
    │   │   └── CV
    │   │   └── XP LV
    │   └── Neg
    │   ├── Neg
    │   └── LV
    └── v

This tree would run into one major problem, it would only predict that the LV can move up. However, as we saw earlier in the previous chapter, the whole CV can move up

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[5]Taleghani (2006) suggests that despite the head-finality of Persian, its functional projections like TP and CP are head initial. The directionality of T has been a matter of controversy among scholars. Karimi (2005) claims that T is left-headed; while Toosarvandani (2009) and Rasekhi (2014) treat it as being right-headed in their structures. following Koisumi (2000), I claim that C is right-headed in Persian and there is a string-vacuous movement of the verb to this position (see section 3.6.2).

depending on discourse factors. Therefore, we would need to modify the position where negation attaches to the structure.

3.6   The Negation Structure And Its Movement

Before proposing the structure for negative sentences in Persian, we need to re-examine the position of the definite objects in Persian. It has been argued that the position of definite objects is different from indefinite ones (Karimi 2003, 2005).

3.6.1   Object Shift in Persian

Persian does not have a definite determiner like *the* in English and the sign of definiteness is the particle *râ* (*ro* or sometimes *o* in colloquial Persian) which follows the definite object DPs, as the example in (60), repeated here in (113) shows:

(113)   Shahla ketâb ro   xund.
          Shahla book ACC read.PAST.3SG
          "Shahla read the book."

Definite objects are considered specific, while indefinite objects are ambiguous. There are differences between specific and non-specific objects in Persian. According to Karimi (2003), the specific object, either definite or indefinite, is always followed by the particle *râ*, whereas the non-specific object does not have this requirement. The sentences in (114) show this contrast.

(114)   a.   Kimea aghlab barâ mâ sher   mi-xun-e.
             Kimea often   for us poem DUR-read-3SG
             "It is often the case that Kimea reads poetry for us."

        b.   Kimea aghlab ye sher   az Hâfez ro   barâ mâ mi-xun-e.
             Kimea often   a poem by Hafez ACC to   us DUR-read-3SG
             "It is often the case that Kimea read a (particular) poem by Hafez to us."

             (Karimi 2003, ex.1-2)

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Moreover, the non-specific objects always immediately precede the verb in a neutral word order, but the specific ones come before the indirect object. As the examples above show, the non-specific object in (114a) immediately precedes the verb while the specific object in (114b) is right before the indirect object *barâ mâ* "to us".

The fact that the specific object appears in a higher position than the non-specific one is a phenomenon called *object shift*, according to which the [+specific] object needs to undergo movement triggered by EPP-like feature. The schematic structure in (115) illustrates this point:

(115)   Object Shift in Persian   (Karimi 2005: 109)
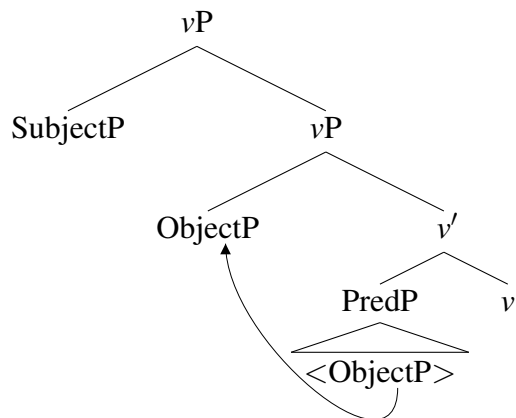
Considering that the PredP is in fact the VP, the implication of this phenomenon for our purposes would be that the [+specific] object moves out of the CVP. This would be important for us when we discuss the scope relations between negation and quantified objects.

3.6.2   Low and High Negation in Persian

As was mentioned previously, in languages with clitic-like negation, the negation head which cliticizes to the verb moves to a higher position together with the verb (Meisel 1997, Han et al. 2007). Therefore, we can account for this variability among Persian speakers by positing a string-vacuous verb movement which starts from a syntactically low position, where negation adjoins, to a high position, which results in wide scope of negation.

Therefore, the structure for a negative sentence with quantified object would look like

(116) for people with low negation. This cliticization operation was also proposed for Korean and is adapted from Han et al. (2007).

(116)   Low Negation (Object >Neg)

*v*P
- SubjectP
- *v*P
  - ObjectP
  - *v*′
    - NegP
      - Neg
      - CVP
        - \<ObjectP\>
        - \<CV\>
          - XP   Neg+LV
    - *v*
      - CV
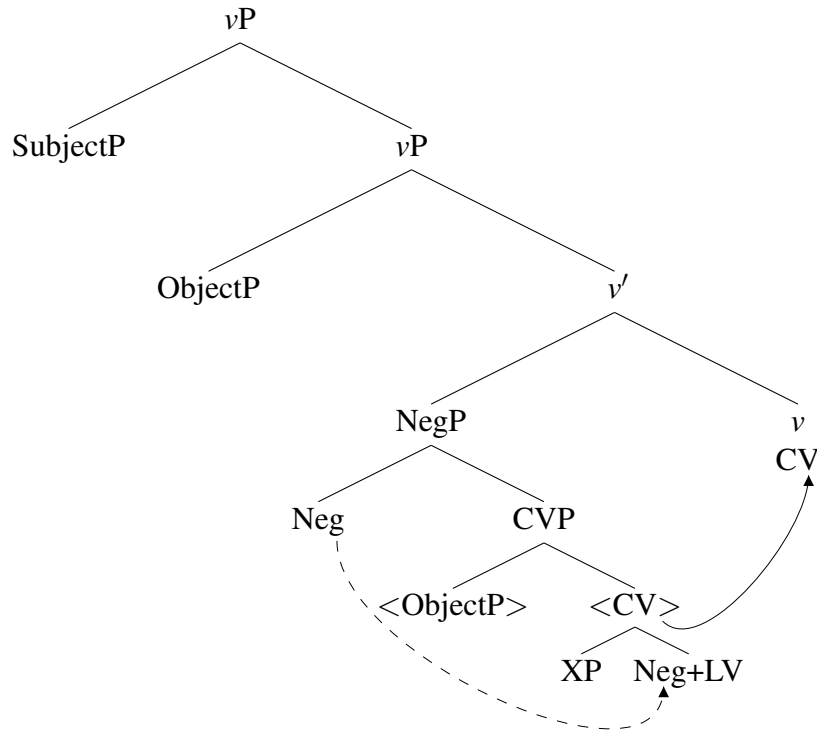
What this tree shows is that negation cliticizes to the LV below. Then, the little *v* attracts the CV[6] which includes the "Neg" inside. For people with low negation this is where movement stops and since the object c-commands the "Neg", it also takes scope over it. On the other hand, for people with high negation in sentences with quantified objects, negation needs to move up to a place where it is able to scope over the object. The question that needs to be answered here is where exactly the verb moves to.

It is not easy to determine whether there is a verb movement in head final languages since it does not change the word order (Koisumi 2000). However, there are some tests that can be used to diagnose this phenomenon. Koisumi (2000) uses coordination, clefting, and scrambling as evidence for verb raising in Japanese. I am going to use the coordination

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[6]I have only shown the cases where the whole CV moves, but this structure would also work for the cases where only the LV moves without pied-piping the NV.

test to illustrate that Persian also allows for a string-vacuous verb movement. Let us have a look at the sentence in (117).

(117) Mary-ga   [[John-ni ringo-o   2-tu] to [Bob-ni banana-o   3-bon]] ageta
Mary-NOM [[John-to apple-ACC 2-CL] and [Bob-to banana-ACC 3-CL]] gave
(koto).
(fact)

"Mary gave two apples to John, and three bananas to Bob."   (Koisumi 2000, ex.3)

Koisumi concludes that since the internal arguments of the verb have been coordinated in this sentence, they form constituents, which in turn shows that the verb has at least moved to little *v*. However, this is not the extent of the movement that the verb can undergo in Japanese according to Koisumi, who uses examples like (118) and (119) to show that verb can even go higher.

(118) [[Mary-ga   ringo-o   2-tu] to [Nancy-ga   banana-o   3-bon]] tabeta
[[Mary-NOM apple-ACC 2-CL] and [Nancy-NOM banana-ACC 3-CL]] ate
(koto).
(fact)

"(Lit.) [Mary two apples] and [Nancy three bananas] ate."   (Koisumi 2000, ex.6)

(119) [[Mary-ga   John-ni ringo-o   2-tu] to [Nancy-ga   Bob-ni banana-o
[[Mary-NOM John-to apple-ACC 2-CL] and [Nancy-NOM Bob-to banana-ACC
3-bon]] ageta (koto).
3-CL]] ate   (fact)

"(Lit.) [Mary two apples to John], and [Nancy three bananas to Bob] gave."

