When morphology does better than Syntax: The Ezafe construction in Persian[1]

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1. Introduction

A great number of West Iranian languages - Persian, different Kurdish dialects, Hawramani, Zazaki…- share several aspects in their noun phrase structure:

1. The surface word order pattern is strongly head initial. Adjectival modifiers, the possessor NP, prepositional phrases and the relative clause follow the head noun in a strict order. The head noun may be preceded only by some determiners[2] – if present - and in very few cases by an adjective.
2. Possession is expressed by means of a bare NP (or DP)[3], which follows adjectival modifiers, if any.
3. All elements occurring between the head noun and the possessor NP are linked to the head noun and to one another by the Ezafe, which is realized as an unstressed vowel and is an enclitic.
4. Prepositional complements appear outside the Ezafe domain and follow the possessor NP.
5. Contrary to demonstratives and to numeral quantifiers, which are full-fledged words, determiners that express definiteness or indefiniteness are generally realized as suffixes[4].

The word order pattern is identical to that of the Celtic noun phrase. However, unlike Celtic languages, the word order in the noun phrase does not parallel the one in the clause structure. Western Iranian languages being generally considered as verb final (SOV), the reversed order within the noun phrase has provided motivation for the application of the head movement analysis to the nominal domain in some recent studies (Kahnemuipour 2000).

The expression of possession by means of an NP in close construction with the head noun, and, to some extent, the Ezafe construction is reminiscent of the Semitic construct state construction. Although the possessor NP is not constrained to be strictly adjacent to the head noun, as it is the case in construct state nominals, the constituents occurring between the head noun and the possessor NP have been nevertheless assumed to be subject to some significant constraints, leading to the analysis of the Ezafe domain as a domain of bare heads (X°s) adjunction (Ghomeshi 1997). This is reminiscent of the word-like properties of construct state nominals (Borer 1988).

These peculiarities explain why the Ezafe construction has been a particular focus of interest in different studies on Persian and on Kurdish[5]. Actually this construction raises several issues in syntax and morphology. The first and the most explored issue in previous studies is the internal structure of the NP. As mentioned before, among the different

[1] (Acknowledgments)
[2] The term determiner designates here demonstratives, cardinals and quantifiers, without distinction.
[3] Some Iranian languages (e.g. Kurmancî dialects) have maintained an oblique case for nouns. In this case the possessor NP appears in oblique case.
[4] The term ‘suffix’ is used here as a generic label for non autonomous elements.
[5] See, among others, Ghomeshi (1997), Hincha (1961), Kahnemuipour (2000), Samiian (1983) and (1994), for Persian, Schroeder (1999) and (2002) , and Strunk (2003), for Kurmancî Kurdish.

constituents of an NP, only some may occur within the Ezafe domain. Moreover, Samiian (1983) mentions significant restrictions on the expansion of the constituents occurring within the Ezafe domain in Persian. Roughly, adjectives followed by a complement are excluded and prepositions may take only nominal complements, while none of these restrictions hold outside the Ezafe domain. According to Samiian, the only constituent that can be fully and recursively expanded is the possessor NP. Given these facts, one of the basic issues to be addressed is the link between the internal structure of the NP and the restrictions on the Ezafe construction. More precisely, could these restrictions receive a syntactic account?

The second issue, closely linked to the first one is the status of the Ezafe vowel itself. Ezafe has been generally assumed by Persian grammars to be semantically vacuous. Moreover it may be iterated within the NP, occurring as many times as there are modifiers. But, at least in Persian, it is not the expression of a concord between the head noun and its dependants. This is the reason why Lazard (1966) uses the term *joncteur* 'linker' to refer to Ezafe. On the basis of these observations, Ghomeshi (1997) proposes viewing Ezafe as a 'linker' inserted in PF to indicate phrasing, and not as a morpheme (or functional head). Samiian (1994), Larson and Yamakido (2005) and Kahnemuipour (2000) adopt the opposite view: the former treat Ezafe as a Case marker and the latter considers it as a marker associated with the syntactic movement of the noun and realizing a strong feature, in the minimalist sense.

A third issue, which has not been addressed in previous studies, is the way the cross-linguistic properties of Ezafe may be captured. Though the Ezafe construction is a shared feature of several Western Iranian languages, it does not display the same properties and is not subject to identical constraints from one language to another. In Persian, for instance, Ezafe may never link a relative clause to the head noun, while in all groups of Kurdish dialects, restrictive relative clauses are generally introduced by Ezafe. In Persian and in Central and Southern Kurdish dialects, the Ezafe vowel is never attached to the possessor NP, which closes the Ezafe domain, occurring after all adjectival and some prepositional modifiers. In Northern (Kurmancî) Kurdish, by contrast, the possessor NP is not necessarily the last constituent of the Ezafe domain and consequently may take Ezafe. Given the peculiarities of the Ezafe construction in each language, one important issue to be addressed is what view of Ezafe would be the most appropriate for a unified account in different Iranian languages. Among all Western Iranian languages where it is available, the Ezafe construction has been thoroughly studied in Persian within the generative framework (Samiian 1983 and 1994, Ghomeshi 1997, Kahnemuipour 2000). There are also a few studies on the Ezafe construction in Kurmancî and a recent study on Hawramani. Though, to my knowledge, no cross-linguistic explanations have been proposed up to now.

Although the main concern of this paper is to outline a new analysis of the Ezafe construction in Persian, cross-linguistic data from different Western Iranian languages will nevertheless be taken into account, in order to highlight some crucial aspects of the Ezafe construction. The basic underlying assumption of this study is that Ezafe has the same status in all languages where it is available and that the analysis outlined here may be extended, with some slight modifications, to other Western Iranian languages.

This paper is organized as follows. The following section includes a brief presentation of the Ezafe construction in different Iranian languages. The third section is devoted to a critical survey of two major studies on Ezafe in Persian, Samiian (1983) and Ghomeshi (1997). Samiian (1983) is the most detailed contribution on the topic: almost all empirical generalizations stated in this work, particularly the restrictions on the expansion of the constituents occurring within the Ezafe domain, have been taken up in subsequent studies. Ghomeshi's analysis, built on Samiian's data, has some important theoretical consequences for the structure of noun phrases in Persian, since the peculiarities of the Ezafe construction are assumed to follow from the inability of Persian nouns to give rise to maximal projection.

It will be first shown, on the basis of numerous attested examples, that not all of the restrictions mentioned by Samiian (1983) stand up to close inspection. Consequently, it will be argued that Ghomeshi's analysis, which is built essentially on Samiian's data, faces serious empirical and conceptual problems. At the end of the section, I will also present some clear evidence agnaist viewing Ezafe as a case marker, as proposed by Samiian (????), and Larson and Yamakido (2005) and Samiian (1994).

In the fourth section, on the basis of the diagnostic criteria proposed by Zwicky and Pullum (1983) and Miller (1992), it will be argued that Ezafe is best regarded as a phrasal affix whose function is to indicate dependency relations between the head noun, its modifiers and the possessor NP. The affixal analysis is also applied to definite and indefinite articles and to personal enclitics occurring within the NP. A lexicalist approach is adopted, in line with Miller (1992), according to which affixal elements must be handled morphologically and do not correspond to nodes in the syntactic representation. It will be argued that different restrictions on the Ezafe construction follow from Ezafe's morphological status and its interplay with other phrasal affixes occurring within the NP.

The internal structure of the Persian NP is outlined in the fifth section. A formal treatment, couched within the Head-Driven Phrase Structure (HPSG) framework, and appealing to Edge Features worked out by Miller (1992) and Tseng (2003), is proposed in the last section.

2. The Persian NP and the Ezafe construction: a general overview

Western Iranian languages display two different patterns with regard to word order within the NP, head final or head initial. The second pattern generally involves the Ezafe construction. Modifiers and the possessor NP are linked to one another and to the head noun by Ezafe, which is realized as an unstressed vowel and attaches to the left. In Persian, Ezafe is realized [-e] after all consonants and after [i], and [-ye], after other vowels:

(1) a. lebâs-e arusi
dress-EZ wedding
'wedding dress'

b. lebâs-e sefid
dress-EZ white
'white dress'

c. lebâs-e maryam
dress-EZ Maryam
'Maryam's dress'

d. lebâs-e bi âstin
dress-EZ without sleeve
'(a/the) dress without sleeves'

d. lebâs-e arusi-e sefid-e bi âstin-e maryam
dress-EZ wedding-EZ white-EZ without sleeve-EZ Maryam
'Maryam's white wedding dress without sleeves'

As shown by these examples, the Ezafe vowel is attached to the head noun and to different kind of modifiers that follow it: attributive nouns, adjectival and prepositional phrases. Furthermore, it may appear more than once in the same noun phrase. But not all of the dependants of a noun may be introduced by Ezafe. Prepositional arguments of the head noun are not introduced by Ezafe. Instead, they are merely juxtaposed to it. In case the noun is followed by either modifiers or a possessor NP, prepositional arguments are placed outside the Ezafe domain and follow both the modifiers and the possessor NP:

(2) a. bahs bâ omid
discussion with Omid
'discussion with Omid'

b. bahs-e diruz-e maryam bâ omid
discussion-EZ yesterday-EZ Maryam with Omid
'Maryam's yesterday's discussion with Omid'

The same goes for relative clauses, which are never attached to the head noun by Ezafe:

(3) mard-i ke vâred šod
man-RESTR that entered become.PAS
'the man who entered'

Contrary to prepositional arguments, which may scramble (ex. (4)) and relatives clauses, even restrictive ones, which can be extraposed (ex. (5)), the Ezafe domain is highly cohering and may never be interrupted by a constituent which does not take Ezafe (ex. (6)). Furthermore, no extraction is possible out of the Ezafe domain.

(4) bâ Omid mi-dân-am ke bâhs-e maryam natije-i na-dâd
with Omid TMA-know.PRES-1SG that discussion-EZ Maryam result-INDEF NEG-give.PAS
'I know that Maryam's discussion with Omid gave no result'

(5) ân ketâb-i râ xarid-am ke dar vitrin bud
that book-RESTR RÂ buy.PAS-1.SG that in window be.PAS
'I bought the book that was in the window'

(6) * bahs-e diruz bâ omid-e maryam / * bahs-e diruz-e bâ omid-e maryam
discussion-EZ yesterday with Omid-EZ Maryam

Demonstratives, quantifiers and numerals precede the head noun and do not take Ezafe. The same goes for superlative adjectives, which occur always prenominally and never take Ezafe:

(7) a. in (*-e) ketâb
this(*-EZ) book
'this book'

b. har (*-e) ketâb
each (-EZ) book
'each book'

c. yek (*-e) ketâb
one (*-EZ) book
'a/one book'

d. čand (*-e) ketâb
some (*-EZ) book
'some books'

e. behtarin (-*e) ketâb
best (-ez) book
'the best book'

A selected class of attributive adjectives may also precede the head noun, but this ordering occurs generally in poetry or in case of lexicalization:

(8) a. zibâ (*-ye) doxtar
beautiful (*-ez) girl
'beautiful girl'

b. pâk (*-e) del
clean (*-e) hearth
'honest, sincer'

The Ezafe construction is not restricted to head nouns. First, it occurs with mixed categories, such as infinitives, which may regularly head nominal projections in Persian. In this case, Ezafe introduces the 'subject' or the 'direct object' of the infinitive, but not both of them simultaneously:

(9) a. davidan-e maryam
run.INF-EZ Maryam
'Maryam's running'

b. xândan-e in ketâb
read.INF-EZ this book
'the reading of this book'

c. * xândan-e ketâb-e maryam / *xândan-e maryam-e ketâb
read.inf-EZ book-EZ Maryam

Within an adjectival phrase, the Ezafe vowel may link the adjectival head to its unique complement, only if the latter is not a prepositional phrase:

(10) a. negarân-e maryam
worry-EZ Maryam
'worried about maryam'

b. bizâr az zendegi
disgusted of life
'disgusted of life'

c. * bizâr-e az zendegi
disgusted-EZ of life

In some cases, the Ezafe construction may alternate with a prepositional phrase:

(11) xaste az kâr / xaste-ye kar
tired of work / tired-EZ work
'tired of work'

Prepositional heads have two different behaviors with regard to Ezafe according to the class they belong to. Samiian (1994) establishes three classes of prepositions:

a. Prepositions that must not take Ezafe (P1 prepositions): *dar* 'in', *tâ* 'to, until', *be* 'to', *bi* 'without'…
b. Prepositions that obligatorily take Ezafe (P2 prepositions): *zir* 'under', *bedun* 'without', *pošt* 'behind'…
c. Prepositions that can optionally take Ezafe (P3 prepositions): *tu* 'inside', *ru* 'on', *barâ* 'for'…

The following data exemplifies each class:

(12) a. be miz
to table
'to (the) table'

b. zir-e miz
under-EZ table
'under (the) table'

c. ru-ye miz / ru miz
on-EZ table / on table
'on (the) table'

Contrary to P1s, which are real prepositions, P2s and P3s are nominal prepositions and display a mixed behavior. They may head real nominal phrases as well as oblique phrases:

(13) a. ru-ye miz râ šost
on-EZ table RÂ wash.PAS
' She/he washed the surface of the table'

b. maryam ru-ye miz ketâb gozâšt
Marya on-EZ table book put.PAS
'Maryam put a/the book(s) on the table'

To sum up, in Persian Ezafe occurs inside NPs, APs and some PPs and links the head to its modifiers or to its unique complement.

3. A critical survey of some previous studies

Samiian (1983) is the first detailed study on Ezafe in Persian within a modern syntactic framework, namely X-bar theory. The empirical facts mentioned by Samiian have been taken up in subsequent works (Ghomeshi 1997, Kahnemuipoor 2000), although they have been accounted for in a radically different way. In this section, I will first consider different restrictions on the Ezafe construction pointed out by Samiian (1983). I will then give a detailed account of Ghomeshi (1997), because of its importance for the analysis that will be outlined in this paper.

3.1. Some restrictions on the Ezafe construction: Samiian (1983)

Samiian (1983) points out two major types of restrictions on the Ezafe construction: the constituents occurring within the Ezafe domain are strictly ordered and constrained with regard to their distribution.

3.1.1. According to Samiian, different elements linked by the Ezafe to the head noun occur in a fixed order:

(14) ketâb-e târix-e sabz-e bi arzeš-e maryam[6]
book-EZ history-EZ green-EZ without value-EZ Maryam
'Maryam's green history book without any value'

The head noun is followed by an attributive noun, an adjective modifier, a prepositional modifier and a possessor NP:

(15) Head Noun – Attributive noun – Adjective modifier – Prepositional Modifier – Possessor NP

Although Samiian (1983) considers this order to be a strict one, it must be noted that the only real constraint concerns the placement of the possessor NP, which must occur in the final position within the Ezafe domain, any other position being excluded for the possessor. Within this domain, other elements linked by Ezafe are by preference ordered as in (15) above, but they may also be ordered differently. The following example where the prepositional modifier precedes the adjective modifier is well-formed:

(16) ketâb-e târix-e bi arzeš-e sabz-e maryam
book-EZ history-EZ without value-EZ green-EZ Maryam
'Maryam's green history book without any value'

3.1.2. Samiian notes also some restrictions on the expansion of phrasal complements and modifiers within the Ezafe domain: "The attributive noun phrase and the adjective phrase have to be head-final and the prepositional phrase of time and location cannot carry a sentential complement" (p. 40). According to Samiian, the only element that can be freely and recursively expanded is the Possessor NP.

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[6] The example given by Samiian (1983) is :
otâq-e kučik-e zir-e širvuni-e ali [Samiian, 1983: 39]
room-EZ small-EZ under-EZ roof-EZ Ali
'Ali's small room under the roof'
It has been replaced by the example above in order to have a NP including all the range of different modifiers.