(Koisumi 2000, ex.7)

In these examples, there is coordination of subject and the object(s) showing that bigger constituents than either VP or *v*P are coordinated. Because subject is in [Spec,TP] position, the coordinated constituents must be two TPs. This shows that the verb needs to be higher than T, and Koisumi proposes that it is in C.

The exact coordination can happen in Persian as well. Let us have a look at the sentence in (120), which shows coordination of two TPs is possible. Therefore, if we follow

Koisumi's analysis of why Japanese verbs can move to C, we can come up with the same conclusion for Persian as well.

(120) [[Ali do tâ   sib] va [Maryam se   tâ   anâr]]   xord.
       [[Ali two PART apple] and [Maryam three PART pomegranate]] eat.PAST.3SG
       "(Lit.) [Ali two apples], and [Maryam three pomegranates] ate."

Now, we have a place where the verb can (optionally) move to. For speakers with low negation, the only movement that the verb undergoes is V to *v* movement. On the other hand, for speakers with high negation (which is almost 2/3 of them), the verb needs to move to C as in (121). The dashed line shows cliticization, the solid line shows the obligatory movement to *v* and the dotted lines show optional movements to T and C.

(121)   High Negation (Neg >Object)
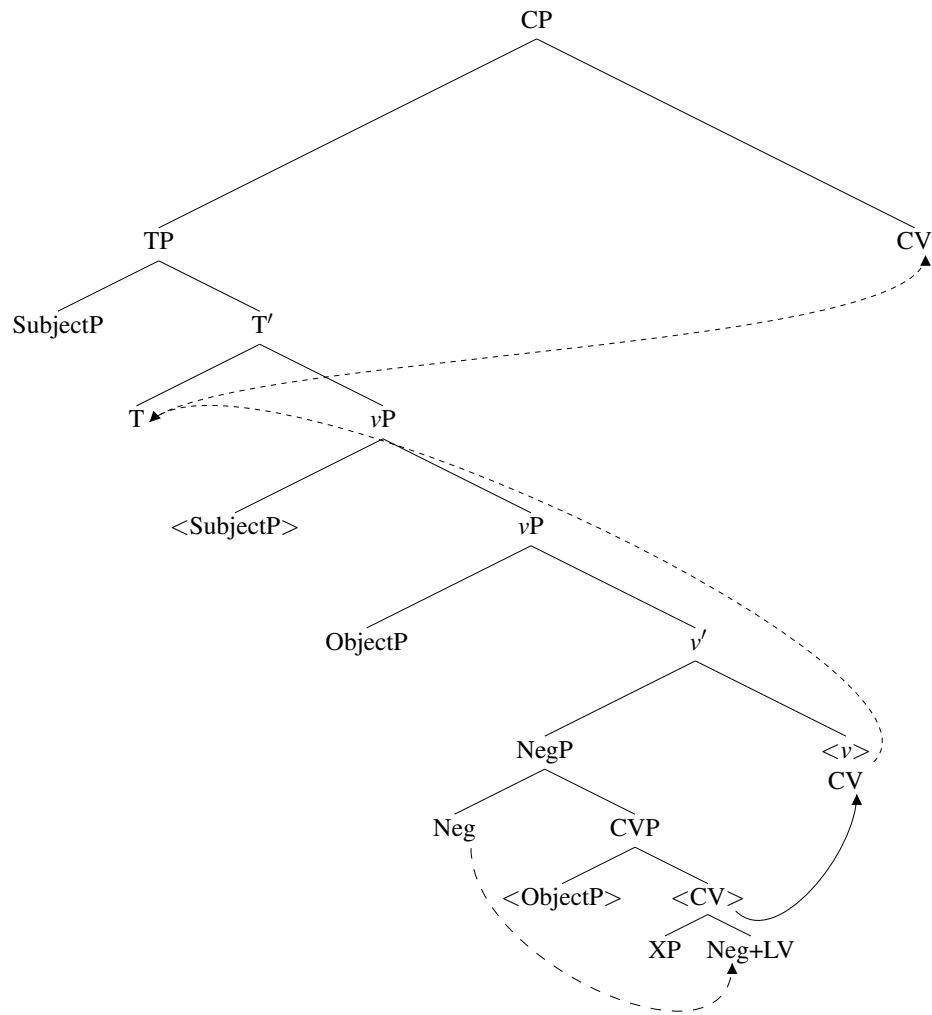
The only issue that needs to be addressed with this structure is that the verb has to stop at T which is to the left (if we accept what Karimi (2005) has proposed). The fact that a head can move to another head position with opposite directionality is not something new. In fact, it has been proposed that in German, verb moves from a right-headed T to a left-headed C (Vikner 1995). In the case of Persian verbs, I am proposing that the verb that has already moved from a right-headed *v* position to a left-headed T, has to move to a right-headed C again because it cannot stop at T[7]. One of the reasons why T has been proposed to be on the left is the appearance of modals between subjects and objects in Persian as the sentence (82), repeated here as (122) shows. Chapter 4 discusses this issue in more details.

(122)   Arman na-**bâyad**   be-re   xune.
          Arman NEG-**should** SUBJ-go3SG home
          "Arman shouldn't go home."

In this section, I explained how we can get different scopes of negation in relation with object quantifiers. As for the relation between negation and quantified subjects, it seems that in these cases, high negation is the only available reading for Persian adult speakers. This needs to be further investigated which is the subject of next section. However if this is true, negation needs to be above TP to take scope over the whole sentence including the subject. The tree in (121) would also capture this fact.

3.7   The Inconsistent Behaviour of The Universal Quantifier

As the discussion and the results above show, when the universal quantifier is in the object position, we have observed a split among the native speakers, some having the low interpretation of negation and some having the high interpretation of it. However, when the

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[7]V to T movement in Persian happens only for topicalization according to Karimi (2005). This is a topic for further analysis but it is not in the scope of the current work. For the purposes of this work, I am assuming that if the verb moves higher that little *v*, it has to move all the way up to C.

universal quantifier is in the subject position, there does not seem to be a split between the adult speakers with the majority only accepting the high negation.

According to the debriefing forms filled out by the participants at the end of the studies, in the circumstances where negation has the low scope in the sentence, they are used to having *hich* "(lit.) none" rather than *har* "every" in subject position. Kwak (2010), defines *hich* as a Negative Concord Item (NCI) which must be in the specifier position of a licensing negation. According to Kwak, Persian has NPIs and NCIs that can be grouped together as the Negative Sensitive Items (NSIs), and these two categories show some variations. For instance, the NCIs are [+neg] in nature while the NPIs are [-neg] in nature. The following is the list of NCIs and NPIs according to Kwak (2010).

"**Negative Polarity Items**: dige "anymore", ye qerun "a penny", dast be siâh o sefid zadan "lift a finger"

Negative Concord Items: hich-NP "any-NP", aslan, abadan, hargez "never" "

As a result, for a sentence such as (123), which includes an NCI in its subject position, we would have a tree like (124).

(123)   Hichkas na-yâm-ad.
           nobody NEG-come-PAST.3SG
           "Nobody came."   (Kwak 2010, ex.46)

(124)   Kwak's Structure for NCIs in Subject Position
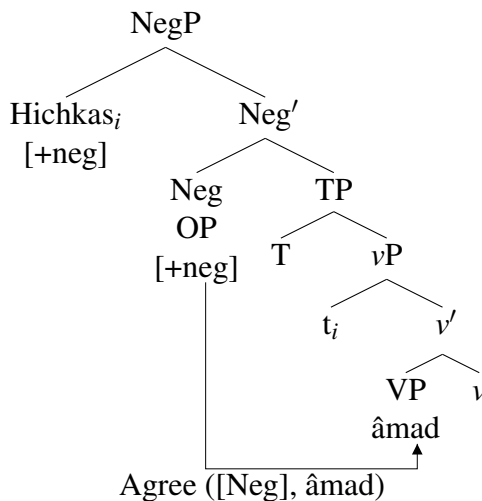
This structure is proposed based on the Neg-Criterion (Haegeman & Zanuttini 1991, Haegeman 1995), which Kelepir (2001) says requires a negative quantifier to occur in the specifier position of the negative head, and it requires the negative head to have a negative operator in its specifier. The Neg-Criterion as defined by Haegeman and Zanuttini (1991) is as follows:

a. Each Neg X^0 must be in a Spec-Head configuration with a Negative operator;

b. Each Negative operator must be in a Spec-Head configuration with a Neg X^0.   (Haegeman & Zanuttini 1991, ex.27)

Therefore, for the Persian structure in (124), the movement of *hich* from [Spec, *v*P] happens to satisfy this criterion according to Kwak (2010).