- Restrictions on the attributive noun

On the basis of the contrast between the following examples, Samiian concludes that attributive noun phrases surface only as bare nouns :

(17) a. kif-**e** čarm
bag-EZ leather
'leather bag'

b. * kif-**e** in čarm
bag-EZ DEM leather
(putatively) 'a bag of this leather'

[Samiian, 1983: 46]

- Restrictions on the adjectival modifier

According to Samiian, adjectival modifiers as well cannot take nominal, prepositional or sentential complements when occurring within the Ezafe construction[7]. These restrictions are exemplified by (18b), (19b) and (20b) respectively:

(18) a. mard-e negarân-i vâred šod
man-EZ worried-INDEF enter become.PAS
'A worried man entered'

[Samiian, 1983: 42]

b. * mard-e negarân-e bačče-hâ-yaš-i vâred šod
man-EZ worried-EZ child-PL-PAF.3.SG-INDEF entered become.PAS

(19) a. mardom-e xašmgin-e tehrân bepâ xâstand
people-EZ angry-EZ Tehran stand.PAS
'The angry people of Tehran rose up'

[Samiian, 1983: 42]

b. * mardom-e xašmgin az ertejâ-ye tehrân bepâ xâstand[8]
people-EZ angry at reactionaires-EZ Tehran stand-PAS
'The people of Tehran angry at the reactionary forces rose up'

(20) a. mardom-e xoshâl-e irân jašn gereft-and
people-EZ happy-EZ Iran feast take.PAS-3.PL
'The happy people of Iran celebrated'

[Samiian, 1983: 42]

b. * mardom-e xoshâl ke šâh kešvar râ tark kard-e irân jašn gereft-and
people-EZ happy that Shah country left do-PAS-EZ Iran feast take.PAS-3.PL

The same adjectives however may take a nominal, prepositional or sentential complement when they occur outside the Ezafe domain, in apposition for instance, as illustrated by (21).

(21) a. mard-i, negarân-e bačče-hâ-yaš, vâred šod
homme-INDEF worried-EZ child-PL-PAF.3.SG entered become.PAS
'A man, worried about his children, entered'

[Samiian, 1983: 42]

b. mardom-e Tehran, xašmgin az erteja', bepâ xâstand
people-EZ Tehran, angry at reactionaries, stand-PAS
'The people of Tehran, angry at the reactionary forces, rose up'

c. mardom-e iran, xoshâl ke šâh kešvar râ tark kard, jašn gereft-and
people-EZ Iran, happy that Shah country left.PAS feast take.PAS-3.PL
'The people of Iran, happy that Shah left the country, celebrated'

- Restrictions on prepositional phrases

As for prepositions, relying on the following data, Samiian claims that they may appear with a nominal complement within the Ezafe domain, but that sentential complements are excluded :

[7] I do not agree with Samiian on this point. As we will see further, adjectives followed by a complement may be linked to the head noun by Ezafe.

[8] Contrary to Samiian, I believe this example to be well formed. For a detailed discussion of different syntactic possibilities for the elements occurring within the Ezafe domain see the following section.

(22) a. âftâb-**e** ba'd az bârun qašang-e [Samiian, 1983]
sun-EZ after from rain beautiful-COP.3.SG
'The sun after the rain is beautiful'

b. * âftâb-**e** ba'd az in ke bârun biâd qašang-e
sun-EZ after from this that rain come.PRES beautiful-COP.3.SG

c. âftâb, ba'd az in ke bârun biâd, qašang-e
sun, after from this that rain come.PRES, beautiful-COP.3.SG
'The sun, after it has rained, is beautiful'

Despite all these restrictions, Samiian considers nevertheless that different constituents occurring within the Ezafe domain are maximal projections and proposes the following structure for Persian NPs:

(23) $_{N'}$ [N NP AP PP NP]

An insertion rule inserts then the Ezafe vowel and a filter eliminates all ill-formed structures.

3.2. Ghomeshi (1997): the Ezafe domain as a X°-adjoined structure

Relying to a large extent on Samiian's data, Ghomeshi (1997) takes an important theoretical departure in her account of the Ezafe construction and the internal structure of Persian NPs. Two major assumptions on possible syntactic configurations underlie her analysis:

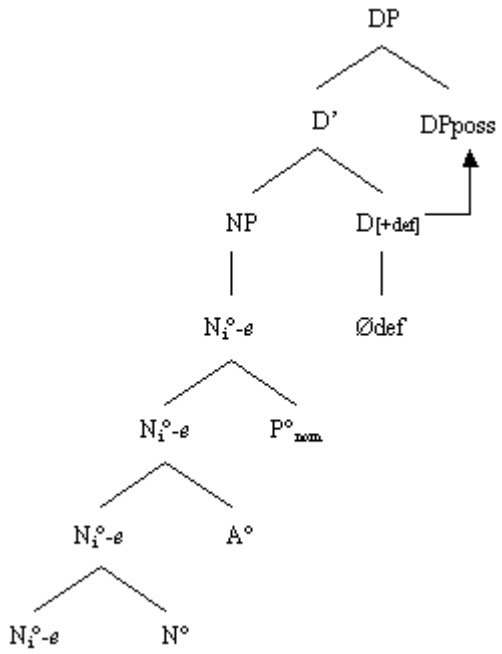
- Heads may adjoin to one another without projecting. Some X° categories are inherently non-projecting in syntax.
- The fact that a constituent is phrasal or not depends not only on whether the head projects, but on whether that head itself is selected by a projecting element. In other words, while certain X° categories may be inherently non projecting in syntax, they may still appear as XPs, provided they are selected by a projecting head.

3.2.1. On the basis of these assumptions, Ghomeshi puts forward three significant hypotheses:

1. Persian nouns are inherently non-projecting. This means that they never appear with filled specifier and complement positions and that an NP node cannot dominate any phrasal material.
2. In spite of the fact that they are non-projecting, Persian nouns may still appear as NPs, provided they are selected by a projecting head, a Determiner (D°), for instance.
3. Ezafe vowel never attaches to a phrasal constituent. This implies that the Ezafe domain is the domain of X°s, within a constituent with [+N, -V] features (i.e. nouns and adjectives). The elements occurring within the Ezafe domain are just bare heads, be they nouns, adjectives or prepositions.

The internal structure for Persian NPs which emerges from these assumptions is the one given in (24) below:

(24) The Persian NP (Ghomeshi 1997) :



The Ezafe Insertion rule, stated in (25) and operating in PF, inserts the Ezafe vowel when necessary:

(25) Ezafe Insertion Rule [Ghomeshi, 1997: 91]
Insert the vowel *–e* on a lexical X° head that bears the feature [+N] when it is followed by phonetically realized, non-affixal material within the same extended projection.

One important point in (24) is that the possessor NP (or DP) is not dominated by NP and is instead base generated as sister to D'. This follows from Ghomeshi's assumption about the non-projecting nature of Persian nouns. Remember that in contrast to attributive nouns and adjectival or prepositional modifiers, the possessive noun phrase is the only constituent which may be fully phrasal. But since Persian nouns cannot dominate phrasal material, the possessor may not occur within NP. The NP internal position being thus excluded for the possessor, it may occur either as a sister to NP or as a sister to D'. The first option is not retained by Ghomeshi, who advocates for the possessive DP to be base generated in [Spec, DP] position. Under such analysis, an empty D-head bearing the feature [+ def] is required, whose validity is further supported by the two following facts :

1. Noun phrases that include a possessor in Persian are obligatorily construed as definite or presupposed.
2. Possessors are in complementary distribution with the enclitic *–i*, the indefinite article in Persian.

The definiteness of the noun phrases containing a possessor receives a straightforward explanation if a definite article is present, the whole noun phrase being thus a DP. The same goes for proper nouns, pronouns or nouns that occur with an overt determiner, which according to Ghomeshi are all DPs.

The complementary distribution between possessors and the indefinite *–i* is attributable to the properties of the two D-heads in Persian: the empty definite determiner assigns Case, while the indefinite *–i* does not. This prevents a possessor DP to occur with the indefinite enclitic *-i* and thus accounts for the ungrammaticality of the following example:

(26) * ketâb-e sorx-i maryam
livre-EZ rouge-INDEF Maryam

In the light of this new analysis, all the restrictions pointed out by Samiian (1983) are accounted for in a simple and elegant manner and no filter is necessary to eliminate ill-formed structures.

3.2.2. The only cases that seem to resist Ghomeshi's analysis are represented by prepositional phrases. As we have already seen, the latter can occur within the Ezafe domain and therefore are expected to appear as bare heads. However, prepositions seem to take complements within the Ezafe construction, as illustrated by the following examples, given by Samiian:

(27) a. molâqât-e qabl az zohr-e mâ jâleb bud [Samiian 1983: 55]
meeting-EZ before from noon-EZ us interesting be.PAS
'Our meeting before noon was interesting'

b. bahs-e bâ ajale-ye hasan jâleb bud [Samiian 1983: 55]
discussion-EZ with haste-EZ Hasan interesting be.PAS
'Hasan's hasty discussion was interesting'

Ghomeshi claims however that the counter-evidence represented by these examples is only apparent: the noun within the modifying PP cannot appear with a possessor, when the PP occurs within the Ezafe construction, as illustrated in (28b), while it can if the PP is appositive, as illustrated in (28c). Furthermore, it cannot be introduced by the demonstrative article, as shown by (28d).

(28) a. otâq-e kučik-e zir-e širvuni-e ali [Samiian 1983: 39]
room-EZ small-EZ under-EZ roof-EZ Ali
'Ali's small room under the roof'

b. *otâq-e kučik-e zir-e širvuni-e jiân-e ali [Ghomeshi 1997: 743]
room-EZ small-EZ under-EZ roof-EZ Jian-EZ Ali
(putatively) 'Ali's small room under Jian's roof'

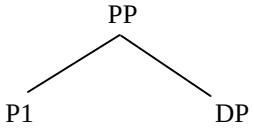
c. otâq-e kučik-e ali, zir-e širvuni-e Jiân [Ghomeshi 1997: 743]
room-EZ small-EZ Ali, under-EZ roof-EZ Jian
'Ali's small room, under Jian's roof'

d. *otâq-e kučik-e zir-e in širvuni-e ali [Ghomeshi 1997: 744]
room-EZ small-EZ under-EZ Dem roof-EZ Ali
(putatively) 'Ali's small room under this roof'

According to Ghomeshi these examples show that P2 and P3 prepositions behave in the same way as adjectives, in that they cannot take a phrasal complement within the Ezafe domain. A closer look at prepositions in Persian is nevertheless necessary.

As for P1s, which are real prepositions, Ghomeshi suggests that they exhibit a dual nature: they can either take phrasal complements in the syntax, or form compounds in the lexicon. In other words, P1s are obligatorily projecting categories in syntax, yielding a structure conform to the standard X-bar theory:

(29)



If this is really the case, the ungrammaticality of P1s within the Ezafe domain, pointed out by Samiian (1983), follows straightforwardly. Ghomeshi's assumption predicts furthermore that P1s will never take bare complements, where the noun is construed as non-referential.
Ghomeshi points out however that, contrary to Samiian's claim, PPs headed by P1s are not entirely excluded from the Ezafe domain. In order to account for (27a) and (27b) above, which seem to be counterexamples, Ghomeshi considers that *bâ ajale* 'with haste' and *qabl az zohr* 'before noon' are not in fact PPs, but compounds. Given the fact that compounding takes place in the lexicon, such sequences are inserted under a single terminal node and their internal structure is opaque for the purposes of the syntax.

To sum up, the analysis outlined in Ghomeshi (1997) furnishes an elegant and unified account of the restrictions on the Ezafe construction, relating them to the non-projecting properties of Persian nouns. Under this view, Persian nouns may be considered as "syntactically deficient", in that they cannot yield a maximal projection with filled specifier and complement positions. Being non-projecting, Persian nouns may only have bare heads as their dependants. This is the reason why the Ezafe vowel may never attach to a phrasal constituent.

3. 3. Empirical and conceptual problems with Ghomeshi's accounts

Despite its elegance, Ghomeshi's analysis falls short in several respects. In this section, I will point out certain theoretical and empirical shortcomings. It will be first shown that some restrictions on the Ezafe construction mentioned by Samiian (1983) and taken up by Ghomeshi (1997) do not hold. There are, for instance, attested examples of phrasal adjectival modifiers occurring within the NP and linked to the head noun by the Ezafe vowel. This means that Persian nouns are not inherently non-projecting. Once the real restrictions on the Ezafe construction are established, and indeed there are some, it will be argued that they are not related to projecting properties of nouns, but result from constraints on various lexical and phrasal affixes in Persian, and the way they can combine one with another.

3.3.1. Restrictions on the Ezafe constructions

According to Ghomeshi (1997), the only constituent that can be freely and recursively expanded in the Ezafe construction is the possessor NP and the Ezafe vowel may never attach to a phrasal constituent. There are however many attested counterexamples to both of these claims.

- Evidence for phrasal adjectival modifiers within the NP

Recall that the contrast between the following examples is supposed to illustrate the claim that Persian nouns may never take phrasal modifiers:

(30) a.	* mard-e	negarân-e bačče-hâ-yaš-i	vâred šod
	man-EZ	worried-EZ children-PL-PAF.3.SG-INDEF	entered become.PAS

b. mard-i, negarân-e bačče-hâ-yaš, vâred šod
man-INDEF, worried-EZ children-PL-PAF.3.SG entered become.PAS
'A man, worried about his children, entered'

Although (30a) is indeed ungrammatical, I will argue that this is in no way related to the presence of a phrasal modifier, namely the adjectival phrase, within the NP. The following attested example, from a Persian novel[9], where *negarân* 'worried' heads an adjectival phrase which is linked to the noun *čašm* 'eye' by the Ezafe vowel supports this claim:

(31) zâheran abdoljalil ham bâ rang-e paride
apparently Abdoljalil also with colour-EZ flied
va **čašm-ân-e** **[negarân-e** **forurixtan-e** **divâr-e** **xâne-aš]$_{AP}$**
and eye-PL-EZ worried-EZ crumble-EZ wall-EZ house-PAF.3.SG
ân taraftar istâde (...) bud.
farther stood (…) be.PAS
'Apparently Abdoljalil also with his pale figure and **his eyes worried about the crumbling of the wall of his house** was staning farther.'

Here, the NP headed by *čašm* 'eye' contains undisputedly a phrasal modifier, namely the adjectival phrase *negarân-e forurixtan-e divâr-e xâne-aš* 'worried about the crumbling of his house's wall'. Consequently the ungrammaticality of (30a) cannot be attributed to the phrase-hood of the adjectival modifier. What makes this example ungrammatical is the presence of the indefinite enclitic *–i* within the NP, the following example where *–i* has been removed being perfectly grammatical:

(32) mard-e negarân-e bačče-hâ-yaš vâred šod
man-EZ worried-EZ children-PL-PAF.3.SG entered become-PAS
'The man worried about his children entered'

The reason why *–i* may not occur in this position will be discussed later. For the moment, the relevant fact to retain is that Persian NPs may obviously contain phrasal modifiers. It should be noted that examples such as (31) above are by no means exceptional and are frequently encountered in Iranian contemporary literature and newspapers. Here are just a few other attested examples of NPs including a phrasal adjectival modifier:

(33) šahr-e tehrân, (...), tavassot-e **niru-hâ-ye qazzâg-e**
city-EZ Tehran, (...), by means-EZ force-PL-EZ Kozak-EZ
[mostaqqar dar qazvin]$_{AP}$ fath šode bud[10]
based in Qazvin conquered became be.PAS
'The city of Tehran was conquerred by Kozak forced which were based in Qazvin'

(34) ...nazm-e ostân tavassot-e **in javân-e** **[az suis** **bar gašte]**
order-EZ province by means-EZ this young-EZ from Switzerland back came
bištar hâsel xâhad âmad[11]
more gained AUX come.PAS
'(...) the province's order will be better established by this young man came back from Switzerland'

(35) Agar sabr kon-id **zan-e [ziba-tar** **va tannâz-tar** **az ân]$_{AP}$** râ
If waiting do.PRES-2.SG woman-EZ beautiful-CPR and charming-CPR of this RÂ
peydâ xâhid kard[12]
found aux do.PAS
'If you wait you will find a more beautiful and charming woman than her'

- Evidence for prepositional phrasal modifiers within NP

[9] *Ruzegâre separi šodeye mardome sâlxorde* (novel), M. Dowlatâbâdi, p.113.
[10] *In se zan* 'These three women' (novel), F. Behnud, p. 40.
[11] *In se zan* 'These three women' (novel), F. Behnud, p. 55.
[12] Dašti, quoted by Lazard 1992

Recall that according to Samiian (1983) only P2s and P3s (i.e. nominal prepositions) may occur within the Ezafe domain, P1s (i.e. true prepositions) being excluded. Ghomeshi (1997) claims however that P1s as well as P2s may occur within the Ezafe domain: P2s and P3s, being non-projecting like nouns, appear only as bare heads; P1s, which are projecting heads, may occur within the Ezafe domain only when they form lexical compounds, but never when they head a prepositional phrase. That's why Ghomeshi considers that *qabl az zohr*[13] "before noon" in (27a) above is not a "prototypical prepositional phrase" (p. 753) and must be regarded as a lexicalized compound. I will show that neither Samiian nor Ghomeshi are right and that P1s, as well as P2s, may occur within the Ezafe domain even when they head phrasal projections. Let us first consider the following example which obviously contradicts Ghomeshi's claim about P1s within the Ezafe domain:

(36) ruz-e **[qabl az dastgiri-e farmânfarmâ va pesar-ân-aš]$_{PP}$** (…)[14]
day-EZ before of arrest-EZ Farmânfarma and son-PL-PAF.3.SG (…)
'The day before Farmânfarmâ's and his sons' arrest'

According to Ghomeshi's analysis, *dastgiri-e farmânfarmâ va pesar-ân-aš* "Farmânfarmâ's and his sons' arrest" must be as considered a DP with a filled [Spec, DP] position. This DP appears within a constituent headed by *qabl az* "before of", the whole sequence being thus a prepositional phrase. Thus, contrary to Ghomeshi's claim, P1s may appear within the Ezafe domain not only as compounds but also when they head a PP. The following examples are some other cases of PPs headed by P1s and occurring within the Ezafe domain:

(37) čerâ xâne-ye **[be ân qašangi]$_{PP}$** râ foruxte
why house-EZ to that beauty RÂ sold
'Why has she sold such a beautiful house?'

(38) ne-mi-tavânest-am tasmim be-gir-am **sobh-hâ-ye** **[bâ mâdar]$_{PP}$** râ
NEG-TMA-can.PAS-1.SG decision TAM-take-1.SG morning-PL-EZ with mother RÂ
bištar dust dâr-am yâ **sobh-hâ-ye** **[bâ kabutar-hâ]$_{PP}$** râ[15]. more like.PRES-1.SG
or morning-PL-EZ with pigeon-PL RÂ
'I could not decide whether I loved more the mornings with mother or the ones with the pigeons'

As for P2s and P3s, like P1s and adjectives, they may head a phrasal constituent within the Ezafe domain, as shown by the following example:

(39) **sekke-hâ-ye** **[tu-ye jib-e** **šalvâr-aš]$_{PP}$** sar-o-sedâ mi-kard
coin-PL-EZ in-EZ pocket-EZ tousers-PAF.3.SG noise TAM-do.PAS
'The coins in his trousers' pocket were making some noise'

Consequently, it may be concluded that different kinds of modifier PPs, regardless of the fact they are headed by a P1 or by a P2, may appear within the Ezafe domain. To sum up, in Persian, the only modifiers which may not be linked to the head noun by Ezafe are relative clauses, be they restrictive or appositive.

(40) * zan-e ke vâred šod xâhar-e maryam ast
woman-EZ that entered become.PAS sister-EZ maryam be.PRES

With this regard, Persian differs from all Kurdish dialects (Kurmancî, Sorani and Southern) where restrictive relative clauses are regularly linked to the head noun by Ezafe, as shown by the following Sorani (Central) Kurdish examples:

[13] The preposition *az* "from" belongs to the P1 class and is a real preposition.
[14] *In se zan* 'These Three Women' (novel) , F. Behnud, p. 65.
[15] *yek ruz mânde be eyd-e pâk* 'One day before Easter' (novel), Z. Pirzâd, p.80

(41) a. kabira-ke-**y** le her dû cejn bû [Bassols-Codina, 1992: §10]
man-DEF-EZ to each two celebration be.PAS
'The man who could assist both celebrations'

b. taq-e huner-êk-î ke bû-y (…) [Bassols-Codina, 1992: §115]
only-EZ talent-INDEF-EZ that be.PAS-3.SG
'The only talent that he had (…)'

It should however be noted that this restriction must not be interpreted as a ban on the presence of sentential constituents within the Persian NP, since the following example where a subordinate clause is embedded within the AP linked to the head noun by Ezafe is grammatical:

(42) mardom-e [nârâzi az in-ke qeymat-e naft har ruz afzâyeš mi-yâb-ad]$_{AP}$
people-EZ upset of this-that price-EZ petrol every day increase TAM-find.PRES-3.SG
'The people upset that petrol's price increase every day'

At this point, two major restrictions on the Ezafe construction mentioned by Samiian (1983) and Ghomeshi (1997) have turned out to be ill-founded. The fact that Persian NPs can dominate phrasal material challenges seriously Ghomeshi's hypothesis about Persian nouns being inherently non projecting. Since the phrase-hood of the constituents can no longer be responsible for the ungrammaticality of examples such as (43) bellow, the question remains what the real restrictions on the Ezafe construction are and how they may be accounted for.

(43) * mard-e negarân-e bačče-hâ-yaš-i vâred šod
man-EZ worried-EZ children-PL-PAF.3.SG-INDEF entered become.PAS

I suggest that the contrast between (a) and (b) could put us on the right track to answer these questions:

(44) a. barâdar-e [bizâr az tehrân]$_{AP}$-e man
brother-EZ disgusted of Tehran]-EZ me
'my brother who is disgusted with Tehran'

b. * barâdar-e [bizâr az-aš]$_{AP}$-e man
brother-EZ disgusted of-PAF.3.SG-EZ me
(putatively) 'my brother who is disgusted with it'

Since (a) and (b) differ only in one point, the affixal status of the element to which Ezafe is attached in (b) but not in (a), this difference is likely to be responsible for the ungrammaticality of (b). Note that the same kind of contrast is observed in the following examples:

(45) a. yek ketâb-e maryam b. *ketâb-i-e maryam
one book-EZ Maryam book-INDEF-EZ Maryam
'a book of Maryam'

These facts suggest that the morphological status of the element to which Ezafe is attached play a key role to account for the restrictions on the Ezafe construction. The section (4) provides a detailed account of affixal determiners and personal affixes occurring within the NP and the way they interact with Ezafe. But before this survey, I will briefly examine an alternative analysis of Ezafe, initially proposed by Samiian (1994) and more recently by Larson and Yamakido (2005), which consists of viewing Ezafe as a Case marker.

3.4. Is Ezafe is a Case marker ?

Samiian (1994) considers Ezafe as a dummy Case assigner occurring with non-Case-assigning heads (nouns, adjectives and P1s) and enabling these heads to Case-mark their complements. Thus, in Persian anything that does not assign Case would need Case in order to be licensed and Ezafe's function is to case-license [+N]. Given the fact that Case-marking is typically associated with argument status and not with modifiers, the question that arises then is why modifiers would require Case in Persian. For Samiian this is not a major problem, since there are languages such as Sanskrit and Latin that Case-mark attributive adjective phrases.

Larson and Yamakido (2005) suggest also viewing Ezafe as a Case-marker which checks the Case assigned by the determiner head of a DP to its arguments. DP is assumed to be parallel to VP in that both D and V select thematic arguments and DP syntax, like VP syntax, is right descending. Furthermore, DP modifiers are considered to be lowest complements of the head. Under this account, nominal modifiers, in all languages, originate as arguments of D in a post nominal position. Those DP-modifiers that do not have Case features to be checked, PPs and CPs for instance, remain *in situ*. On the contrary, those modifiers that bear Case features (APs) are required to move to a site where they can check Case. The prenominal position is assumed to be such a site. There are languages however that have in their D-system an item that can be inserted to check Case on [+N] determiner complements, allowing the latter to remain *in situ*. Ezafe is Persian is an example of such a special Case-marking device.

The analysis of Ezafe as a Case marker faces several problems. First the data on which it relies is not well grounded. The major argument invoked by both Samiian (1994) and Larson and Yamakido (2005) to support this analysis is the fact that constituents such as PPs and relative clauses, which no not require to be Case-marked, are excluded from the Ezafe domain. But as it was shown in the previous section, PPs headed by P1s, when they are modifiers, as well as adverbial phrases occur within the Ezafe domain. Furthermore, though relative clauses cannot be linked to the head noun by Ezafe in Persian, reduced relatives, on the contrary, can be introduced by Ezafe. This is shown by the following attested examples:

(46) ...nazm-e ostân tavassot-e **in javân-e** **[az suis** **bar gašte]$_{RRC}$**
order-EZ province by means-EZ this young-EZ from Switzerland back turn.PP
bištar hâsel xâhad âmad[16]
more gained AUX come.PAS
'(...) the province's order will be better established by this young man came back from Switzerland'

(47) **aks-e** **[čâp šode** **dar ruznâme]$_{RRC}$** aks-e râvi-e dâstân ast[17]
photo-EZ publication become.PP in newspaper photo-EZ narrator-EZ story be.PRES
'The photo published in the newspaper is the photo of the story's narrator'

It is unclear why constituents such as PPs and reduced relatives would require to be Case-marked in Persian? Furthermore, since under Larson and Yamakiod's account, Ezafe is supposed to enable [+N] modifiers, which otherwise should move to a prenominal position, to remain *in situ*, it is unclear why in English, for instance, reduced relatives are allowed to remain *in situ* without being Case-marked, while in West Iranian languages such a Case-marking device is necessary in order to let them remain in a post-nominal position.

The view of Ezafe as a Case-marker becomes even more problematic when other West Iranian languages are taken into account. First in almost all groups of Kurdish dialects restrictive relative clauses can be introduced by Ezafe, though it is uncontroversially assumed that CPs are never Case-marked. In addition, in Kurmanjî dialects, which have generally maintained morphological case marking, the Possessor NP linked to the head noun by Ezafe appears in oblique case, as shown by the following example:

[16] *In se zan* 'These three women' (novel), F. Behnud, p. 55.
[17] *Dâstanha-ye mahbub-e man* 'My favorite stories', A. Darvišian and R. Xandân Mahâbâbi, p. 274.

(48) māl-**ā** narmîn-ê
house-EZ.FEM Narmin-OBL.FEM
'Narmin's house'

Viewing Ezafe as a Case marker would imply that the possessor NP *Narmin* is case marked twice for the same function, and this problematic within any theory of Case marking. Consequently, either the Persian Ezafe is a radically different item from its Kurdish counterpart, or Ezafe is not a Case-marker, neither in Persian nor in other Iranian languages. The fact that PPs and reduced relatives are linked to the head noun by Ezafe in Persian strongly supports the latter conclusion.

4. The affixal elements within the NP

Following a common practice in generative grammar since Abney (1987) and Szabolcsi (1987), the DP analysis has been applied to Persian. Consequently, all determiners, be they affixes or full fledged words, have been uniformly analysed as projecting heads and it has become quite uncontroversial to posit a null definite determiner, which alternates with the indefinite *–i*, both heading a DP (see among others Ghomeshi 1997, Karimi 1996 and 2003). The same goes for personal affixes with a possessor interpretation, which have been assumed to occur in the same position that the possessor NP, generally the [Spec, DP] position. The status of the Ezafe vowel, on the contrary, is a matter of debate and controversy. Both Samiian (1983) and Ghomeshi (1997) consider it to be inserted post-syntactically. Samiian (1994) adopts a different position and suggests to consider Ezafe as a case marker. Finally Kahnemuipour (2000), the most recent study on Ezafe in Persian, considers Ezafe as a marker associated with the syntactic movement of the noun and realizing a strong feature, in the minimalist sense.

The analysis of Ezafe which will be outlined in this section shares some features with the one proposed by Kahnemuipour, in that Ezafe will be assumed to realize a morphological feature. Furthermore, Ezafe will be considered as a phrasal affix. It will be argued that the morphological status of Ezafe and its interplay with other phrasal affixes occurring within the Persian NP, i.e. the indefinite article *–i* and the personal affixes, can provide an enlightening insight into the constraints observed for the Ezafe construction and the structure of the NP in Persian.

Contrary to previous X-bar analyses of the Persian NP, it will be assumed that there is no one to one relation between determination and phrasal projection in Persian. This means of course that no null definite determiner is posited, but also that all affixal elements are handled morphologically and do not correspond to a node in the syntactic representation. The noun phrase is thus analyzed as the projection of the noun and not that of a determiner.

On the basis of the criteria provided in Zwicky and Pullum (1983) and Miller (1992), I will establish two major classes of affix: word affixes and phrasal affixes, Ezafe belonging to the latter class. Both word affixes and phrasal affixes will receive a morphological treatment, although the latter resemble to some extent to post-lexical simple clitics (PLCs). Turning then to the restrictions on the Ezafe construction, it will be shown that they may be accounted for in terms of morphological properties of the Ezafe vowel.

Before going through this study, a terminological clarification may be helpful. For the distinction between affixes and (post-lexical) clitics, I rely on Zwicky and Pullum (1983), who propose the following diagnostic criteria:

A. Affixes exhibit a high degree of selection with respect to their hosts, while clitics exhibit a low degree of selection.

B. Arbitrary gaps in the set of combinations are more characteristic of affixed words than of clitic groups.

C. Morphological idiosyncrasies are more characteristic of affixes than of clitics.

D. Semantic idiosyncrasies are more characteristic of affixes than of clitics.

E. Syntactic rules can affect affixed words, but cannot affect clitic groups.

F. Clitics can attach to material already containing clitics but affixes cannot.

Within the lexicalist approaches, which adhere to the Lexical Integrity Principle (Bresnan and Mchombo, 1995), it is commonly assumed that affixes are not syntactic items, and as such do not correspond to a node in the syntactic representation. The status of clitics is more controversial. The prosodically deficient elements, traditionally called "clitics", are split into two or three groups and are handled differently according to their status. Miller (1992) posits two classes of clitics: postlexical clitics (PLCs) and phrasal affixes. The former ones, corresponding roughly to simple clitics of Zwicky (1977), are words which lack prosodic autonomy and are postlexically attached to a host. This implies that they are syntactic items and that cliticization here is a merely phonological matter. Phrasal affixes correspond, roughly speaking, to the fusion of special clitics and bound words of Zwicky (1987). One of the basic properties of phrasal affixes is that they are "semantically associated with an entire constituent while being phonologically attached to one word of this constituent" (Zwicky 1977: 6). They often don't have a corresponding non-clitic counterpart. Finally, in some cases, rules that govern their distribution are different from those which apply to non-clitics. Contrary to PLCs, phrasal affixes are assumed to be handled morphologically, exactly as word affixes.