On the other hand, Kelepir (1999, 2001), argues that the *hich*-word in Turkish is not an NCI and therefore not [+neg] in nature because the NCIs would normally cancel the negativity of the verb they co-occur with (Haegeman and Zanuttini 1991). The Dutch example in (125) would elaborate on this point. In this sentence, we have an instance of Double Negation (DN) which results in one of the negative elements being cancelled out by the other. As a result, the whole sentence would have a positive reading of "I invited someone".

(125)   Ik heb **niemand niet** uitgenodigt.
        I have **no-one not**   invited
        "I didn't invite no one."   (Haegeman and Zanuttini 1991, ex.2)

Standard English also exhibits DN structure as the sentence in (126) illustrates. This sentence means that "everybody talked to somebody" which is a positive reading as the negative elements cancel each other out.

(126)   Nobody talked to nobody.   (Kelepir 2001:156)

This requirement is not met in the following example from Turkish because the two negations do not cancel each other out and it results in a negative reading of the sentence.

(127)   Hiçkimse gel-me-di.
             Nobody   come-NEG-PAST.3SG
             "Nobody came."   (Kelepir 1999, ex.13)

This is also true of Persian. The sentence in (123) above does not exemplify an NCI because the sentence does not introduce a DN. If the sentence introduced a DN structure, we would expect it to mean that "somebody came", but it does not.

Given these facts, we can decide that the *hich*-word in Persian is not inherently negative contra to what Kwak claims. As a result, it would not need to be in the spec position of negation to satisfy the Neg-criterion and does not require the negation to be high. This would lead us to conclude that when we have the narrow scope negation, the subject position needs to be filled with the *hich*-word rather that *har* "every". Therefore, when the subject is *har* and context shows it to scope over negation, the sentence is judged as ungrammatical or false by the participants. This would explain the inconsistency in the readings of negation in sentences with quantified objects versus the ones with quantified subjects where the quantifier is universal. The participants seem to be making use of a pragmatic implicature to avoid any ambiguity in the sentence. Existence of a quantifier (*hich*) that can uniquely express the narrow scope of negation leads the speakers to reject the use of another quantifier (*har*) in such situations.

As a conclusion, when the universal quantifier *har* "every" in the subject position of a sentence takes scope over negation, the hearer -expecting to hear *hich*- would rule out the sentence. On the other hand, for sentences with quantified subjects where negation scopes over them, the hearer can make sense of the sentence because although *har* is not common in such circumstances, it does not render the sentence uninterpretable. Hence, the much higher acceptance of such sentences by native Persian speakers.

3.8 Conclusion

To begin with, the original proposal by Taleghani and Kwak is not compatible with our findings. Even though the interpretation of low negation is available to a group of native speakers which only happens in regard with the objects, its existence would suffice to rule out the claim that negation needs to always be high in Persian.

In previous chapter, I proposed that the CPrs in Persian are single syntactic units and they act like heads. Moreover, I explained that either the LV or the whole of this CPr can move to a higher phrase in order to escape elision in the cases of VP ellipsis.

The scope data in this chapter gives us independent evidence for the verb movement which was needed to account for the ellipsis data.

This leads me to conclude that the appearance of negation in between the two elements of the CPrs is not because they are separated, rather it is due to a cliticization of negation on the LV. The movement of LV (with or without pied-piping) to little v and its further movements accounts for the different scopes that the negative marker can get. The number of movement operations that the LV undergoes varies from speaker to speaker. In other words, the variation between the speakers is accountable by how high the movement of the LV on the syntactic tree is.

Chapter 4

Unified Analysis of Ellipsis and Scope

This chapter summarizes the main points of the previous chapters and it elaborates on how the object shift phenomenon would be reflected in the cases of ellipsis.

4.1 Object Shift and *v*VPE

Recall from Chapter 2 that the definite objects in Persian are associated with the accusative marker *râ* (Karimi 2003, Jasbi 2015), and that objects including variables and reflexives would fall into this category. These definite objects have a rather distinct syntactic position compared to other types of objects, because they undergo movement to a higher position (Karimi 2003, 2005). Therefore, the initial proposed structure for CPrs (128a) would be modified to include this shift as the tree in (128b) illustrates.

(128)

a. *v*P With Indefinite Object
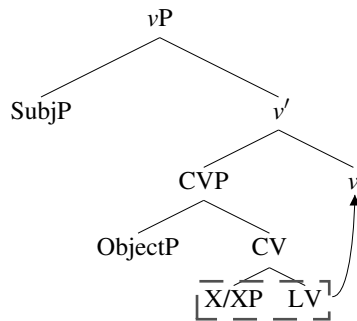
b. *v*P With Definite Object
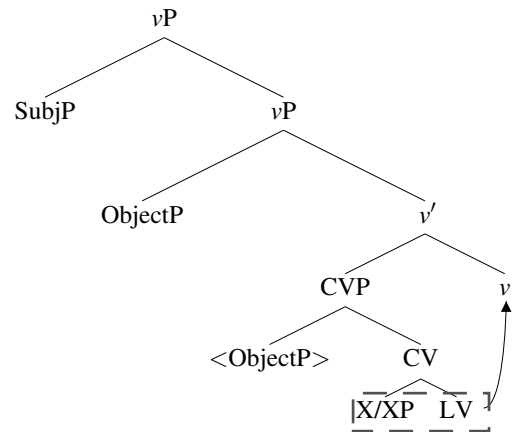
To elaborate, let us draw a tree (130) for the sentence in (129b) with a variable.

(129) a. Amir doost-esh   ro   davat   kard.
           Amir friend-GEN.3SG ACC invitation do-PAST.3SG
           "Amir invited his friend."

b. Va Sahar ham [~~doost-esh ro davat~~/davat]   kard.
   And Sahar also [~~friend-GEN.3SG ACC invitation~~/invitation] do-PAST.3SG
   "And Sahar also did [invite/ ~~invite one's friend~~]."   (Strict **OK**, Sloppy **OK**)

This shift will not have any effect on the interpretation of sentences with missing definite objects but the VPE operation will need a little modification.

(130)
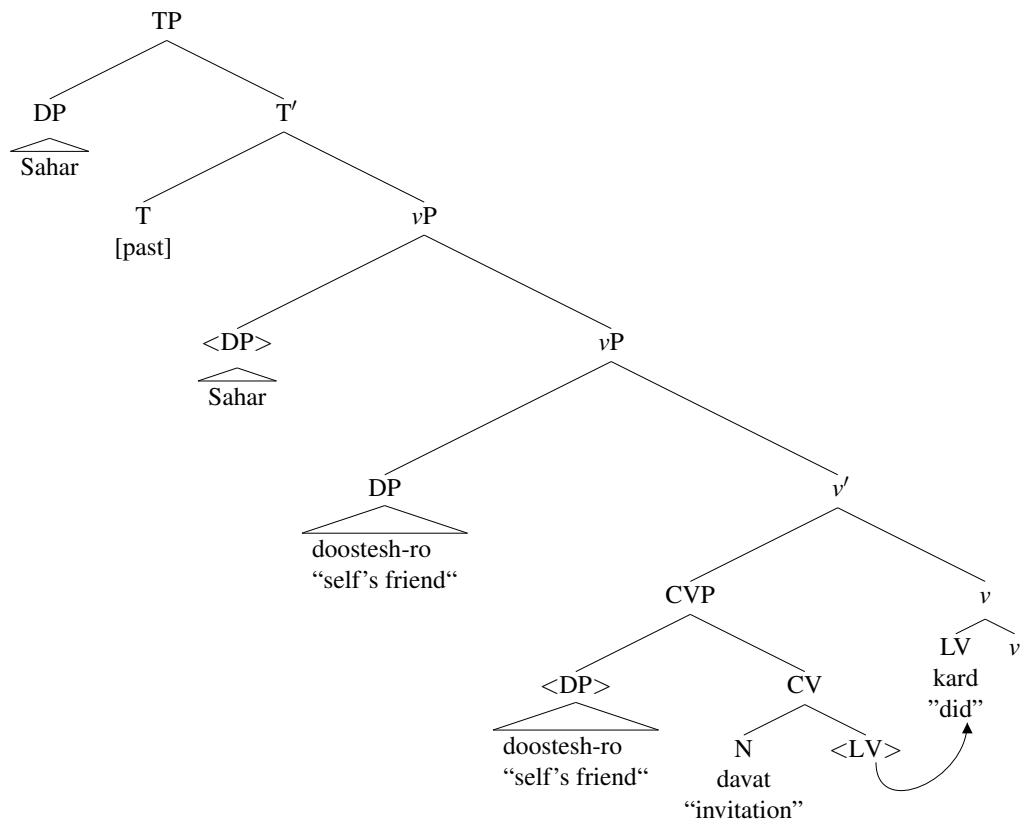
If we go on and elide the CVP as I proposed in Chapter 2, since the object has moved out of the CVP, we would expect it to be pronounced. In that case, there will be no elision of the internal argument in any shape. However, we know that deleting the internal argument is possible and grammatical. The only way that we can have the deletion of the object plus or minus the NV element is to have another movement of the verb.

Recall from the previous chapter that verbs in Persian cannot stop at T. I proposed a solution for the higher movement of verb by providing evidence from coordination of two TPs showing that verb can and must move as high as C if it needs to undergo further movement. Therefore, in cases of elision in sentences, this is what in fact happens. The verb

moves to C and then we have deletion of *v*P rather than CVP. The tree in (131) illustrates this.

(131)
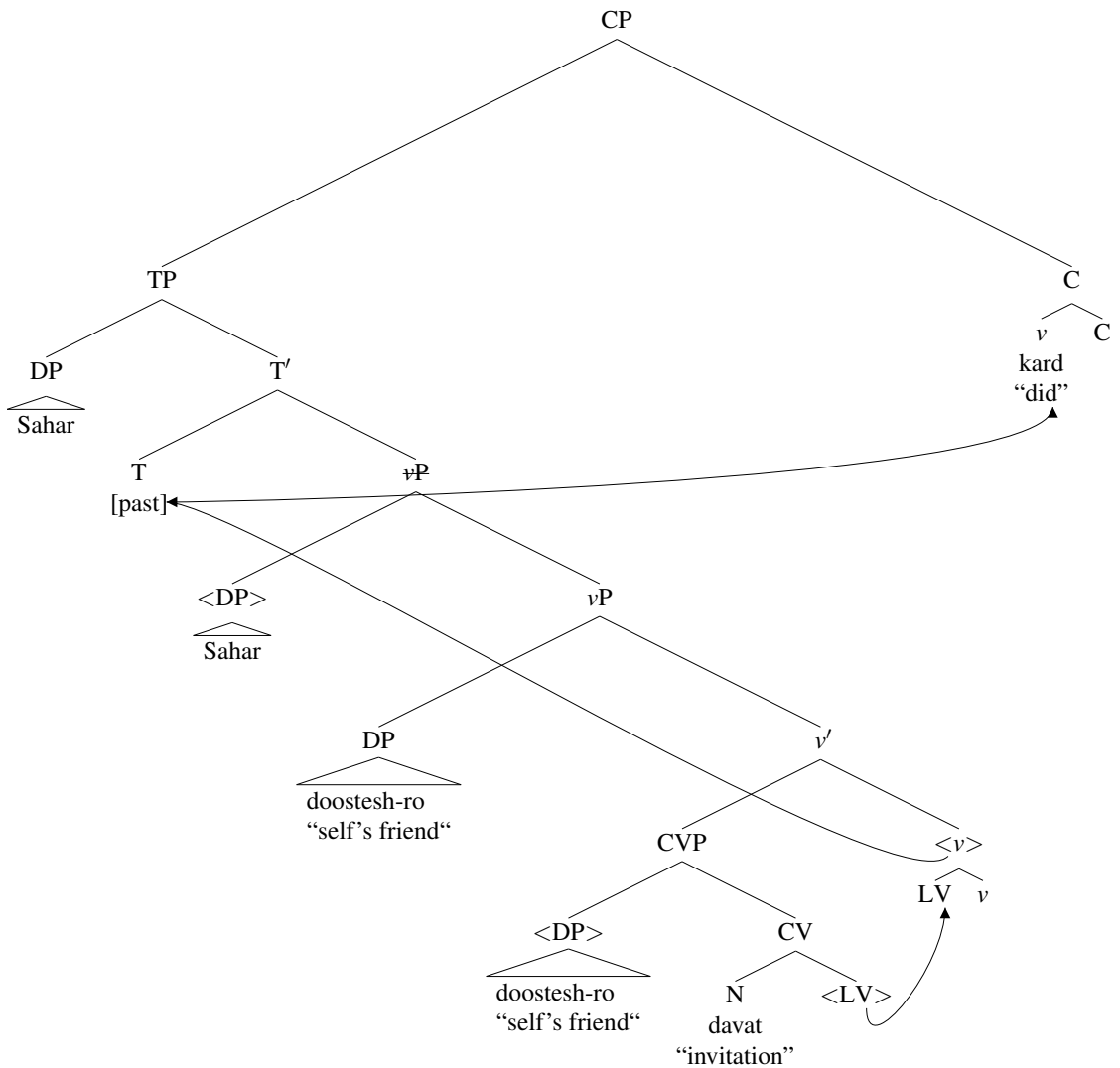
This movement would capture both the ellipsis and negation facts together.

4.2 Ellipsis and Negation Put Together

In the previous chapter, we saw that almost 2/3 of the Persian speakers prefer high negation regardless in relation to the universal quantifier of its position. The numbers are repeated here in Table 4.1.

Table 4.1: *The Percentage of Acceptance of Low versus High Negation*

	Neg >Object	Object >Neg	Neg >Subject	Subject >Neg
∀	**60.4**	43.7	**66.7**	14.6
2	47.9	83.3	18.75	85.4

Therefore, it seems that for 2/3 of the speakers, this movement of V to C happens all the time, as a result of which they have high interpretation of negation and they allow for VP ellipsis. For the other 1/3, the movement is not available for negative sentences and that is why they have low interpretation of negation, but it can happen in cases of ellipsis, where there is additional evidence for the move.

One thing still to be addressed is the ellipsis of a universal quantifier in a negative sentence as in (132):

(132)   a.   Ali har   gol-i   ro   boo kard.
               Ali every flower-EZ ACC smell do.PAST.3SG
               "Ali smelled every flower."

          b.   Vali Mehran [~~har gol-i ro boo~~/boo]   na-kard.
               but Mehran [~~every flower-EZ ACC smell~~/smell] NEG-do.PAST.3SG
               "But, Mehran did not [smell/ ~~smell every flower~~]."

I proposed that in ellipsis cases the verb needs to move to C, and therefore, the verb is in C in (132b). This would only yield wide scope of negation meaning that speakers with low negation would not be able to copmrehend this sentence. However, I discussed the "entailment problem" in Chapter 3 that which resulted in acceptance of both high and low negation readings when negation was in a high position. I further pointed out that the results of my studies suggest that this problem does not occur for Persian speakers and they seems to make use of a pragmatic implicature which prefers *hich* "none" over *har* "every" in such situations. The question is whether or not this "entailment problem" would be encountered in sentences like (132b).

Assuming that both high and low negation readings are possible here in this scenario,

we can think that verb has not moved up and VPE has not happened, instead argument ellipsis is present which can give rise to ambiguity. This hypothesis can work when the NV is elided, but the presence of NV is an indicator of verb movement as I discussed in Chapter 2.

To sum up, because of the possible "entailment problem", and the potential for multiple analyses, nothing conclusive can be drawn from this example. Eliciting native speakers' judgments might provide some insights to this loop of arguments.

4.3   Multiple Grammars: A Potential Explanation

The variation among the adult Persian speakers as well as the optional verb movement could be accounted for by the notion of Multiple Grammars (MG) presented in Amaral and Roeper (2014), which "is based on the idea that any human grammar readily accommodates sets of rules in sub-grammars that can seem (apparently) contradictory (Amaral and Roeper 2014:3)." This means that the grammar of a language creates parallel rule sets, some being more productive than the others, and not that new input would result in adding a new rule or replacing an old one.

Some might think that the MG is only compatible with bilingualism and that having these different grammars is the result of the interaction of various grammars from different languages. However, MG does not only capture the interlanguage representation of adult second language learners. The advent of this idea dates back to Roeper (1999) who claims that even monolinguals are bilinguals in that they have co-existing incompatible and idiosyncrasies in their grammar, which he calls the *Universal Bilingualism*. Yang (2002) attributes this *bilingualism* or having MG to being exposed to non-homogenous input in heterogeneous linguistic environments, and argues that people are given contradictory evidence which results in supporting and registering evidence on both sides of a parameter, and that "the weights of two [or more] grammars reach a stable equilibrium when learning

stops (Yang 2002: 32-33)."

An example for the presence of MG could be English which is known to be a non-pro-drop language, however, there are examples of pro-drop sentences in this language. Amaral and Roeper (2014) argue that the set of verbs and subjects that can participate in pro-drop structures are lexically limited, whereas the non-pro-drop set is more productive. The idea is that the child learning a language learns that both these options are available to them in the grammar, one being limited and the other being productive. As a result, the speakers of the language treat this limited set as exceptions without changing their rules (Amaral & Roeper 2014).