On the basis of these distinctions, various cliticization phenomena in different languages have received a lexical treatment and a significant move from syntax to lexicon and morphology has been accomplished. To take just a few examples, French and Italian clitic pronouns have been analyzed as lexical (verbal) affixes (Miller and Sag, 1997; Monachesi, 1999), Modern Greek possessive and definite clitics have be treated as phrasal affixes by Kolliakou (2004) and Tseng (2003), relying on Miller (1992) has outlined an analysis of French definite determiners and the prepositions *à* and *de* in terms of phrasal affixes.

4.1. Word affixes within Persian NP

Among different bound morphemes occurring within the NP in Persian, and more generally in Western Iranian languages, some behave clearly as word affixes. They attach morphologically to a single word and their syntactic and semantic effects are registered on that word. Different plural marking suffixes (*hâ, ân...*) and the colloquial definite marking suffix *–e/-he* in Persian are members of this class.

As mentioned previously, there is no overt definite article in standard Persian, though colloquial Persian has a definite-singular suffix, as shown by the following examples:

(49) a. ketâb-**e** ruy-e miz bud
book-DEF.SG over-EZ table-be.PAS
'The book was on the table'

b. bačče-**he** tu hayât bâzi mi-kon-e
child-DEF in yard play TAM-do.PRES-3.SG
'The child is playing in the yard'

From a phonological point of view, *-e/-he* is a highly cohering affix, since it bears lexical stress. At this point, it should be mentioned that lexical stress is on the last syllable in Persian nouns and adjectives. When a plural suffix or the definite *–e/he* are added to a noun, the lexical stress moves one syllable to the right, on the suffix. With this regard, these affixes are like derivational suffixes and behave as though they were truly part of the word they adjoin to.

Being a word affix, *-e/he* directly attaches to the head noun, as do plural affixes. Though the following examples show that other attachments are nevertheless possible:

(50) a. **ketâb sabz-e** ruy-e miz-e
book green-DEF on-EZ table-COP.3.SG
'The green book is on the table'

b. **doxtar kučik-e** tu hayât-e
girl little-DEF in yard-COP.3.SG
'The little girl is in the yard'

c. **lebâs germez bi âstin-e** tu komod-e
dress red without sleeve-DEF in wardrobe-COP.3.SG
'The red dress without sleeves is in the wardrobe'

In (49a) and (49b), *–e/-he* is attached to an adjective. In (49c) it is attached to a prepositional phrase, or more precisely to the noun *âstin* 'sleeve', although it determines *lebâs* 'dress'. Note however that in all these cases the Ezafe vowel is excluded between the noun and its modifiers, which are simply juxtaposed. Therefore, instead of being counterexamples to the analysis of *–he/-e* as a word affix, these facts support on the contrary such a view, since juxtaposition is the basic device for compounding in Persian. As grammars have observed, when a noun and its modifier become a lexicalized sequence and function as a lexical unit, the Ezafe vowel tends to disappear:

(51) a. âb mive
water fruit
'fruit juice'

b. doxtar xâle
daughter aunt
'cousin'

Thus the whole sequence containing the noun and its modifiers in (49a-c) behaves like a compound (N°). Nothing prevents then the definite *–e/-he* from adjoining to such a sequence. Note that the same goes for the plural suffix *–ha*:

(52) a. ketâb-hâ-ye sabz
book-PL-EZ green
'green books'

b. ketâb sabz-hâ
book green-PL
'green books'

c. * ketâb-e sabz-hâ
book-EZ green-PL

It can thus be maintained that *–e/-he* exhibits a high degree of selection (Condition A) with regard to its host, attaching only to N°.

The condition (B) (arbitrary gaps in the set of combinations) is also satisfied by the definite suffix *–e/-he*. Let us take just one example: infinitives may regularly head an NP in Persian. However, the definite suffix *–e/-he* may never be attached to an infinitive. This is in sharp contrast with the behavior of the indefinite article *–i*, which may be adjoined to infinitives.

The conditions (C) and (D) seem not to be satisfied by *–e/-he*, but as it has been noted by Miller (1992), elements which do not exhibit any morphological idiosyncrasy can still be considered as affixes and be derived by a fully regular morphological process. In addition to Zwicky and Pullum's conditions, Miller (1992) proposes the coordination criterion: affixes have narrow scope over coordination. This is in fact what happens with the definite *–e/-he*, which never has wide scope over the coordination of nouns, as illustrated by the contrast between (a) and (b) bellow:

(53) a. ketâb-e-o daftar-e ru-ye miz-an
book-DEF-and notebook-DEF on-EZ table-COP.3.PL
The book and the notebook are on the table

b. * ketâb-o daftar-e ru-ye miz-an
book-and notebook-def on-EZ table-COP.3.PL[18]

Now that the affixal status of the definite *–e/-he* has clearly been established, let us examine its behavior with regard to the Ezafe vowel. Crucial to our discussion here is that, contrary to the indefinite *–i*, the definite *–e/-he* may combine with Ezafe:

(54) doxtar-e-ye ahmaq
girl-DEF-EZ silly
'The silly girl'

(55) in bâr âhang hamân-i bud ke **pesar-e-ye film-e hendi**
this time melody same-RESTR be.PAS that boy-DEF-EZ film-EZ Indian
barâ-ye doxtar-e mi-zad[19]
for-EZ girl-DEF TAM-beat/PAS
'This time the melody was the same as the one the boy was playing for the girl, in the Indian film '

(56) lebâs qermez-e-ye maryam az hame-ye lebâs-â-š xošgel-tar-e
dress red-DEF-EZ Maryam of all-EZ dress-PL-PAF.3.SG beautiful-CPR-COP.3.SG
'Maryam's red dress is the most beautiful one of all her dresses'

It is assumed here that the contrast between the definite *–e/-he* and the indefinite *–i* in Persian with regard to Ezafe is due to their different affixal status: while *–e/-he* is a word affix, *-i* is a phrasal affix. This point will be argued thoroughly in the next section. For the moment let us limit ourselves to the following observation: *–e/he* may occur with Ezafe, and in this case the Ezafe vowel follows the definite suffix[20].

At this point, it is worth noting that similar facts are observed in those Western Iranian languages which have both the Ezafe construction and a definite suffix. This is the case of Sorani (Central) Kurdish, where the definite article, which is a word affix, is compatible with Ezafe:

(57) kiras-eke-y nermîn
robe-DEF-EZ Nermin
'Narmin's dress'

Contrary to Persian however the indefinite suffix in Sorani Kurdish may as well combine with Ezafe:

(58) kiras-êk-**î** šindress-IND-EZ blue
'A blue dress'

I suggest that this contrast results from the fact that *–i* and *–êk* do not have the same affixal status in Persian and in Kurdish respectively: like the definite article *–eke*, the indefinite *–êk* (*-ek*) is a word affix in Sorani Kurdish. It always attaches to the head noun within the NP and gives rise to sandhi phenomena that are typical of word affixes. In Some Sorani dialects for instance, the vowel of the suffix drops when adjoining to a noun ending with the same vowel or the suffix may coalesce with a preceding *î*, giving *–êk*:

[18] It must be mentioned that such examples are grammatical when the coordinated nouns are semantically related pairs, the whole coordinate sequence being lexicalized in some sort:
kot-o šalvar-e
coat-and trousers-DEF
'the suit'

[19] , *Sâz dahani* (short story), Zoya Pirzâd.

[20] Note that under Ghomeshi's analysis, which establishes a one to one relation between determination and syntactic projection, this fact would imply that the Ezafe vowel attaches to a DP. Otherwise, the only way to save Ghomeshi's hypothesis would be to stipulate head-to-head movement within the NP.

(59) a. kunde-k
a water-skin
b. bîše-k
a ticket
[Mackenzie, 1961:54]

c. granî-ek > granêk
[Mackenzie, 1961:54]

The Persian indefinite *–i*, unlike the Kurdish *–ek*, is not a word affix, but a phrasal affix. The major evidence for this difference is the attachment behavior of *–i*. Contrary to *–êk* (*-ek*) which always attaches to the head noun, *-i* may attach to other elements within the NP:

(60) a. ketâb-e târix-e irân-e mo'âser-**i** ru-ye miz bud
book-EZ history-EZ Iran-EZ contemporary-IND on-EZ table be.PAS
'A book of contemporary Iran's history was on the table'

b. irâni-e moqim-e farânse-i vâred šod
Iranian-EZ resident-EZ France-IND entered become.PAS
'An Iranian resident of France entered'

Further evidence for the status of *–i* as a phrasal affix is presented in the next section. So far, we have seen that the Ezafe vowel may attach to a word containing a word affix. Under the analysis adopted here, the combination between the head noun and the definite suffix is handled morphologically and the definite suffix *–e/-he* does not correspond to a syntactic node. The semantic effect of the definite suffixation is registered on the noun's entry. The syntactic rules cannot refer to the presence/absence of the suffix *–e/-he*, although they have access to the value of definiteness feature.

4.2. Phrasal affixes

In this section, it is argued that three enclitics occurring within the Persian NP, namely the determiner *–i*, personal affixes and the Ezafe vowel, are best regarded as phrasal affixes and as such must be handled morphologically. It is also claimed that this affixal status is the clue to account for the restrictions on the Ezafe construction.

Phrasal affixes, in contrast to word affixes, "attach" to a constituent and not to a single word. Being affixes, they must be handled morphologically, which implies that they attach in fact to a word. Being phrasal, their effect must be handled in syntax, which gives rise to a morphology-syntax mismatch. The identification of phrasal affixes and the way they must be handled is a matter of controversy. The crucial difficulty is that the difference between lexical clitics, which are affixes in the sense of Zwicky and Pullum (1983), and post-lexical clitics is not always clearcut. As argued by Crysmann (1997) for European Portuguese clitics, this distinction cannot be seen as a strict dichotomy. Transitional types, which "are characterized by the fact that one group of criteria (e.g. morphological criteria) positively suggest syntactic opacity, while almost all syntactic criteria demand a degree of transparency" (p.1), do occur in different languages.

4.2.1. The determiner *–i*

The enclitic determiner *–i* is one the most problematic elements within the Persian NP. My purpose here is by no means to provide an exhaustive account of its morphological, syntactic and semantic properties, but to highlight some of its distributional aspects which are relevant for the analysis of the Ezafe enclitic outlined in this section.

Persian grammars generally establish two distinct determiners *–i* in Persian. The first one is considered to be an indefinite article. The second one, which occurs exclusively with restrictive relatives, is analyzed as a "demonstrative" or "definite" article. The term

"restrictive particle" has also been used in some studies. The following examples illustrate each case:

(61) a. maryam dar asemân **setâre-i** did
Maryam in sky star-INDEF see.PASS
'Maryam saw a star in the sky'

b. **setâre-i** ke maryam dar asemân did pošt-e abr penhân šod
star-RESTR that Maryam in sky see.PAS behind-EZ cloud hidden become.PAS
'The star that Maryam saw in the sky disappeared behind a cloud'

A long-standing debate in the literature on the enclitic *–i* has been the issue whether the two determiners are in fact the same morpheme, neither an indefinite nor a definite article, but a 'selective' or 'partitive' one. This issue, thoroughly discussed in several studies[21], is beyond the scope of our discussion here and I do not take a stand on it. Besides, as the two enclitics attach to the same range of hosts, whatever alternative is adopted, it has no consequence in the analysis sketched in this paper, which can successfully accommodate both options.
As mentioned previously, unlike the colloquial definite suffix *–e/-he*, the enclitic *–i* does not bear lexical stress. Furthermore, it does not necessarily attach to the head noun within the NP, but to the last modifier within the Ezafe domain:

(62) a. lebâs-e qermez-e bi âstin-i
dress-EZ red-EZ without sleeve-INDEF
'a red dress without sleeves'

b. irâni-ân-e javân-e moqim-e farânse-i ke dar pâris did-im
Iranian-PL-EZ young-EZ resident-EZ France-INDEF that in Paris see.PAS-1.PL
'The young Iranians resident of France whom we met in Paris'

These facts prove that if the enclitic *–i* is a suffix, it is clearly not a word affix. One possible analysis would be to consider *–i* as a simple post-lexical clitic, an element having the same syntactic properties as a D°, but being prosodically deficient. Under this view, *-i* would appear in the same position as a full fledged specifier, projecting thus a DP, but would be incorporated to the preceding prosodic word by phonological rules which apply postsyntactically. Different studies within generative-transformational framework have generally considered *–i* to be a projecting head. In this paper, I adopt the opposite view, assuming that *–i* is not associated with a position in the syntactic representation, and may be best regarded as an affix combining morphologically with its host. In order to support this assumption, it will be argued that the enclitic *–i*:

a. does not satisfy most of head hood criteria proposed in different studies.
b. has many affixal properties.

Although the DP hypothesis have been applied to a wide range of languages within the generative framework, several studies, mainly within non-derivational frameworks, on languages with no determiners or with affixal determiners, have argued that the DP analysis is not satisfactory for such languages. Zlatic (1997), for instance, shows that for Serbian, a language with no definite determiner, when different criteria of head-hood proposed by Zwicky (1985, 1993) and Hudson (1987) are taken into account, the noun can be clearly identified as the head of the nominal projection. Kolliakou (2004) argues that in Modern Greek, the definite article, which is realized as a clitic and may be iterated within the NP, is best regarded as a phrasal affix and not as a projecting head. Tseng (2003), relying on Miller (1992), argues that the affixal analysis may be extended to French definite articles. Along the

[21] See Hincha (1961), Lazard (1966) and Samvelian (in press), among many others.

following lines it is argued that the same conclusions may be established for the determiner *–i* in Persian.

- The enclitic *–i* is not a head.

There is no empirical evidence for considering *–i* as a projecting head. Crucially, in the absence of the head noun within the NP (i.e. noun ellipsis cases), the enclitic *–i* cannot assign NP (or a DP) status to the whole sequence, as shown by the following example:

(63) medâd-hâ-ye rangârang-i ru-ye miz bud-and
pencil-PL-EZ coloured-INDEF on-EZ table be.PAS-3.PL
'There were pencils of different colours on the table'

* Maryam zard-i (râ) be omid dâd
Maryam yellow-INDEF (RÂ) to Omid give.PAS
(putatively) 'Maryam gave a yellow one to Omid'

Moreover, other candidates for being specifiers in Persian (demonstratives, quantifiers, cardinals, etc.) appear in the initial position in the NP and are in some cases compatible with the indefinite article *–i*:

(64) a. in ketâb
this book
'this book'

b. har ketâb(-i)
each book(-INDEF)
'each book'

c. hič ketâb-i
no book-(INDEF)
'no book'

d. kodâm ketâb(-i)
which book
'which book ?'

If the DP hypothesis is to be applied to Persian, these facts strongly suggest that the DP must be head initial. This is not surprising, given the fact that the NP is also head initial. Since items like *har* 'each' and *hič* 'none' have none of the properties of adjectives in Persian, it would be hardly conceivable to treat them as prenominal adjectives.
To conclude, considering the enclitic *–i* as a projecting head offers no real advantage. Quite the reverse, such an analysis leads to further unnecessary complications and unwarranted assumptions.