Following Roeper (1999) and Yang (2002), I propose that the findings of my studies could support the idea of MG or Universal Bilingualism. Although a Persian speaker is aware of the absence of V to T movement in this language, when it comes to cases like negation and ellipsis, there is a sub-grammar available to the speaker which allows the movement of the verb to T followed by a movement to C. In other words, this is an exceptional process which is limited to specific occasions. This is an example which shows that each individual has access to (at least) these two different options. However, this is not the whole scenario. We saw throughout this work that there are also differences between the speakers in relation to the scope of negation. What we can say about this variation is that all Persian speakers have access to this occasional V to T to C movement in cases of ellipsis, but some of them suppress this operation when they do not have to use it. Recall that Yang (2002) suggests that that the weights of different grammars reach a stable equilibrium when learning stops. What happens in the case of Persian speakers is that the point where these two grammars reach this stability seems to differ from person to person, hence the split between the speakers.

Furthermore, we can probably explain this variation by referring to the heterogeneous linguistic environment in Iran and the fact that a great number of (Iranian) Persian speakers

are raised as bilingual speakers of other languages, such as Azeri, Kurdish, Arabic and so forth. For most of these speakers, Persian is a second language. Therefore, their judgments might have been affected by their first language. MG analysis has been used to account for the split between Japanese and Korean native speakers (Han et al. 2007, 2008), however, no demographic indication of groups was found in these studies and participants were raised in a much more homogeneous linguistic environment. This indicates that the acquisition process that speakers have gone through may play a role in the speakers' adult grammar. Further investigations on acquisition of negation and/or VP ellipsis might shed light upon this phenomenon.

Chapter 5

Conclusion

5.1 Recapitulation

In the previous chapters, I discussed the controversy on the structure of CPrs in Persian. This controversy is partly because these predicates exhibit different lexical and syntactic behaviours. In terms of lexical behaviour, they seem to act as single units, but when it comes to their syntactic behaviour the distinction is not that clear-cut. In particular, what has led scholars to propose that these predicates are not single syntactic units is the fact that elements like future markers, imperative and durative affixes, and negative markers can intervene in between the two parts of these predicates. As a result, the structures that are proposed for CPrs can be divided into two groups, one group treating them as single constituents and the second one separating the two parts of these predicates as they enter the derivation.

In Chapter 2, I provide evidence from ellipsis in VPs that the CPrs are in fact single syntactic constituents. Ellipsis in VPs plays an important role in shedding light on the structure of CPrs because one part of these predicates, namely the NV element, can either be absent or present when the VP is elided. This observation challenged the "argument drop" analysis by Rasekhi (2014), and I propose that in such situations (where more than one argument is missing), VPE is responsible. Therefore, even though argument ellipsis is possible in some occasions, it cannot capture all the possibilities. This evidence contradicts the CPr structure proposed originally by Folli et al. (2005) which predicts the NV to be trapped inside the phrase that is being deleted. I propose that the two parts of the CPr, the NV element and the LV, make a CV head and the LV inside this head has to move to

little *v* which has a selectional feature to attract the LV. Moreover, this LV can optionally pied-pipe the NV element with itself and that is how we can preserve the NV element while the VP is elided. This optional pied-piping is individual-based and differs contextually like the pied-piping of English prepositions in wh-questions.

Chapter 3 deals with negation and its scope in Persian sentences with quantified subjects and objects. The significance of negation is that the negative marker appears in-between the two elements of the CPr. This has led some scholars to support the structure of these predicates where the two elements enter the derivation separately. However, negation in Persian is a clitic, and I propose that it can cliticize to the LV without having the need to separate the two elements. If the verb stays where it entered the derivation, the negation would always be interpreted as low. This is only possible because of the shift in the position of definite objects proposed by Karimi (2005). My studies show that negation is interpreted low for some speakers, which contradicts the high negation proposals by Taleghani (2006) and Kwak (2010). However, as my studies show, negation can also be interpreted high taking scope over the object and subject approximately 2/3 of the times. This means that negation cannot stay where it entered the derivation and that it has to move up. I already propose an obligatory movement of LV to *v* in Chapter 2. In this chapter, I introduce a new movement operation to C which is present in 2/3 of the population. In other words, there appears to be variation in the height of this verb movement from speaker to speaker.

To sum up Chapter 2 and Chapter 3, the VPE facts can be accounted for by a movement of LV with optional pied-piping of the NV element. This movement operation is triggered by a selectional feature on *v* and therefore, it is obligatory and needs to happen all the time. As for the low scope of negation, this movement would not affect the c-commanding relations between the definite object[1] and the negative marker. However, for high scope negation, the verb has to undergo further movement operation and since it cannot stop at T

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[1]Recall from section (3.4) that indefinite quantifiers can arbitrarily take wide scopes via a choice-function.

(following Karimi 2005), C is the closest head where it can land.

5.2 Future Work

One of the most controversial issues in Persian syntax is the position of T. And one of the reasons that Persian linguists have used to propose that T is on the left is the position of modals which appear in between the subject and the object as the sentence in (133) shows.

(133) Ali **bâyad** dars-esh   ro   be-xun-e.
       Ali **should** lesson-GEN.3SG ACC SUBJ-read-3SG
       "Ali should study his lessons."

However, not all of the modals appear in this position. In Chapter 1, we learned that one of the elements that intervenes between the two elements of the CPrs is the future marker *xâstan* "to want (to do something in future)", which is considered a modal. Other modals like *tavânestan* "to be able to" and *dâshtan* "to have" also take the same position in the sentence. The sentence in (14), repeated here in (134) shows the position of the future marker in a Persian sentence (Family 2014):

(134) In   zobâle ro   dur **xâh-am** andâxt.
       this trash   ACC far **will-1SG** throw.PAST
       "I will throw this trash away"   (Family 2014:31)

This example shows that modals do not directly reflect the position of T, and their position seems to be more complicated than it looks.

Another reason that Karimi (2005) uses to support the head-initiality of T is the position of the verb in embedded clauses, (135). Karimi states that if T is on the right and the verb moves to T, the following sentence should in principle be grammatical.

(135)   * Man <goftam> [_CP_ ke Kimea in   kâr ro   mi-gir-e]   goftam.
        I   <goftam> [_CP_ that Kimea this job ACC DUR-get-3SG] say.PAST.1SG
        "Intended: I said that Kimea will get this job."   (Karimi 2005:8, ex.9)

This sentence is grammatical if the matrix verb directly followed the subject as in (136):

(136)　　Man goftam　　　　[_CP_ ke　Kimea in　kâr ro　mi-gir-e].
　　　　　I　　say.PAST.1SG [_CP_ that Kimea this job ACC DUR-get-3SG]
　　　　　"I said that Kimea will get this job."

The sentence in (136) acts against the neutral word order of Persian which is the SOV since the matrix verb appears in the second position, which results in SVO word order, which always holds when there is an embedded clause in the sentence. Therefore, one might think that Persian aligns with German in being a V2 language.

There can be some diagnostic tests to determine the exact position of T. Firstly, for some scholars, modals are not generated in T and they project their own phrase of ModP. Secondly, the reason Karimi rejects the head-finality of T, using a sentence like (135) is only dependent on V to T movement which she herself proposes does not happen in Persian. Therefore, it would not matter for the sentence above where T is because the verb is not going to move to it in the end.

To sum up, the two phenomena discussed here to be further investigated are the position of T and the availability of V to T movement.

In the current work, I provided evidence for the verb movement to at least the little _v_. I also showed that the verb can undergo further movement to C, either optionally in the cases of high scope negation or obligatorily in cases of ellipsis. So, we now have a foundation for claiming variation in the extent of head movement, and this in turn can provide a new insight into the larger system which T is a part of. The variation in possible analyses uncovered in this thesis not only suggests a way forward, with possibly multiple analyses for these questions as well, but can explain the lack of consistency in existing work.

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Appendix A

Stimuli for Ellipsis Readings

This test includes some sentence sets. The readers' interpretation of the second sentence in the set is related to the first sentence in the set. The readers' interpretation is the base of my experiment. Each of these sentences might have one or two meanings for readers. Please read these sentences carefully and choose the interpretation that best matches yours from the provided options.

(137) a. Shahla fekr   mi-kon-e   pâyânnâm-ash ghabool   shod-e.
           Shahla thought DUR-do-3SG thesis-3SG.GEN acceptance become-3PERF
           "Shahla thinks her thesis has been accepted."

       b. Arman fekr   mikone   rad   shod-e.
           Arman thought DUR-do-3SG rejection become-3PERF
           "(Lit.) Arman thinks has been rejected."