- The enclitic *–i* is an affix

The determiner *–i* may be viewed as a phrasal affix. This implies that *–i* is attached lexically to its host although its scope is larger than a single word. The question is whether there is some phonological evidence in favour of an affixal approach and whether the adjunction of *–i* gives rise to the same range of phenomena that the adjunction of word affixes such as the definite *–e/-he* or the plural *–ha*. The answer to the second question is negative. We already know that the enclitic *–i* differs from *–e/-he* or *–ha* with respect to lexical stress placement: contrary to the latter forms, which bear lexical stress, *-i* is not stressed and the stress remains on the last syllable of the word to which the enclitic is adjoined. At first sight, this fact may seem to go against an affixal analysis of *–i*. However other elements whose affix-hood is undisputed dot not bear lexical stress either. This is the case of personal endings in verbal inflected forms, as illustrated by the following examples:

(65) mi-**xâh**-am > mi-**xâ**-m (colloquial register)
TAM-want.PRES-1.SG
'I want'

The suffix *–am* is clearly a word affix: it attaches exclusively (and directly) to the verbal stem and marks subject-verb agreement. This suffix adjunction generally gives rise to various sandhi phenomena (contraction, vowel alteration, etc.), especially in colloquial Persian. In the example given above, the final consonant of the verbal stem and the initial vowel of the personal affix are dropped. Such phenomena, highly frequent in colloquial Persian, apply inside words (simple words or words containing affixes) but never across word barriers. Thus verbal personal endings are word affixes in modern Persian, and yet they don't bear lexical stress. Therefore the fact that a bound morpheme does not bear lexical stress does not necessarily entail that it is not an affix, but rather that there are different kind of affixes, with different phonological properties in Persian[22]. Relying on evidence from stress, Kahnemuipour (2000) establishes a distinction between "cohering" and "non-cohering affixes" in Persian. Under this view, the determiner *–i* is a non-cohering affix.

Given the fact that the placement of the lexical stress does not provide conclusive results for affix-hood in Persian, the analysis of *–i* as an affix must rely on other kinds of evidence. A range of sandhi phenomena seem to support this analysis. Let us take the following set of examples:

(66) a. ha**st**e (standard or formal) > ha**ss**e (colloquial)
pit

b. xâst > xâ:s
wanted

(67) a. mi-xâ**st**-am be-mân-am > mixâ**ss**am bemun-am
TMA-want.PAS-1.SG TAM-stay.PST-1.SG
I wanted to stay

b. mâ**st**-i ke ru-ye miz ast > mâ**ss**-i ke ru-ye miz-e
yoghurt -RESTR that on-EZ table be.PST
'The yoghurt that is on the table'

c. kâse-ye mâst oftâd > kâse-ye mâ:s oftâd/ * kâse-ye mass oftâd
bowl-EZ yogurt fall.PAS
'The yoghurt bowl fell down'

The example (66) shows that a sequence of two consonants [st] undergoes two different phonological processes according to its position within the word: when occurring in a non-final position and between two vowels, [t] drops, while [s] is lengthened and pronounced as a double consonant. In a word final position, [t] drops also, but no lengthening or doubling of [s] is observed. Instead, there is compensatory lengthening of the preceding vowel. In case a word affix is adjoined to a word ending with [st], the sequence behaves as if it were word internal, and no longer word final, as shown in (67a). A final [st] sequence followed by the enclitic *–i*, behaves in a similar way (ex. (67b)), but not when it is followed by a full fledged word (example (67c)).

It follows that, from a phonological point of view, the enclitic *–i* is comparable to unstressed word affixes, such as personal endings of verbs. It should be however noted that there are also arguments in favour of a PLC analysis of *–i*. Specially, it may have wide scope over coordination:

[22] Note that the same situation stands in Modern Greek. Kolliakou (1999) notes that affixation affects lexical stress in two different ways in Modern Greek: in case of inflectional affixation, the main stress moves one syllable to the right, like in Persian plural affixation. In case of possessive affixation, which is case of phrasal affixation, a new stress is added two syllables to the right of the original lexical stress, whereas the latter weakens.

(68) lebâs-e siâh va kolâh-e qermez-i ke dar komod bud-and
dress-EZ black and hat-EZ red-INDEF that in wardrobe be.PAS-3.PL
'The black dress and the red hat which were in the wardrobe'

But again as it has been remarked in several studies, and by Miller (1992) himself, wide scope over coordination does not necessarily entail PLC status. Despite this fact, the affixal alternative is retained here as it allows for a more appropriate account of the data.

3.2.2. Personal (possessive) affixes

Another set of phrasal affixes occurring within the Persian NP consists of personal (pronominal) enclitics. These forms alternate with personal full pronouns and the possessor NP, and receive the same range of interpretations, the possessive reading being the most frequent one:

(69) a. ketâb-e maryam b. ketâb-e man c. ketâb-am
book-EZ maryam book-EZ PRO.1.SG book-PAF.1.SG
'Maryam's book' 'my book' 'my book'

Like *–i*, personal affixes do not bear lexical stress. It may be tempting to treat them as simple (post-lexical) clitics, occupying the same syntactic position as their tonic counterparts. Divergent facts however go against such an analysis.

First, the placement of personal affixes when used as verbal arguments provides conclusive evidence against the view of these affixes as simple clitics. The same set of personal affixes is used in Persian with nouns, adjectives, prepositions and verbs. In this latter case, personal affixes, which correspond generally to the direct object or to 'dative' verbal complements, never occur in the canonical object position, which is preverbal and possibly separated from the verb by several constituents (prepositional adjuncts and arguments, and even the subject). Personal affixes, by contrast are always suffixed to the verb, in case the sentence is headed by a simple verb, or to a member of the verbal complex, in cases of complex predicate formation (e.g. predicative noun, prepositional particle, etc.). Thus, with regard to their placement properties, personal affixes are not simple clitics.

Second, the form of these personal affixes cannot be predicted from that of their non-clitic counterparts. In some cases the clitic form is radically different from the non-clitic one. Phonological opacity is a property characteristic of affixal elements but not of PLCs. Furthermore, personal clitics are subject to the same range of sandhi phenomena as verbal personal endings. The following example illustrates one of them:

(70) xane-am (standard or formal register) > xuna-m (colloquial register)
house-PAF.1.SG
'my house'

In colloquial Persian, the adjunction of the personal enclitic *–am* leads to the alteration of the final vowel of the stem and the initial vowel of the suffix drops. Lazard (1992) remarks that this is a general property of personal affixes: "After all vowels, the suffixes of all persons may, in colloquial language, lose their initial vowel". Recall that this kind of phenomena never occurs across words, even when they form a unique prosodic group, as illustrated by the following example:

(71) xune avalli (colloquial register) / * xunavalli
house first
'the first house'

Third, a morphological treatment of personal affixes would straightforwardly account for the fact that the Ezafe vowel cannot intervene between them and their host:

(72) *xane-ye-am
house-EZ-PAF.1.SG
'my house'

Being a word, the noun and the personal affix may not be interrupted by the Ezafe vowel, in accordance with the Principle of Lexical Integrity.
Finally, it should be observed that in some uses personal affixes have no stressed counterpart:

(73) a. bačče, arum-eš xub-e
child, calm-PAF.3.SG good-COP.3.SG
'A good child is a calm one'

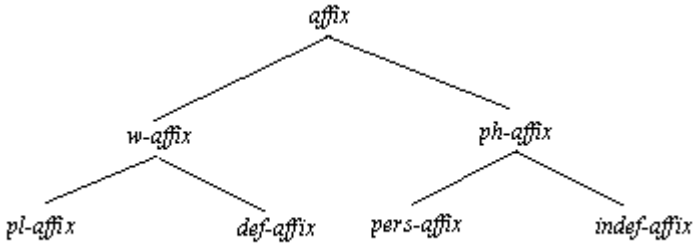
b. * bačče, arum-e u xub-e
child, calm-EZ PRO.3.SG good-COP.3.SG

c. * arum-e bačče xub-e
calm-EZ child good-COP.3.SG

In (73), which is typically a colloquial use, the personal affix *–š* may not be replaced by its stressed counterpart, neither by a non-pronominal possessor NP. Although the analysis of such uses is behind the scope of this paper, it may be nevertheless claimed that they provide further evidence that the syntactic account of personal clitics faces unnecessary complications that are avoided by the affixal account.

At this point, we have established two types of affixes within the Persian NP. This classification may be represented by the following type hierarchy:

(74) *affix* hierarchy



3.2.3. What is Ezafe ?

Let us recall some of the basic properties of the Ezafe vowel:

a. It never occurs alone (i.e. it is always attached to another element).
b. It can be reiterated within and occurs as many times as there are modifiers and with the unique complement of the head.
c. It is semantically vacuous and conveys a purely syntactic information.
d. It does not bear lexical stress and in rapid delivery, especially in colloquial Persian, is quite inaudible or even dropped, as mentioned by Lazard (1992) and Ghomeshi (1997).

Relying on these properties, and some others which are considered in this section, it will be argued that Ezafe is also a phrasal affix.

- Is Ezafe a head ?

On the basis of the properties (a)-(c), Ezafe is comparable to elements generally referred to as *linkers*. These can be pre-theoretically defined as meaningless items whose sole function is to connect a head to its modifiers. Some well documented examples of linkers occurring within NPs are the Chinese *de* and the Tagalog *na* and *ng*. The idea that Ezafe is a linker of some kind is explicitly stated by Lazard (1966), who uses the term *joncteur* (the French word for *linker*) when talking about Ezafe. Ghomeshi also considers it as a linking element identifying constituent structure.

Although the intuition that Ezafe is a linker is present in different studies, and especially in the Persian grammatical tradition *via* the term *Ezafe* itself, which means 'addition' or 'something added', the concrete formal implementation of this idea is a matter of controversy. Recall that under Ghomeshi's account, Ezafe is neither a syntactic item nor an affix, but is inserted in PF. Rebuschi (2002), on the contrary, who also analyses Ezafe as a linker, like the Chinese *de*, considers it as a conjunctive head with an intersective reading. Though Samvelian (2006) shows that Ezafe does not necessarily trigger an intersective reading and that the traditional view of Ezafe as a semantically vacuous element is the most appropriate one, the analysis of Ezafe as a head may still be maintained. Under such an account, Ezafe could be regarded as a post-lexical clitic, forming a constituent with the phrase it precedes, while prosodically attached to the element it follows. Within HPSG, one possible implementation would be to consider Ezafe as a 'weak head' in the spirit of Tseng (2002), which introduces a new MARKING value on the phrases it heads.

Though this alternative may seem promising in several respects, I will not further investigate it here for two reasons: a) from a morphological point of view, the way that Ezafe interacts with its prosodic hosts is more characteristic of affixes, rather than post-lexical clitics, and b) not only is Ezafe semantically vacuous, but it is optional in certain South Western Iranian languages which are very close to Persian and even in some dialects of Persian.

Although the first point will be discussed in detail in the next section, let us consider briefly why viewing Ezafe as a post-lexical clitic is problematic. If Ezafe were really a simple clitic, it would be expected to be indifferent or "blind" to its host. But this does not seem to be the case, as shown by the following examples:

(75) a. qahremân-e [az mihan-aš rânde šode]$_{RRC}$-ye in roman
hero-EZ from homeland-PAF.3.SG drive.PP become.PP]-EZ this novel
'the heros of this novel, who is driven away from his homeland'

b. * qahremên-e [rânde šode az mihan-aš]$_{RRC}$-e in dâstân
hero-EZ drive.PP become.PP from homeland-PAF.3.SG this novel

c. qahremân-e [rânde šode az mihan-aš]$_{RRC}$
hero-EZ drive.PP become.PP from homeland-PAF.3.SG
'The hero driven away from his homeland'

Ezafe is attached to the same constituent in (a) and (b), though the former is grammatical but not the latter. With respect to their syntax, these two examples differ only in one point: in (a), the participle *rânde šode* follows its prepositional complement, while in (b), the complement is realized before the head. As shown by (c), this variation in order cannot be responsible for the ungrammaticality of (b), since removing the possessor NP, which is linked to the reduced relative by Ezafe, makes (b) grammatical. But there is another difference between (a) and (b) concerning the morphological nature of the element to which Ezafe is attached. In (a), Ezafe is directly attached to a word, while in (b), it is attached to a phrasal affix. The ungrammaticality of (b) can arguably be attributed to this fact. This means that Ezafe exhibits some degree of selection with regard to its phonological host.

Kurmancî dialects, where Ezafe has an intricate morphological relation with its host, provide further convincing support to the claim that Ezafe is not a post-lexical clitic forming a syntactic constituent with the phrase it precedes. In these dialects, Ezafe has different allomorphs triggered by the gender and the number of the head noun. The adjunction of Ezafe to the latter gives rise to sandhi phenomena, more or less idiosyncratique, which never occur across word boundaries. For instance, the masculine singular form of Ezafe, realized *–ê*, normally coalesces with preceding *a* and *ê*, but there are some exceptions:

(76) a.	albîsa ‘cloth’	albîs-ê	xo	‘his own clothes’	[Mackenzie 1961: 159]
b.	sa ‘dog’	sa-yê	wî	‘his dog’	

Furthermore, in these dialects, Ezafe and the oblique case ending cannot occur simultaneously. Thus, when a noun which would be expected to be in the oblique case due to its grammatical function, must also host Ezafe, the latter displaces the oblique case ending. This means that the Ezafe adjunction rule must have access to the morphological structure of its host, and this is quite unusual for a simple clitic.

Apart from morphological motivations, there is also in important syntactic argument for not considering Ezafe as a projecting head. As noted by Lazard (1957), and taken over by Ghomeshi (1997), Ezafe is dropped in rapid delivery. This means that, at least under certain prosodic conditions, Ezafe is optional in Persian. Furthermore, some South Western Iranian languages, which are very close to Persian, dispense with the Ezafe vowel. In different Kermanian dialects, for instance, the Ezafe vowel, although available due to a close and longstanding contact with Persian, is hardly ever used or is optional:

(77) oftâv garm Arabestân [Lecoq, 2002: 70]
sun hot Arabia
‘The hot sunshine of Arabia’

Similar facts are also observed in some North Western Iranian languages, such as Tâti dialects (Lecoq 1989) or in Southern Kurdish dialects (Fattah 2000). The significant point is that in these languages, the presence or absence of Ezafe does not affect the NP’s interpretation. Considering Ezafe as a projecting head leads to two different syntactic structures for the same NP depending on whether Ezafe is used or not, unless a null projecting head is posited in all cases where a head noun is followed by a modifier or a Possessor NP, regardless of whether Ezafe is present or not.

On the basis of the facts discussed in this section, I conclude that viewing Ezafe as a linker, that is a syntactic item forming a constituent with the following phrase while prosodically attached to the preceding element, despite its appeal, does not provide an appropriate account of the behavior of Ezafe. Consequently, I will investigate the opposite option, which consists of viewing Ezafe as a phrasal affix, which can be adjoined to any nominal non-maximal projection and which simply registers the presence of syntactic dependency within phrases headed by a nominal category (nouns, adjectives and nominal prepositions). Viewed in this way, the Ezafe-marked constituents are comparable to Hebrew construct state nominals to the extent that in both cases a nominal head is morphologically marked as waiting for a dependent. But contrary to Hebrew, which allows this morphological alternation only at the lexical level, in Iranian languages, intermediate projections can also be morphologically marked.

- Ezafe as an affix

Ghomeshi (1997) proposes that Ezafe should not be considered as a morpheme at all, as “the Ezafe vowel does not correspond to any lexical or semantic feature” (p. 778). Under this

view, Ezafe is inserted in PF in a certain syntactic configuration. Rather than treating Ezafe as a morpheme, Ghomeshi analyses it as a linking element identifying constituent structure. On this point, my position differs from Ghomeshi (1997). Although Ezafe is semantically vacuous, it may still be considered as a morpheme, since it conveys some information about the syntactic structure, or more precisely about dependency relations within the NP. In other words, Ezafe may be regarded as realizing a morphological feature: it marks a nominal constituent as waiting for modifiers or a unique complement. The term "nominal constituent" is to be taken here as any syntactic projection of a noun, an adjective or a nominal preposition (i.e. P2 and P3 prepositions). The exact conditions in which Ezafe is realized and the constituents to which it is attached will be discussed in the following section. For the time being, let us consider the analysis of Ezafe as a bound morpheme, a suffix, realizing a morphosyntactic feature.