   Your interpretation of the sentence (b) is:

       a. Arman thinks Shahla's thesis has been rejected.
       b. Arman thinks his own thesis has been rejected.
       c. Both of the above.
       d. If your answer is c, would you please specify which of the interpretations occurred to you first?

(138) a. Shahla seshanbe Hootan ro   did.
           Shahla Tuesday Hootan ACC see.PAST.3SG
           "Shahla saw Hootan on Tuesday."

       b. Arman ammâ   na-did.
           Arman however NEG-see.PAST.3SG
           "(Lit.) But, Arman didn't see."

   Your interpretation of the sentence (b) is:

       a. Arman didn't see Hootan on Tuesday.
       b. Arman didn't see Hootan at all.
       c. Both of the above.
       d. If your answer is c, would you please specify which of the interpretations occurred to you first?

(139)   Rostam mâshin-esh   ro   be Sohrab neshun dâd,   vali Ramin
         Rostam car-GEN.3SG ACC to Sohrab show   give.PAST.3SG, but Ramin
         na-dâd.
         NEG-give.PAST.3SG
         "Rostam showed his car to Sohrab. But, Ramin didn't.

   Your interpretation of the second sentence is:

      a.   Ramin didn't show Rostam's car to Sohrab.
      b.   Ramin didn't show his own car to Sohrab.
      c.   Both of the above.
      d.   If your answer is c, would you please specify which of the interpretations
            occurred to you first?

(140)   Rostam shalvar-hâ ro   otu mi-zan-e,   man ne-mi-zan-am.
         Rostam pant-PL   ACC iron DUR-hit-3SG, I   NEG-DUR-hit-1SG
         "Rostam irons the pants, I don't."

   Your interpretation of the second sentence is:

      a.   I don't iron the pants.
      b.   I don't iron anything.
      c.   Both of the above.
      d.   If your answer is c, would you please specify which of the interpretations
            occurred to you first?

(141)   For a party

         Amir doost-esh   ro   davat   kard   va Sahar ham kard.
         Amir friend-3SG.GEN ACC invitation do.PAST.3SG and Sahar also do.PAST.3SG

         "Amir invited his friend and Sahar did so, too."

   Your interpretation of the second sentence is:

      a.   Sahar invited Amir's friend.
      b.   Sahar invited her own friend.
      c.   Both of the above.
      d.   If your answer is c, would you please specify which of the interpretations
            occurred to you first?

(142)   For a party

         Amir doost-esh   ro   davat   kard   va Sahar ham davat
         Amir friend-3SG.GEN ACC invitation do.PAST.3SG and Sahar also invitation
         kard.
         do.PAST.3SG

"(Lit.) Amir invited his friend and Sahar also invited."

Your interpretation of the second sentence is:

    a.   Sahar invited Amir's friend.

    b.   Sahar invited her own friend.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(143)   Amir xod-esh   ro   tashvigh   kard.   Navid ham kard.
        Amir self-3SG.GEN ACC encouragement do.PAST.3SG. Navid also do.PAST.3SG

"(Lit.) Amir encouraged himself. Navid did so, too."

Your interpretation of the second sentence is:

    a.   Navid encouraged Amir.

    b.   Navid encouraged himslef.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(144)   Amir xod-esh   ro   tashvigh   kard.   Navid ham
        Amir self-3SG.GEN ACC encouragement do.PAST.3SG. Navid also
        tashvigh   kard.
        encouragement do.PAST.3SG

"(Lit.) Amir encouraged himself. Navid also encouraged."

Your interpretation of the second sentence is:

    a.   Navid encouraged Amir.

    b.   Navid encouraged himslef.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(145)   a.   Shahla mâdar-esh   ro   doost dâre.
            Shahla mother-3SG.GEN ACC love   have.3SG.PRES
            "Shahla loves her mother."

        b.   Arman ham hamintor.
            Arman also same
            "So does Arman."

Your interpretation of the sentence (b) is:

    a.   Arman loves Shahla's mother.

    b.   Arman loves his own mother.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(146)   a.   Shahla ketâb ro   xund.
               Shahla book ACC read.PAST.3SG
               "Shahla read the book."

    b.   Arman ham hamintor.
               Arman also same
               "So does Arman."

Your interpretation of the sentence (b) is:

    a.   Arman read the same book that Shahla did.

    b.   Arman read the book other than the one that Shala did.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(147)   a.   Shahla mâdar-esh   ro   doost dâre.
               Shahla mother-3SG.GEN ACC love have.3SG.PRES
               "Shahla loves her mother."

    b.   Arman ham doost dâre.
               Arman also love have.3SG.PRES
               "(Lit.) Arman also loves."

Your interpretation of the sentence (b) is:

    a.   Arman loves Shahla's mother.

    b.   Arman loves his own mother.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(148)   a.   Shahla ketâb ro   xund.
               Shahla book ACC read.PAST.3SG
               "Shahla read the book."

    b.   Arman ham xund.
                Arman also read.PAST.3SG
               "(Lit.) Arman also read."

Your interpretation of the sentence (b) is:

    a.   Arman read the same book that Shahla did.

    b.   Arman read the book other than the one that Shala did.

    c.   Both of the above.

    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(149)   a.   Shahla ketâb ro   xund.
               Shahla book ACC read.PAST.3SG
               "Shahla read the book."

       b.   Arman ammâ   na-xund.
               Arman however NEG-read.PAST.3SG
               "(Lit.) Arman however didn't read."

Your interpretation of the sentence (b) is:

    a.   Arman didn't read the book that Shahla did.
    b.   Arman didn't read the book other than the one that Shala did.
    c.   Both of the above.
    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(150)   a.   Shahla mâdar-esh   ro   boos-id.
               Shahla mother-3SG.GEN ACC kiss-3SG.PAST
               "Shahla loves her mother."

       b.   Arman ham boosid.
               Arman also kiss.3SG.PAST
               "(Lit.) Arman also kissed."

Your interpretation of the sentence (b) is:

    a.   Arman kissed Shahla's mother.
    b.   Arman kissed his own mother.
    c.   Both of the above.
    d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(151)   a.   Shahla mâdar-esh   ro   boos-id.
               Shahla mother-3SG.GEN ACC kiss-3SG.PAST
               "Shahla loves her mother."

       b.   Arman ammâ   zad.
               Arman however hit.3SG.PAST
               "(Lit.) Arman however hit."

Your interpretation of the sentence (b) is:

    a.   Arman hit Shahla's mother.
    b.   Arman hit his own mother.
    c.   Both of the above.

d. If your answer is c, would you please specify which of the interpretations occurred to you first?

(152) a. Shahla se tâ ketâb xarid.
Shahla three PART book buy-3SG.PAST
"Shahla bought three books."

b. Arman ammâ na-xarid.
Arman however NEG-buy.3SG.PAST
"(Lit.) Arman however didn't buy."

Your interpretation of the sentence (b) is:

a. Arman didn't buy the same three books that Shahla did.
b. Arman didn't buy other three books than Shahla did.
c. Both of the above.
d. If your answer is c, would you please specify which of the interpretations occurred to you first?

(153) a. Shahla se tâ ketâb xarid.
Shahla three PART book buy-3SG.PAST
"Shahla bought three books."

b. Arman ammâ xund.
Arman however read.3SG.PAST
"(Lit.) Arman however read."

Your interpretation of the sentence (b) is:

a. Arman read the same three books that Shahla bought.
b. Arman read three books other than the ones Shahla bought.
c. Both of the above.
d. If your answer is c, would you please specify which of the interpretations occurred to you first?

(154) a. Shahla masala ro sari hal kard.
Shahla problem ACC quickly solve do.PAST.3SG
"Shahla solved the problem quickly."

b. Arman ammâ na-kard.
Arman however NEG-do.3SG.PAST
"(Lit.) Arman however didn't."

Your interpretation of the sentence (b) is:

a. Arman didn't solve the problem at all.
b. Arman didn't solve the problem quickly.
c. Both of the above.

       d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

(155)   a.   Shahla aghlab sinemâ mi-re.
                 Shahla often   cinema DUR-go.3SG
                 "Shahla often goes to cinema."
        b.   Arman ammâ   ne-mi-re.
                 Arman however NEG-DUR-go.3SG
                 "(Lit.) Arman however doesn't go."

   Your interpretation of the sentence (b) is:
       a.   Arman doesn't go to cinema at all.
       b.   Arman doesn't go to cinema often.
       c.   Arman occasionally go to cinema.
       d.   All of the above.
       e.   If your answer is d, would you please specify which of the interpretations occurred to you first?

(156)   a.   Shahla fekr   mi-kone   pesar-esh ingilisi mi-xune.
                 Shahla thought SUBJ-do.3SG son-GEN .3SG   English SUBJ-study.3SG
                 "Shahla thinks her son studies English."
        b.   Arman fekr   mi-kone   farânse mi-xune.
                 Arman thought SUBJ-do.3SG French SUBJ-study.3SG
                 "Lit.) Arman thinks studies French."

   Your interpretation of the sentence (b) is:
       a.   Arman thinks his own son studies French.
       b.   Arman thinks Shahla's son studies French.
       c.   Both of the above.
       d.   If your answer is c, would you please specify which of the interpretations occurred to you first?

Appendix B

Stimuli for Negation Scope

B.1 Truth Value Judgement Task Stimuli

Each stimulus was videotaped, with one experimenter using small toys to act out the described action. Another experimenter voiced an observing puppet or doll, saying the given test sentence as a response to a question "Do you know what happened?". All recordings were entirely in Persian. The participants' task was to judge whether the puppet statement is true or false in the illustrated context.

Below is a detailed listing of the videos for each study, broken down by conditioning group.

B.2 Study One Materials

Each condition had 4 trials, yielding a total of 16 experimental trials built as 8 minimal pairs differing only in context (scope). Each participant saw one set of 8 experimental trials. One stimulus list used Conditions 1-2, the other list used Conditions 3-4. This was to avoid priming effects wherein seeing sentences with a mix of potential scopes may prime participants into considering a wider range of readings as true than they might otherwise do. Within each condition, two examples used simplex predicates, and two used complex predicates.

There were 4 fillers acting as a secondary test for scope rigidity. These 4 fillers used quantifiers in both subject and object positions, with two true on a surface scope reading, and two true on an inverse scope reading.

There were 2 additional fillers using a quantifier only in subject position with no nega-

tion, so the sentences were completely unambiguous. One was true in its given context, one was false. These are our exclusion controls.

In total, each participant saw 14 trials, presented in a pseudo-random order common to all participants.

B.2.1 Study 1, Practice Trials

There were three practice items, just to get people warmed up to the task. During the practice phase, participants received feedback from the researcher. Once the practice was completed, the rest of the trials proceeded without feedback.

1. Ali is in the kitchen preparing breakfast. He heats the oil and cracks two eggs into the pan.

   Props needed: Male, counter, frying pan, eggs

   (157)   Ali do tâ   toxm-e-morgh poxt.
           Ali two PART egg   cook.PAST.3SG
           'Ali cooked two eggs.'

   -Very simple, expect true.

2. Arian goes to the market, buys one drink and one candy.

   Props needed: Shopkeeper, boy, counter, drink, candy

   (158)   Arian do tâ   âb-nabât xarid.
           Arian two PART candy   buy.PAST.3SG
           'Arian bought two candies.'

   -Also simple, expect false.

3. There are three candy bars on the table. Ali comes in, takes one and eats it. He takes the second one, picks it up, but says he is too full and decides not to eat it, putting it back down.
   Props needed: Male, counter, candies

   (159)   Javad do tâ   pâstil xord.
           Javad two PART candy eat.PAST.3SG
           'Javad ate two candies.'

   -This needs to come out as false. If people hesitate because he thought about it, or picked the second one up, then we need to make sure they are clear that false is the intended answer.

B.2.2 Study 1, Condition 1: Neg>Q, Every

1. There are some creams on the table. Maryam rubs some of them on her hands and face, but not all.
   Props needed: Female, counter, 3 bottles

   (160)   Maryam har   kerem-i   ro   na-mâlid.
             Maryam every cream-EZ ACC NEG-rub.PAST.3SG

             "Maryam didn't rub every cream."

2. Arman has some fruit in his hands. He eats some of them.
   Props needed: Male, 3 apples

   (161)   Arman har   mive-i   ro   na-xord.
             Arman every fruit-EZ ACC NEG-eat.PAST.3SG

             "Arman didn't eat every fruit."

3. In a garden with flowers, Meysam goes here and there and smells some of them.
   Props needed: Male, 3 flowers

   (162)   Meysam har   gol-i   ro   boo   na-kard.
             Meysam every flower-EZ ACC smell NEG-do.PAST.3SG

             "Meysam didn't smell every flower."

4. It is Shabnam's birthday. She is having a party. There are some juice cartons for the guests. Shabnam opens some, but not all of them.
   Props needed: Female, 3 cartons

   (163)   Shabnam har   kârton-i   ro   bâz   na-kard.
             Shabnam evey carton-EZ ACC open NEG-do.PAST.3SG

             "Shabnam didn't open every carton."

B.2.3 Study 1, Condition 2: Neg>Q, 2

1. Shabnam has two letters in her hand. She reads one of them.
   Props needed: Female, 2 letters, table

   (164)   Shabnam do   tâ   nâme na-xund.
             Shabnam two PART letter NEG-read.PAST.3SG

             "Shabnam didn't read two letters."

2. There are two dirty plates on the counter. Mommy comes and washes one of them.
   Props needed: Female,2 plates

(165)   Mâmân do tâ   boshghâb na-shost.
            Mom   two PART plate   NEG-wash.PAST.3SG
            "Mom didn't wash two plates."

3. There are two letters on the table. Behnam reads them, but tears one.
Props needed: Male, 2 letters

(166)   Behnam do tâ   nâme pâre na-kard.
            Behnam two PART letter torn NEG-do.PAST.3SG
            "Behnam didn't tear up two letters."

4. There are two cups on the table. Behnam mixes the mixture inside one of
them.
Props needed: Male, 2 cups, spoon

(167)   Farzad do tâ   ghahve ham   na-zad.
            Farzad two PART coffee together NEG-hit.PAST.3SG
            "Farzad didn't stir two coffees."

B.2.4   Study 1, Condition 3: Q>Neg, Every

1. There are three creams on the table. Maryam rubs none of them on her
hands and face.
Props needed: Female, counter, 3 bottles

(168)   Maryam har   kerem-i ro   na-malid.
            Maryam every cream-EZ ACC NEG-rub.PAST.3SG
            "Maryam didn't rub every cream."

2. Arman has 3 apples in his hands. He eats none of them.
Props needed: Male, 3 apples

(169)   Arman har   mive-i ro   na-xord.
            Arman every fruit-EZ ACC NEG-eat.PAST.3SG
            "Arman didn't eat every fruit."

3. In a garden with flowers, Meysam goes here and there, jumps, plays and
leaves the garden without smelling any flower.
Props needed: Male, 3 flowers

(170)   Meysam har   gol-i   ro boo na-kard.
            Meysam every flower-EZ ACC smell NEG-do.PAST.3SG
            "Meysam didn't smell every flower."

4. It is Shabnam's birthday party and she has bought some juice for the guests.
She puts the cartons on the table without opening them.
Props needed: Female, 3 juice cartons

(171)   Shabnam har kârton-i ro bâz na-kard.
                 Shabnam evey catron-EZ ACC open NEG-do.PAST.3SG
                 "Shabnam didn't open every carton."

B.2.5   Study 1, Condition 4: Q>Neg, 2

1. Shabnam has four letters in her hand. She reads two of them.
Props needed: Female, 4 letters, table

   (172)   Shabnam do tâ   name na-xund.
                Shabnam two PART letter NEG-read.PAST.3SG
                "Shabnam didn't read two letters."

2. There are four dirty plates on the counter. Mommy comes and washes two of them.
Props needed: Female, plates, table

   (173)   Mâmân do tâ   boshghâb na-shost.
                Mom   two PART plate   NEG-wash.PAST.3SG
                "Mom didn't wash two plates."

3. There are four letters on the desk. Behnam tears up the two of them.
Props needed: Male, letters, table

   (174)   Behnam do tâ   nâme pâre na-kard.
                Behnam two PART letter torn NEG-do.PAST.3SG
                "Behnam didn't tear up two letters."

4. There are four cups on the table. Farzad stirs two of them
Props needed: Male, cups, spoon

   (175)   Farzad do tâ   ghahve ham   na-zad.
                Farzad two PART coffee together NEG-hit.PAST.3SG
                "Farzad didn't stir two coffees."

B.2.6   Study 1, Fillers for Scope Rigidity

1. There is a party with some boys and girls. Each boy kisses a different girl.
Props: boys, girls

   (176)   Har pesar-i ye doxtar-i ro   boosid.
                every boy-EZ one girl-EZ ACC kiss.PAST.3SG
                "Every boy kissed some girl."

       -Expected true on surface reading

2. There is a party with different kinds of drinks. One of the boys tastes each and every one of the drinks.

   Props needed: Males, Females, drinks

   (177)   Ye pesar-i har   nooshidani-i ro   test kard.
            a   boy-EZ evey drink-EZ   ACC test do.PAST.3SG
            "Some boy tasted every drink."