This analysis is supported by the phonological properties of the Ezafe vowel: recall that there are two realizations of Ezafe in Persian, *-e* and *–ye*. The first one occurs after consonants and [i], and the second after all other vowels. Although in Persian, which has a rather poor nominal morphology, Ezafe displays a very restricted allomorphic variation, it should be mentioned that in other Iranian languages with a richer nominal morphology, Ezafe agrees in gender and in number with the head noun, giving thus rise to various forms.

Kurmancî Kurdish, for instance, provides conclusive evidence for viewing Ezafe as a morpheme and against its insertion in PF. Gender and oblique case marking have been maintained in different Kurmancî dialects, contrary to most of Sorani (Central) dialects and all of Southern dialects. Gender is morphologically marked on singular oblique nouns:

(78) a.	jin	jin-ê	jin-ân
	woman.DIR.SG	woman-OBL.F.SG	woman-OBL.PL
	'a/the woman' (direct)	'a/the woman' (oblique)	'women'
b.	kur	kur-î	kur-ân
	boy. DIR.SG	boy- OBL.M.SG	boy- OBL.PL
	'a/the boy' (direct)	'a/the boy' (oblique)	'boys'

Not only does Ezafe have different forms triggered by the gender and the number of the head noun within the NP, but also the oblique case ending is surprisingly displaced by Ezafe:

(79) a.	jin-â genc	jin-ên genc
	woman-EZ.F.SG young	woman-EZ.PL young
	'young woman' (direct or oblique)	'young women' (direct or oblique)
b.	kur-ê ganc	kur-ên ganc
	boy-EZ.M.SG young	boy-EZ.PL young
	'young boy' (direct or oblique)	'young men' (direct or oblique)

Furthermore, Ezafe always agrees in gender and in number with the head noun:

(80) mal-**a** mezin-**a** nermîn-ê
house-EZ.FEM big-EZ.FEM Nermin-OBL.FEM
'Narmin's big house'

Given all these facts, it is hardly conceivable not to treat Ezafe as a morpheme, on a par with number, gender and case suffixes. Similar facts are observed in Hawramani (a Gurani dialect) and in Zaza. The affixal approach outlined in this paper would allow for a unified account of Ezafe in all Iranian languages where it is available.

- Phrasal affix or word affix?

Once the affixal status of Ezafe is admitted, the question rises of whether it is a word (lexical) or a phrasal affix and of how this analysis may account for different restrictions on the Ezafe domain. Recall that Ghomeshi's hypothesis on the Ezafe construction is two- fold:

a) Persian nouns are inherently non-projecting.

b) Ezafe may never attach to a phrasal constituent.

Under Ghomeshi's view, (b) follows from (a). The Ezafe vowel cannot attach to phrasal constituents because Persian nouns are non-projecting. Although it has been demonstrated that (a) does not hold, (b) may be nonetheless true. To put it differently, one could retain only the second aspect of Ghomeshi's hypothesis, namely the inability of the Ezafe vowel to attach to phrasal constituents. Under this view, all restrictions we observe ensue from the status of Ezafe as a word affix. If this is true, one would expect that there will never be more than one phrasal constituent within the Ezafe domain, be it an adjectival phrase, a prepositional phrase or a possessor NP (or DP), and it will be the last constituent of this domain.

This is a very appealing assumption and at first glance, the empirical facts that have been examined so far seem to confirm it. On the one hand, we have met no example of noun phrases containing more than one phrasal constituent, and, on the other hand, examples such as (81), encountered in previous sections, where the Ezafe domain continues after a phrasal modifier is introduced are clearly ungrammatical.

(81) * hamsâye-ye negarân-e bačče-hâ-yaš-e maryam
neighbour-EZ worried-EZ child-PL-PAF.3.SG-EZ maryam
'The neighbour of Maryam who is worried about his children'

Unfortunately, things are a bit more complicated than they seem. Let us consider the following examples, where Ezafe is attached to a phrase:

(82) a. hamvatan-ân-e **moqim-e farânse-ye** mâ
compatriot-PL-EZ resident-EZ France-EZ we
'Our compatriots resident in France'

b. ketâb-e **târix-e irân-e mo'âser-e** maryam
book-EZ history-EZ Iran-EZ contemporary Maryam
'Maryam's book of contemporary Iran's history'

c. bačče-hâ-**ye** **az panj sâl bozorg-tar-e** in kelâs
child-PL-EZ from five year big-SPR-EZ this class
'Those children of this class who are more than five years old'

d. vilâ-ye **lab-e daryâ-ye xazar-e** amu-yam
villa-EZ edge-EZ sea-EZ Caspian-EZ uncle-PAF.1.SG
'My uncle's villa on the Caspian sea coast'

Even though these examples may seem more or less artificial to some Persian native speakers, they may not be considered as ungrammatical. Any awkwardness results from an attachment ambiguity, not from a syntactic prohibition: in (82a) or in (82d), for instance, the final possessor NP is immediately preceded by another noun (or NP) and tends to be interpreted as the complement of this latter rather than that of the whole NP. Nonetheless, none of the native speakers that have been consulted has rejected these examples categorically. Even those who were reluctant to accept them acknowledged the contrast between the examples in (82), qualified as artificial or 'heavy', and (81) which was unanimously rejected.

The examples just reviewed militate against the account of Ezafe as a word affix, unless the sequences to which Ezafe is attached are considered as X°s, and not as phrases. The problem with this alternative is that a rather sophisticated theory of X° syntax is necessary, which would somehow fail to consider *lab-e daryâ-ye xazar* 'on Caspian sea coast' as a

phrase (a maximal projection). But even in this case, viewing such sequences as words would not be conceivable.

From this body of evidence, I conclude that Ezafe is a phrasal affix, which indicates that the phrase to which it is adjoined is not the last constituent within a nominal projection. It may be however remarked that as an affix, Ezafe has in some sense dual behavior: when attaching to the head of a phrase (noun, adjective or preposition), it acts like a lexical affix, indicating that the head, which is always a word, is followed by a modifier or a complement. In this case Ezafe attaches to a word and its scope is the word it is attached to. When attaching to adjectival or prepositional modifiers, Ezafe acts as a phrasal affix, since its scope is a whole constituent and not a single word. Furthermore, while adjoining to an element, be it a word or a phrase, Ezafe must always occur on the furthest right edge of it and may never be followed by another affix.

To sum up, since Ezafe may equally well be attached to a word and to a phrase, it is best regarded as a phrasal affix. Though it is not an ordinary phrasal affix and is torn between two contradictory placement requirements: being as close as possible to the word to which it attaches morphologically and being the last phrasal affix occurring on a phrase. The first requirement entails that if there is more than one phrasal affix occurring on the right edge of a phrase, Ezafe must be placed before all other affixes. The second requirement, on the contrary, implies that within a sequence of phrasal affixes, Ezafe must be the last one. Applied jointly, these requirements imply that Ezafe will always occur alone, and that any sequence of phrasal affixes containing Ezafe is excluded in Persian.

This constraint provides a straightforward account for the contrast between (a) and (b) in the following examples:

(83) a. * ketâb-i-e maryam
book-INDEF-EZ maryam

b. yek ketâb-e maryam
one book-EZ Maryam
'A book of Maryam / one of Maryam's books'

(84) a. in dust-e âšeq-e film-hâ-ye viskonti-e man
DEM friend-EZ fond-EZ movie-PL-EZ Visconti-EZ PRO.1.SG
'This friend of mine who is fond of Visconti's film'

b. * in dust-e âšeq-e film-hâ-yaš-e man[23]
DEM friend-EZ fond-EZ movie-PL-EZ-PAF.3.SG PRO.1.SG

Under this view, certain constraints on the Ezafe construction receive a purely surface-based account, in terms of constraints on affix stacking, with no need for syntactic constraints, be they "surface" or "deep" ones. If this account is appropriate, it is expected that examples such as (84b) will become grammatical in case a reordering of the constituents within the NP is possible such that affix stacking is avoided. This seems indeed to be the case, given the contrast between (75a) and (75b) above.

It should be noted that similar restrictions on affix stacking involving Ezafe are observed in other Iranian languages. Let us take first the following puzzling examples from Kurmancî Kurdish:

(85) a. mal-a [bira-yê min]-a biçuk
house-EZ.F.SG [brother-EZ.M.SG I.obl]-EZ.F.SG small
'My brother's small house'

[23] It should be mentioned that binding constraints are not responsible for the ungrammaticality of this example, since the NP is ungrammatical even when the personal affix *–yaš* is bound by the head noun within the NP.

b. * mal-a [van jin-an]-a biçuk
house-ez.f.sg [dem.obl.pl woman-obl.pl]-ez.f.sg small

c. mal-a [van jin-an] ya biçuk
house-EZ.F.SG [DEM.OBL.PL woman-OBL.PL] DEMEZ .F.SG small
'The small house of these women'
(Lit. These women's house, the small one)

As shown by (85a), contrary to Persian, the possessor NP does not necessarily appear in the final position within the Ezafe domain and may precede an adjectival modifier. The second occurrence of Ezafe is attached to the oblique pronoun *min*. This attachment is possible, since the oblique case of the pronoun is not realized by an affix and Ezafe can directly attach to the word. In (85b), Ezafe is also attached to an oblique noun, but here the oblique case being realized by an affix, Ezafe must attach to another affix, and not directly to the stem. In order for (85b) to become grammatical, the so called "Demonstrative Ezafe" must be used, as in (85c). The Demonstrative Ezafe is not a suffix. It functions as a pronoun and may head a noun phrase:

(86) yê dwê … yê sêyê [Mackenzie 1961: 163]
DEMEZ second DEMEZ third
'The second one, the third one'

It seems quite clear that *–ya* in (86c) is not a simple morphological variant of Ezafe in (86a) and that these NPs involve two different syntactic structures. Probably *-ya* is the head of a nominal projection and the phrase it projects is adjoined to the NP headed by *mal* 'house'. Being beyond the scope of this paper, this issue will not be addressed here. However on the basis of (86), it may be concluded that in Kurmancî Kurdish, as well as in Persian, there are constraints on affix stacking involving Ezafe. Similar facts are also observed in Sorani Kurdish. Let us take the following examples:

(87) a. **b-ew dû pûl-e-**y ko-m kird-i-bo-we e-jî-n [Bassols 1992: §86]
'We are living thanks to the little money I managed to save'

b. **be gujm-u-gur-êk-ewe** ke hîç le leş-î lawaz-î çaweruwan (...) [Bassols 1992: §104]
'with such a force and energy that nothing in his slim body (…) '

In (87a) the Ezafe links a restrictive relative clause to its antecedent, *pûl* 'money', which is embedded in a prepositional phrase introduced by the preposition *be* 'to'. In (87b), the prepositional phrase containing the antecedent of the relative is followed by the postposition *-ewe*, which is an enclitic (a phrasal affix). In this case, Ezafe may not be used. Other examples are provided by Bassols (1992), who notes also the impossibility for Ezafe to attach to another enclitic.

At this point, one major restriction on the Ezafe construction has been clearly identified, which can be (informally) stated as follows:

(88) Constraint on Ezafe :
The Ezafe vowel may not attach to a phrasal affix, nor may it be followed by a phrasal affix.

This constraint accounts for the ungrammaticality of some of the examples discussed up to now, and I suggets that it can be extended to the following data:

(89) a. * ketâb-i-š
book-INDEF-PAF.3.SG
(putatively) 'one of his/her books' or 'a book of him/her'

b. * ketâb-eš-i
book-PAF.3.SG-INDEF

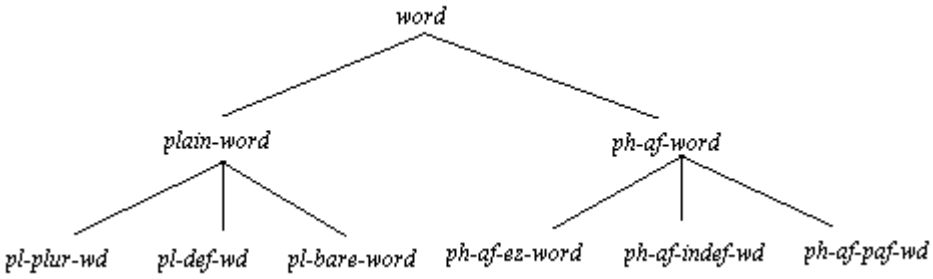
Recall that under Ghomeshi's analysis, (89) is excluded because the indefinite article *–i*, which is a D°, cannot licence a possessor DP, namely the personal affix *–aš*, in the [Spec, DP] position. The problem which arises with this account is that the following example is also ungrammatical, though the personal affix here need not be licenced by the indefinite article *–i*:

(90) * barâdar-e moqim-e kešvar-e durdast-i-š
brother-EZ resident-EZ country far-INDEF-PAF.3.SG
(to say: 'his brother who is resident of a country far away')

Since it has been shown that phrasal status of the of the adjectival modifier is also not responsible for the ungrammaticality of this example, I assume that the indefinite *–i* and the personal affixes are subject to a similar constraint, that is they are required to be directly attached to a plain word and not to another phrasal affix.

In this section, suffixes occurring within the Persian NP were argued to be divided in two classes: word affixes and phrasal affixes. Plural suffixes and the colloquial definite *–e* are members of the first class. The second class includes Ezafe, personal affixes and the enclitic –i. It was further argued that the latter must attach directly to a plain word, excluding affix stacking. Like affixes, words may be classified according to different kinds of affixes they host:

(91) (Partial) *word* hierarchy



5. The internal structure of the NP

This section addresses the issue of the internal structure of the NP with regard to the Ezafe construction. Let us recall that the surface word order pattern is strongly head initial within the Persian NP and that possession is expressed by means of a bare NP linked to the Head noun by Ezafe. Adjectival modifiers and certain prepositional modifiers intervene between the head noun and the possessor NP and are linked one to another by Ezafe. Prepositional arguments occur after the possessor NP. The head noun may be preceded by numerals, demonstratives and quantifiers. The analysis outlined in this section relies on some assumptions thoroughly discussed in previous sections, essentially the assumption that the nominal phrase in Persian is the projection of a noun and not that of a determiner. I will first consider the syntactic position of the Possessor NP, since this is the central issue to be resolved before considering the prenominal elements (numerals, determiners…).

5.1. The possessor NP: complement or specifier ?

Under the assumption that the noun is the head of the nominal projection, two options are available for the Possessor NP, either it is a complement or a specifier.[24] Along the lines that follow, I will present different arguments in favour of each of these solutions. I will then argue that there are reasons for favouring complement analysis, since it offers more advantages and fewer drawbacks than the specifier analysis.

Different versions of the X-bar analysis rely on the assumption that a projecting head combines with its complements before combining with adjuncts (or modifiers). Within HPSG, this assumption is embodied in constraints on *phrases*. In the following rule, which concerns phrases composed of a Head (Daughter) and its complements, the former is required to be a *word*.

(92) *head-complement-phrase* [Ginzburg & Sag 2000: 364 (6)]

$$[\,] \rightarrow \mathbf{H}\left[\begin{array}{l} word \\ \text{COMPS} \quad nelist\,([A] \oplus list) \end{array}\right] \quad [A]$$

In contrast, the combination of a head with its modifiers and with its specifier is not subject to such a constraint. The fact that in Persian, the possessor NP is required to occur after all adjectival modifiers is an argument for not considering it as a complement, but rather as a specifier. Such an analysis would imply that Persian nouns systematically lack complements.

A similar analysis has been proposed by Sadler (2000) for Welsh[25]. The noun phrase in Welsh displays the same word order pattern that in Persian. Furthermore, overt determiners and possessor phrases are in complementary distribution and, in the possessor construction, the definiteness specification for the entire noun phrase comes from the possessor phrase. Sadler (2000) argues that the apparent word order paradox, with specifiers intervening between head and complements, and adjectives between head and specifier, follows not from head movement, as it has been assumed in different studies (Rouveret 1994, among others), but from the fact that nouns in Welsh systematically lack structural complements. Thus the "semantic complements" are not syntactic complements at all, but adjuncts.