   -Expected true on surface reading

3. Some dogs are at a farm together with their male owners. The dogs start licking two specific boys, but each dog only licks one boy

   Props: 4 Males, 4 dogs

   (178)   Har   sag-i   do tâ   pesar lisid.
            every dog-EZ two PART boy   lick.PAST.3SG
            "Every dog licked two boys."

   -Expected true on inverse reading

4. There are three girls, three boxes, and one hat in each box. Each of the girls opens a different box and sees a different hat.

   Props: 3 Females, 3 boxes, 3 hats

   (179)   Ye doxta-i har   kolâh-i ro   did.
            a   girl-EZ every hat-EZ ACC see.PAST.3SG
            "Some girl saw every hat."

   -expected true on inverse reading

B.2.7   Study 1, Unambiguous Fillers

1. Ali is playing with a group of boys. They start fighting. All of the boys beat Ali badly.
   Props: Males

   (180)   Hame-ye pesar-â Ali ro   zad-and.
            all-EZ   boy-PL Ali ACC hit-3PL.PAST
            "All the boys beat Ali."

   -Expected true

2. Ali is playing with a group of boys. A cat approaches them. One of the boys start petting him.
   Props: Males, cat

   (181)   Hich kudum az   pesar-â gorba ro   navâzesh
            none who   from boy-PL cat   ACC cuddle
            na-kard-and.
            NEG-do-3PL.PAST
            "None of the boys petted the cat."

   -Expected false

B.3   Study Two Materials

Each condition had 4 trials, yielding a total of 16 experimental trials built as 8 minimal pairs differing only by context (scope). Each participant saw one set of 8 experimental trials. One stimulus list used Conditions 1-2, the other list used Conditions 3-4. This was to avoid priming effects wherein seeing sentences with a mix of potential scopes may prime participants into considering a wider range of readings as true than they might otherwise do. Within each condition, two examples used simplex predicates, and two used complex predicates.

There were 6 fillers. We repeated the same scope rigidity trials from Study One. There were 2 additional fillers using a quantifier only in object position with no negation, so the sentences should be completely unambiguous. One was true in its given context, one was false. These are our exclusion controls.

In total, each participant saw 14 trials, presented in a pseudo-random order common to all participants.

B.3.1   Practice Trials - Study Two

As in Study One

B.3.2   Study 2, Condition 1: Neg>Q, Every

1. At breakfast table. Some of the kids drink coffee, some don't.
   Props needed: 3-4 boys, many cups, coffee

   (182)   Har   pesar-i ghahve na-xord.
           every boy-EZ coffee   NEG-eat.3SG.PAST
           "Every boy didn't drink coffee."

2. In a park with some dogs and a fence. Some of the dogs jump over the fence
   but some don't.
   Props needed: Dogs, Fence, Tree

   (183)   Har   sag-i   az   roo hesâr na-parid.
           every dog-EZ from over fence NEG-jump.3SG.PAST
           "Every dog didn't jump over the fence."

3. Some kids have gathered around another kid who has a toy cellphone. Some
   of them borrow the phone and make fake phone calls to their moms.
   Props needed: Female, Cellphone (use the trays)

   (184)   Har   bache-i be mâmân-esh   zang na-zad.
           every kid-EZ to mom-Gen.3SG ring NEG-hit.3SG.PAST
           "Every child didn't call their mom."

4. There are some girls in the house having a private math session. The teacher
   asks them a question, but only some can answer.
   Props: Female

   (185)   Har   doxtar-i soâl   ro javâb na-dâd.
           every girl-EZ question ACC answer NEG-give.PAST.3SG
           "Every girl didn't answer the question."

B.3.3   Study 2, Condition 2: Neg>Q, 2

1. It is the new year and the family is cleaning the carpets. The two boys of
   the family are asked to help, but just one of them starts cleaning the carpet
   while the other one watches.
   Props needed: Mother, 2 males, 2 carpets, 2 brushes

   (186)   Do tâ   pesar farsh o   na-sâb-id-and.
           two PART boy   carpet ACC NEG-rub-3SG.PAST-PL
           "Two boys didn't clean the carpet."

2. Two school kids. One of them does his homework, the other one doesn't.
   Props needed: 2 kids, Female (as their mom), papers

(187)   Do tâ   bache mashgh-eshoon   o
               two PART kid   homework-Gen.3PL ACC
               na-nevesht-and.
               NEG-write.3SG.PAST-PL
               "Two kids didn't do their homework."

3. Two men are walking outside and they get hot. One of them drinks from his juice box very quickly.
Props needed: 2 male

(188)   Do tâ   mard âb   mive sar   na-keshid-and.
               two PART man   water fruit   head NEG-pull.PAST-3PL
               "Two men didn't drink juice."

4. Two kids in the garden. One of them buries his dead goldfish. The other one watches him crying, holding his dead fish in his hands!

Props: Kids, fish

(189)   Do ta   bache mâhi morde châl na-kard-and.
               two PART kid   fish dead   hole NEG-do.PAST.3SG-PL
               "Two kids didn't bury dead fish."

B.3.4   Study 2, Condition 3: Q>Neg, Every

1. At breakfast tâble. None of the kids drink coffee.
Props needed: Female and male characters

(190)   Har   pesar-i ghahve na-xord.
               every boy-EZ coffee   NEG-eat.3SG.PAST
               "Every boy didn't drink coffee."

2. In a park with some dogs and a fence. The dogs look at the tree, but none of them jump over the fence.
Props needed: dogs, Fence, tree

(191)   Har   sag-i   az   roo hesâr na-parid.
               every dog-EZ from over fence NEG-jump.3SG.PAST
               "Every dog didn't jump over the fence."

3. Some kids have gathered around another kid who has a toy cellphone. Kids keep playing with their own toys.
Props needed: Female, Cellphone (use tray)

(192)   Har   bache-i be mâmân-esh   zang na-zad.
              every kid-EZ to mom-Gen.3SG ring NEG-hit.3SG.PAST
              "Every child didn't call their mom."

4. There are some girls in the house having a private math session. The teacher asks them a question, but none of them can answer.
Props: Female

(193)   Har   doxtar-i soâl   ro javâb na-dâd.
              every girl-EZ question ACC answer NEG-give.PAST.3SG
              "Every girl didn't answer the question."

B.3.5 Study 2, Condition 4: Q>Neg, 2

1. It is the new year and the family is cleaning the carpets. The four boys of the family are asked to help, but just two of them start cleaning the carpet while the other two play around.
Props needed: Mother, 4 males, carpets, 2 brushes

(194)   Do tâ   pesar farsh o   na-sâb-id-and.
              two PART boy   carpet ACC NEG-rub-3SG.PAST-PL
              "Two boys didn't clean the carpet."

2. Four school kids. Two of them do their homework, the other two don't.

Props needed: 4 kids, Female (as their mom), papers

(195)   Do tâ   bache mashgh-eshoon   o
              two PART kid   homework-Gen.3PL ACC
              na-nevesht-and.
              NEG-write.3SG.PAST-PL
              "Two kids didn't do their homework."

3. Four men are walking outside and they get hot. Two of them drinks from their juice boxex very quickly.
Props needed: 2 male

(196)   Do tâ   mard âb   mive sar na-keshid-and.
              two PART man water fruit head NEG-pull.PAST-3PL
              "Two men didn't drink juice."

4. Four kids in the garden. Two of them bury their dead goldfish. The other two watch them holding their dead fish in their hand!

Props: Kids, fish

(197) Do tâ bache mâhi morde châl na-kard-and.
two PART kid fish dead hole NEG-do.PAST.3SG-PL
"Two kids didn't bury dead fish."

B.3.6 Study 2, Fillers for Scope Rigidity

As in Study One

B.3.7 Study 2, Unambiguous Fillers

1. Ali is playing with a group of boys. They start fighting. Ali fights back and beats them all.
   Props: some kids

   (198) Ali hame-ye pesar-â ro zad.
   Ali all-EZ boy-PL ACC hit.3SG.PAST
   "Ali beat all the boys."

   -Expect true

2. Mitra is in the kitchen. She eats just one of two apples.
   Props: Female, 2 apples

   (199) Mitra do tâ sib xord.
   Mitra two PART apple eat.3SG.PAST
   "Mitra ate two apples."

   -Expect false

B.4 Debriefing Questions

At the end of each study, the participants were given a debriefing form which asked the following general questions about the study. All the questions were translated to Persian and participants were given the choice to either answer in English or Persian.

(200) What do you think the study was about?

(201) Did you notice anything about the stories and the puppet's final statement?

(202) Did you ever hesitate between true and false?

(203)   Were some of the trials easier than others?

(204)   Could any of the puppet's statements have been true and false at the same time?

(205)   When the puppet was wrong, what kinds of things did it get wrong?