Applied to Persian, this analysis provides a straightforward account for the word order pattern within the NP, together with the uniqueness of the possessor NP. Furthermore, no modification of constraints on phrases or new Immediate Dominance rules are needed. Finally, it accounts for the definiteness of NPs containing a possessor NP, a fact invoked by Ghomeshi (1997) to support the idea that the possessor is located in a higher position than adjectival modifiers, namely in [Spec, DP] position. Recall that according to Ghomeshi, noun phrases that include a possessor are obligatorily construed as definite or presupposed.

Although all these facts seem to advocate viewing the possessor NP as a specifier rather than a complement, this latter alternative is supported by some convincing evidence as well:

- A unified account for nouns, adjectives and nominal prepositions

Treating the possessor NP as a complement allows for a unified account of nouns, adjectives and nominal prepositions. Recall that the Ezafe construction is not a peculiarity of NPs, but is also encountered within adjectival and some prepositional phrases. In this case, the Ezafe vowel introduces the complement of the lexical head:

(93) a.	maryam	**âšeq-e omid**	ast
	Maryam	in love-EZ Omid	be.PRES

[24] The DP view of the noun phrase offers the further option of placing the possessor NP in the [Spec, DP] position. This is the analysis adopted by Ghomeshi (1997).

[25] In fact Sadler (2000) adopts the DP analyses: the possessor NP (DP) is in [Spec, NP] position, and D° takes the whole NP as its complement.

'Maryam is in love with Omid'

b. maryam goldân râ **ruy-e miz** gozâšt
Maryam vase RÂ on-EZ table put.PAS
'Maryam put the vase on the table'

Moreover, this NP is unique, which is also the case of the possessor NP. Thus the uniqueness of the possessor within the NP is not a conclusive argument in favour of the specifier analysis. Nouns and adjectives are similar in a number of ways in Persian and several lexical items may be used as nouns or as adjectives indifferently:

(94) a. zan-ân-e sâken-e in mahalle
woman-PL-EZ resident-EZ this neighbourhood
'The women who are residents of this neighbourhood'

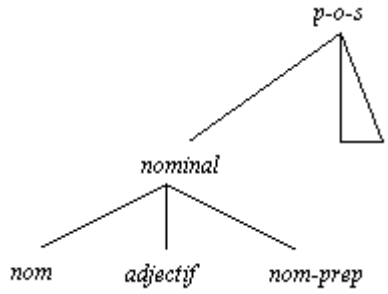
b. sâken-ân-e in mahalle
resident-PL-EZ this neighbourhood
'The residents of this neighbourhood'

Furthermore, in contexts of noun ellipsis, adjectives act as the head of the NP and are inflected as nouns, as illustrated by the following example:

(95) kafš-hâ-ye qermez-e tu-ye vitrin az siâh-hâ-ye tu-ue in ja'be qašang-tar hast-and
shoe-PL-EZ red-EZ in-EZ window of black-PL-EZ in-EZ this box nice-SPR ba.PRES-3.PL
'The red shoes in the window are more beautiful that the black ones in this box'

Viewing the possessor NP as a specifier would imply two different analyses for *in mahalle* 'this neighbourhood' in (90). The same problem rises for nominal prepositions which, as it has already been mentioned, exhibit both nominal and prepositional properties and may head NPs. Instead, the complement analysis of the possessor NP allows for a unified account of the NP embedded within an NP, an AP or a PP, and linked to the head by Ezafe, which will be considered as a complement in all cases. The shared properties of nouns, adjectives and nominal prepositions may be captured by the type hierarchy associated with the different parts of speech:

(96) (Partial) *part-of-speech* hierarchy



- A unified account for personal affixes

Like the possessor NP, the nominal complement of adjectives and nominal prepositions may alternate with a personal affix:

(97) a. maryam **âšeq-eš** bud
Maryam in love-PAF.3.SG be.PAS
'Maryam is in love with him'

b. maryam goldân râ **ruy-aš** gozâšt
Maryam vase RÂ on-PAF.3.SG
'Maryam put the vase on it'

Recall that the same set of personal affixes are also used with verbs, and that in this case they always correspond to the first (or the least oblique) complement and never to the subject.[26] Again, the specifier analysis of the possessor NP, would involve two different analyses of the role of personal affixes with respect to a head. The complement analysis avoids this undesirable side effect. Let us mention that a similar argument has been used by Borsley (1995) to support the complement analysis of the possessor within the Welsh NP. A similar view is adopted by Wintner (2000) for the Construct State nominal's associate in Modern Hebrew. To sum up, the parallelism between nouns, adjectives and prepositions is accounted for straightforwardly if the possessor NP is treated as a complement rather than a specifier.

As mentioned previously, a strong argument in favour of the specifier analysis of the possessor NP in different languages is the role of the latter in the definiteness value of the whole NP. In some languages, such as Welsh or Modern Hebrew, there is a phenomenon referred to as (in)definite spread. The whole NP receives a definite or indefinite reading depending upon the definiteness or indefiniteness of the possessor NP. Within the generative tradition, it has been assumed that the specifier-head agreement may provide an appropriate account of (in)definite spread. Along the lines that follow, I will examine different issues concerning the determination of NPs including a possessor NP in Persian, showing that the specifier analysis faces some important problems.

5.1.1. Are all NP including a possessor NP definite?

It has been generally claimed that Persian NPs containing a possessor NP are obligatorily construed as definite. Ghomeshi (1997) further assumes that possessors are always DPs and that bare nouns may never occur in [Spec, DP] position. Even though NPs containing a possessor preferentially receive a definite reading, there seem to be counterexamples to both of these claims. Let us begin with the following example to illustrate the indefinite or even the non-referential reading of an NP including a 'possessor':

(98) az pošt-e dar, **sedâ-ye bačče** âmad
from behind-EZ door, voice-EZ child come.PAS
'A/the child's voice was heard behind the door'

In (98), *bačče* 'child', the 'possessor' NP, may receive either a definite/presupposed or a non-referential interpretation (bare noun or property interpretation). These two readings are clearly distinguished when the NP *sedâ-ye bačče* is the direct object of the verb:

(99) a. sedâ-ye bačče šenid-am
voice-EZ child hear.PAS-1.SG
'I heard a child's voice'

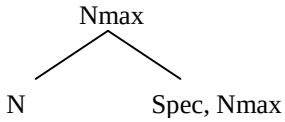
b. sedâ-ye bačče râ šenid-am
voice-EZ child RÂ hear.PAS-1.SG
'I heard the child's voice'

[26] In colloquial Persian, there are examples where a personal affix used with a verb correspond to its subject:
umad-eš
come.PAS-PAF.3.SG
'She/he came'
These uses seem to be limited to the 3rd person singular 'subject' of unaccusative verbs. For further examples see Lazard (1992).

Since definite direct objects necessarily trigger *râ*, the grammaticality of (99a) entails that an indefinite or a bare NP reading is available for *sedâ-ye bačče*. This in turn implies that NPs containing a possessor NP may, under certain circumstances, receive a non-definite reading.

It may be objected that in (99a), *bačče* 'child' is not the possessor NP, but an attributive noun, meaning 'childish', and thus does not occupy the [Spec, DP] position, but occurs within the Ezafe domain (under N'), as a modifier. In other words, being a non-maximal projection, *bačče* 'child' resembles "modificational genitives" (Woisetsclaeger 1983, Munn 1998) in English. A similar distinction has been proposed by Dobrovie-Sorin (2005) for Construct State nominals in Hebrew, which resemble the Ezafe construction to some extent. In her bare phrase structure account of simple genitives (e.g. Saxon genitives, Construct State associate, *al*-less genitives in Romanian), dispensing with the DP layer and N-to-D raising, Dobrovie-Sorin proposes the following structure for Construct State Nominals in Hebrew (and for all simple genitives cross linguistically):

(100)



This structure, which resembles the one proposed by Sadler (2000) in many respects, diverges from Kayne (1994) in assuming that Spec constituents can occur on the right-hand of the head noun. According to Dobrovie-Sorin (2005) the right-merge of Spec seems to be dependent on the absence of a complement of N°.

The ban on indefinite articles within a genitive construction receives an account in terms of type incompatibility. The NPs containing a genitive have an e-type denotation, but this type of denotation is not compatible with either quantifiers (e.g. *every* or *each*) or indefinite articles and numerals, all of which must combine with property denoting expressions:

(101) a. * a [Mary's sister] [Dobrovie-Sorin 2005]
b. * every / each [Mary's sister]

Similarly, the ungrammaticality of English DPs embedding indefinite simple genitives is assumed to be due to the incompatibility between the rules of semantic composition underlying genitive specifiers on the one hand and indefinite articles on the other hand:

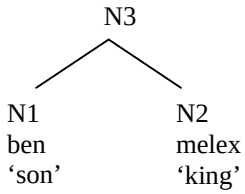
(102) a. * a a man's house [Dobrovie-Sorin 2005]
b. * some a king's palaces

Dobrovie-Sorin notes however that the Hebrew indefinite CSNs raise problems for this prediction, given the fact that the Hebrew counterparts of the above mentioned examples are unexpectedly grammatical:

(103) beit iš [Dobrovie-Sorin 2005]
house man
'a house of a man'

To account for these facts, it is assumed that Hebrew indefinites are bare nouns rather than DP projections. Since bare NPs are property-denoting rather than individual-denoting expressions, they may not appear in [Spec, Nmax]. It follows that the indefinite associates are merged as sisters of the head noun. According to this analysis, CSN's constructed with indefinite possessors come out structurally identical with indefinite "CS compounds".

(104)



Turning now to the Persian example (99), the same analysis may be assumed to apply: being a bare noun, *bačče* ‘child’ does not sit in [Spec, Nmax] and is in fact a modifier rather than a possessor NP.

This analysis faces however some serious problems. First, *bačče* ‘child’, which is indeed a bare noun, displays some important syntactic properties of a possessor NP. First, it is unique, which means that a possessor NP cannot be added after *bačče* ‘child’. Thus, the following example may never be interpreted as ‘the childish voice of this woman’:

(105) sedâ-ye bačče-ye in zan
voice-EZ child-EZ this woman
‘This woman’s child’s voice’ (and not: ‘the childish voice of this woman’)

Secondly, *bačče* ‘child’ occurs in the last position within the noun phrase and, unlike attributive nouns, cannot be followed by an adjective modifying the head noun *seda* ‘voice’, as it is shown by the contrast between the following examples:

(106) a. seda-ye boland-e bačče
voice-EZ high-EZ child
‘A high child’s voice’

b. * sedâ-ye bačče-ye boland
voice-EZ child-EZ high

(107) a. sedâ-ye gušxarâš-e havâpeymâ
sound-EZ strident-EZ plane
‘a strident sound of plane’

b. * sedâ-ye havâpeymâ-ye gušxarâš
sound-EZ plane-EZ strident

These facts are problematic for a modifier analysis of *bačče* ‘child’ and *havâpeymâ* ‘plane’. Indeed, in typical examples of bare modifier nouns proposed by Dobrovie-Sorin (2005), constraints on word order, if any, require the bare noun to be adjacent to the head noun, rather that to be separated from it, as shown by the following French examples:

(108) a. des enfants d’amis assez turbulents
INDEF children of friends quite rowdy

b. * des enfants assez turbulents d’amis
INDEF children quite rowdy of friends

It would be mysterious that a constraint encountered in several languages do not apply to Persian. Moreover, in such examples, the bare noun may in turn be followed by a ‘possessor’ NP linked by Ezafe, without triggering necessarily a definite reading. This is particularly clear with infinitives, which may regularly head nominal projections in Persian, as illustrated by the following attested example:

(109) sedâ-ye šekastan-e šiše šenid-am (...)[27]
sound-EZ break.INF-EZ glass hear.PAS-1.SG
'I heard a voice of breaking glass / I heard the glass breaking'

Once again, considering *šekastan-e šiše* 'breaking of a glass' as a modifier leads to serious problems, given the fact that such an analysis in turn entails that *šiše* 'glass' is a modifier of *šekastan* '(to) break'. Along the lines which follow, I will argue that this assumption is clearly untenable.

It is well known that Persian bare nouns tend to coalesce with the verb they are complement of, the whole 'noun + verb' sequence behaving thus like a word. The bare direct object of a an infinitive may be realized in two different positions. It may precede or follow the infinitive. In the first case, illustrated by the following example, there is no need for Ezafe:

(110) qabl az **duš gereftan**, Maryam yek fenjân qahve nušid
before of shower take.INF, Maryam one cup coffee drink.PAS
'Before taking a shower, Maryam drank a cup of coffee'

In this case, the 'subject' of the infinitive may be realized after it, as a possessor NP:

(111) qabl az **duš gereftan-e Omid**, Maryam yek fenjân qahve nušid
before of shower take.INF-EZ Omid, Maryam one cup coffee drink.PAS
'Before Omid take a shower, Maryam drank a cup of coffee'

But as mentioned above, and contrary to what has been claimed in previous studies (see Mohammad & Karimi 1992, among others), the bare noun can also occur after the infinitive, as shown by the following attested example:

(112) šab hengâm (…) čon be xâne bar gašt,
night time (…) when to home return.PAS
bâ **gereftan-e duš** va xâbidan dar vân (…) dobâre jân gereft[28]
with take.INF-EZ shower and sleep in bath (…) again soul take.PAS
'At the evening, when he went back home, after taking a shower and lying in the bath, he got his strength back'

Crucial to our discussion is that the post-infinitive realization of the bare noun blocks the presence of the 'subject' possessor DP.

(113) * gereftan-e duš-e omid
take.INF-EZ shower-EZ Omid

Being a bare noun, *duš* 'shower' is not expected to sit in Spec position, be it [Spec, Nmax] or [Spec, DP]. The Spec position being vacant, nothing prevents the subject DP from occupying it, as in (112). Thus the ungrammaticality of (113) remains unexplained, unless it is assumed that both *duš* 'shower' and *Omid* are in competition to occupy the same position. It follows that whatever the position of the Possessor NP is, it must accommodate also the bare noun *duš*. Maintaining the specifier position for the possessor would imply that bare nouns may sit in [Spec, Nmax] or [Spec, DP], and this is obviously a deviation from standard assumptions concerning the specifier position within different variants of the generative model (minimalist or pre-minimalist ones).

[27] Zoya Pirzad, *Yek ruz mânde be eyde-e Pâk* (novel), p. 39.
[28] M. Behnud, In se zan (novel), p. 192.

5.1.2. Quantifiers and numerals within the NPs including a possessor

Another argument put forward by Ghomeshi (1997) to support the idea that the possessor NP occupies the [Spec, DP] position concerns the behavior of numerals. Although numerals may occur within NPs including a possessor, according to Ghomeshi, they never have large scope over it. This would explain why in (114a), *se tâ ketâb* 'three books' has a definite reading (Hasan has only three books). Whereas in (114b), where the numeral is embedded within a prepositional phrase, it is the numeral which has scope over *Hasan*, hence the partitive reading for the whole NP:

(114) a. se-tâ ketâb-e hasan [Ghomeshi 1997: 768-9, (73)]
three-UNIT book-EZ Hasan
'Hasan's three books'

b. se-tâ az ketâb-hâ-ye hasan
three-UNIT of book-PL-EZ Hasan
'three of Hasan's books'

These facts would suggest that in (114a), the possessor is higher than the numeral. Recall that Dobrovie-Sorin (2005) claims that the incompatibility between genitive specifiers and numerals is a universal property, which follows from a type mismatch: numerals may only combine with property-denoting expressions, whereas genitive specifiers are always individual-denoting. According to Dobrovie-Sorin, This incompatibility is only apparently violated in some languages, such as English, Hebrew (and Persian), as illustrated by (114a), since the numeral in this case does not function as a determiner, but rather as an adjective/cardinality predicate.

I will argue in contrast that numerals are compatible with possessor NPs in Persian and that a partitive reading is available in (114a). Let us take the following examples:

(115) **yek dânešju-ye sâbeq-am** ham injâ dar ohayo hast[29]
one student-EZ ancient-PAF.1.SG also here in Ohio be.PRES
'One of my Ancient studients is also here, in Ohio'

(116) **do angošt-e dast-e râst-e Omid** dar in tasâdof qat' šod
two finger-EZ hand-EZ right-EZ Omid in this accident cut become.PAS
Two of the right hand fingers of Omid were cut in this accident

(117) **agar** **yek mu-ye sebil-am râ** tu-ye bazaar gerow be-gozâr-am (...)[30]
if one hair-Ez mustache PAF.1.SG RÂ in-EZ bazaar security put
'If I leave just one hair of my mustache as a security in bazar (…)'

The only available interpretation for the numeral in these examples is a partitive one, which means that the numeral is interpreted as a real numeral and not as an adjective/cardinality predicate. It should be noted that the partitive reading entails syntactic definiteness for the whole NP. Consequently *râ* is compulsory in all cases when the partitive NP is a direct object. As it has been argued by Danon (2001) for Modern Hebrew, which displays similar facts, syntactic definiteness does not always correlate with semantic definiteness. Since this discussion is behind the scope of this paper, I will not pursue it further here.

To summerize, viewing the possessor NP as a complement of the head noun seems to provide a more appropriate account of Persian data rather than viewing it as a specifier.

[29] Boxârâ, v. 2, n°7, 1999, p. 57.
[30] This example is from Lazard (1992), who quotes S. Hedâyat, an Iranian author.

Furthermore, this analysis is supported by Kurmancî Kurdish data, where the possessor NP may precede adjectival modifiers:

(118) mal-a [bira-yê min]-a biçuk
house-EZ.F.SG [brother-EZ.M.SG I.OBL]-EZ.F.SG small
'My brother's small house'

In case the specifier analysis is applied to the possessor NP, adjectival modifiers will be required to be adjoined to NP (or Nmax). This is in fact Dobrovie-Sorin's assumption about adjectival modifiers within Hebrew NPs headed by a Construct State nominal. But unlike Hebrew, where adjectival modifiers may never intervene between the CS nominal and its associate, in Kurmancî Kurdish they may as well occur before the possessor NP. An embarrassing side effect of this analysis is that depending whether they precede or follow the possessor NP, adjectival modifiers will be attached to two different syntactic levels: when occurring before the possessor NP, they will be adjoined to N', when occurring after the possessor NP, they be will be adjoined to N'' (or NP, or Nmax). The problem is that there is no independent motivation for establishing a structural difference between pre-possessor and post-possessor adjectival modifiers. Quite the reverse, the latter display none of the typical properties of NP-adjoined constituents: they cannot undergo scrambling or extraposition, neither may they be separated from the possessor NP by other adjoined constituents, such as PPs. The alternative which consists of analysing the possessor as a complement skips such problems: a flat structure may be adopted for the Ezafe domain in Kurmancî, where adjectival modifiers and the possessor NP combine simultaneously with the head noun[31].

Different facts discussed in this section lead to the conclusion that viewing the possessor NP as a complement is a more attractive option from both language internal and cross-linguistic points of view. Before establishing a definite conclusion on this issue, let us consider a last piece of data which apparently constitutes a strong argument against the complement analyses of the possessor NP. We have already examined examples such as (119) below, whose ungrammaticality has been attributed to the impossibility for the indefinite article and Ezafe to attach simultaneously to the same host:

(119) ketâb-i-e maryam
book-INDEF-EZ Maryam
(putatively) 'a book of Maryam'

However, under the assumption that the possessor is a complement, the ungrammaticality of the following example seems to remain unexplained:

(120) a. * ketâb-e maryam-i
book-EZ Maryam-INDEF
(putatively) 'a book of Maryam'

b. * ketâb-e maryam-i ke ru-ye miz bud
book-EZ Maryam-RESTR that on-EZ table be.PAS
(putatively) 'Maryam's book that was on the table'

If the enclitic *–i*, be it the indefinite article or the restrictive relative particle, is a phrasal affix which attaches to the last constituent within N', then it must attach the possessor NP in the above examples. Although I will propose no account for these facts here, it must be noted

[31] Such an analysis has been adopted by Abeillé & Godard (1999) to account for the placement of adjectives within the French NP.

that a structural or configurational account is perhaps not the most appropriate track to explore. Let us consider the following examples, which do not seem ungrammatical to me:

(121) ? yek mošt xâk-e irân-i ke maryam bâ xod-aš be xârej âvarde bud
one handful soil-EZ Iran-RESTR that Maryam with self-PAF.3.SG to abroad taken be.PAS
'The handful of Iran's soil that Maryam had brought abroad with herself'

(122) ? ân tâblo-hâ-ye pikâso-i ke dar in galeri be namâyeš gozâšte šode-and
DEM painting-PL-EZ Picasso-RESTR that in this galley to exposition put become-3.PL
'Those Picasso's painting which are axposed in this gallery'

Although 'Picasso' and 'Iran' are definite NPs, the enclitic *–i* may still be attached to them. I leave the issue of the placement of *–i* for further investigation. For the moment, ignoring the above mentioned examples, it will be just stipulated that *–i* attaches to the last modifier within the Ezafe domain (N'). From the body of evidence discussed in the section, I conclude that the possessor NP is the unique NP complement of Persian nouns.

5.2. Prenominal elements within the NP

As mentioned previously, the head noun may be preceded by different determiners (numerals, demonstratives, quantifiers…) and a selected bunch of adjectives (superlatives and ordinals). Let us first consider pronominal adjectives.

5.2.1. Prenominal adjectives

Prenominal placement of adjectives involves two different cases. Certain adjectives, such as superlatives and a class of ordinals, always occur pre-nominally. Superlatives, unlike comparatives, may never occur postnominally and consequently are never introduced by Ezafe. When used alone, they function as (pro)nouns and exhibit all nominal properties:

(123) a. zibâtarin zan
beautiful.SPR woman
'The most beautiful woman'

b. zibâtarin râ mi-xâh-am
beautiful.SPR RÂ TAM-want.PRES-1SG
'I want the most beautiful one'

c. zibâtarin-e ânhâ râ mi-xâh-am
beautiful.SPR-EZ they RÂ TAM-want.PRES-1SG
'I want the most beautiful of them'

There are two sets of ordinals in Persian. The members of the first set behave as attributive adjectives. They are placed after the head noun and are linked to it by Ezafe.

(124) ruz-e avval
day-EZ first
'the first day'

The second set is derived from the former by the adjunction of the suffix *–in*, which is also used to derive superlatives from comparative form. These ordinals always occur pre-nominally and have the same properties as superlatives:

(125) a. avvalin ketâb
first book
'The first book'

b. avvalin râ mi-xâh-am
first RÂ TAM-want.PRES-1SG
'I want the first one'

c. avvalin râ mi-xâh-am
first RÂ TAM-want.PRES-1SG
'I want the first one'

d. avvalin-e ânhâ râ mi-xâh-am
first-EZ they RÂ TAM-want.PRES-1SG
'I want the first of them'

Contrary to these adjectives that are required to be prenominal, certain attributive adjectives, which usually occur after the head noun, may also occur prenominally:

(126) a. doxtar-e zibâ
girl-EZ beautiful
'beautiful girl'

b. zibâ doxtar
beautiful girl
'beautiful girl'

It should be noted that this order is encountered basically in poetry style or in case of lexicalization. On the basis of these facts, Kahnemuipour (2000) assumes that all adjectives are generated in a prenominal position in Persian, the reversed order and the Ezafe vowel being the result of the noun moving to occupy the specifier position of the Modifier Phrase. There are several problems with this account. I will limit myself to point out the most significant ones. Prenominal attributive adjectives do not receive the same range of interpretations that postnominal adjectives. Let us compare the following NPs:

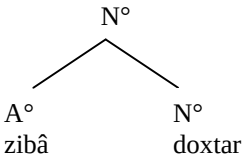
(130) a. zibâ doxtar-ân-e maryam
beautiful girl-PL-EZ Maryam
'Maryam's beautiful girls'
→ 'Maryam's girls, who are all beautiful'

b. doxtar-ân-e zibâ-ye maryam
girl-PL-EZ beautiful-EZ Maryam
'Maryam's beautiful girls'
→ 'Those Maryam girls who are beautiful' or 'Maryam's girls, who are all beautiful'

Postnominal adjectives, like restrictive relatives, may give rise to an intersective reading: those entities which have the property of being beautiful and the property of being Maryam's girl. This is not the case of prenominal adjectives. Moreover, there may be more than one postnominal adjective within in NP, while the number of prenominal adjectives is limited to one.

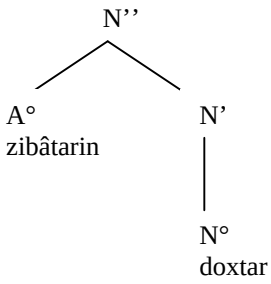
I will assume, contrary to Kahnemuipour (2000), that attributive adjectives occurring prenominally involve syntactic compounding and give rise to the following structure:

(127)



Unlike attributive pronominal adjectives, superlatives and set two ordinals are assumed to sit in the specifier position:

(128)



The specifier analysis of ordinals and superlatives accounts for the fact that they never occur postnominally. It explains also their incomptability with other specifiers, in contrast with prenominal attributive adjectives, which may occur with specifiers, as shown by the following examples:

(129) a. * har avvalin roman(-i)
each first novel(-INDEF)

b. * hič avvalin roman(-i)
none first novel(-INDEF)

c. har zibâ doxtar-i
each beautiful girl-INDEF
'every beautiful girl'

Furthermore, it accounts for the fact that superlatives and ordinals may occur with pronominal attributive adjectives, while there may not be more than one pronominal attributive adjective within a NP:

(130) a. avallin zibâ doxtar
first beautiful girl
'the first beautiful girl'

b. * mu-siâh zibâ doxtar
hair-black beautiful girl
(putatively) 'a beautiful dark-haired girl'

Superlatives and ordinals, on the one hand, and prenominal attributive adjectives, on the other hand, differ with regard to coordination. The former may be coordinated and have large scope over coordination of nouns or N's. The latter, by contrast, cannot be coordinated, neither may they have large scope over noun or N' coordinations:

(131) a. avallin va âxarin român-e in nevisande
first and last novel-EZ this author
'The first and the last novel of this author'

b. jâlebtarin dastân-hâ-ye maryam va roman-hâ-ye omid
interesting.SPR story-PL-EZ Maryam and novel-PL-EZ omid
'Maryam's most interesting stories and Omid's most interesting novels'

(132) a. ?* zibâ va ra'nâ doxtar
beautiful and slender girl
(putatively) 'a beautiful and slender girl'

b. * zibâ doxtar-e mu-siâh va zan-e blond-i[32]
beautiful girl-EZ hair-black and woman-EZ blond-INDEF
(if interpreted as) 'a beautiful dark-haired girl and a beautiful blond woman'

[32] This example is grammatical if *ziba* 'beautiful' has not large scope over coordination.

These facts provide enough support for two distinct analyses of prenominal adjectives. Ordinals and superlatives are best regarded as specifiers, on a par with determiners such as *har* ‘each, every’, *kodâm* ‘which’, etc. Prenominal attributive adjectives, on the contrary, involve compounding.

5.2.2. Determiners and numerals

Apart from prenominal adjectives, numerals and certain determiners such as *har* ‘each, any’, *kodâm* ‘which’, *hič* ‘none’, *in* ‘this’ occur also pre-nominally within the NP. These determiners will be assumed to occur in the specifier position. This assumption is supported by different arguments. They may have large scope over coordination:

(133) a. kodâm roman-hâ-ye maryam va dâstân-hâ-ye Omid
which novel-PL-EZ Maryam and story-PL-EZ Omid
‘Which novels of Maryam and stories of Omid’

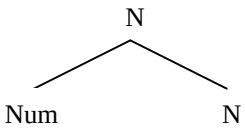
b. in lebâs-hâ-ye maryam va kafš-hâ-ye omid
this dress-PL-EZ Maryam and show-PL-EZ Omid
‘Maryam’s these dresses and Omid’s these shows’

c. har irân-i moqim-e farânse ya farânsavi-e moqim-e irân-i
any Iranian-INDEF resident-EZ France or French-EZ resident-EZ Iran-INDEF
‘Any Iranian resident in France or any French resident in Iran’

They ‘select’ the type of N’ they combine with. Demonstrative determiners *in* ‘this’ and *ân* ‘*that*’, for instance, cannot occur with indefinite *–i*, while *hič* ‘none’, occurs obligatorily with indefinite N’ containing *–i*.

Numerals, by contrast, will not be analyzed as specifiers, but as lexical level constructions forming a N° with the head noun:

(134)



There are several arguments in favour of such an analysis. First, contrary to the afore mentioned determiners, numerals do not have large scope over coordination of N’s, as shown by (135a) and (135b). Furthermore, Numerals are in complementary distribution with the plural affix and with the indefinite *–i*, as illustrated by (135c):

(135) a. * do irâni-e moqim-e farânse va farânsavi-e moqim-e irân
two Iranian-EZ resident-EZ France and French-EZ resident-EZ Iran

b. do irâni-e moqim-e farânse va do farânsavi-e moqim-e irân
two Iranian-EZ resident-EZ France and two French-EZ resident-EZ Iran
Two Iranians resident of France and two French people resident of Iran

c. * do doxtar-hâ / * do doxtar-i
two girl-PL two girl-INDEF

5.3 The final structure for the Persian NP

On the basis of the data discussed in this section, the following structure is proposed for an NP such as *in doxtar-e zibâ-ye maryam* 'this Maryam'a beautiful girl' is the one given in the figure (2) below :

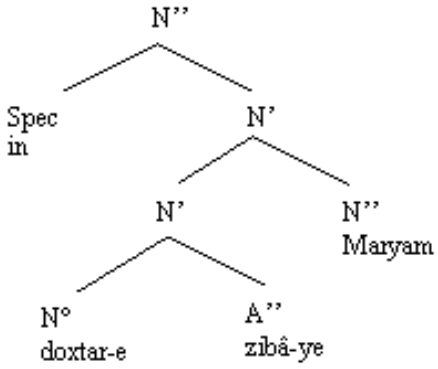


Figure (2)

The only reason why a hierarchical binary-branching structure under N' has been retained against a flat structure, where all modifiers and the possessor NP are with the head noun at once, is the scope properties of these constituents in case of coordination:

(136) a. lebâs-e âbi va kolâh-e siâh-e tu-ye vitrin
dress-EZ blue and hat-EZ black-EZ in-EZ window
'The blue dress and the black hat in the window'

b. lebâs-e âbi va kolâh-e siâh-e maryam
dress EZ blue and hat-EZ black-EZ Maryam
'Maryam's blue dress and black hat'

As shown by these examples, a modifier or a possessor NP may have large scope over the coordination of two N's. A hierarchical structure for N' allows for a straightforward account of these properties. Otherwise a flat structure like the one proposed by Samiian (1983) would be appropriate as well.

6. A formal HPSG account

This section provides a formal account of the Ezafe construction within Head Driven Phrase Structure Grammar, a constraint-based model developed in Pollard & Sag (1994) and Ginzburg & Sag (2000). Recall that in section (3) Ezafe was argued to be a phrasal affix, morphologically realized at the lexical level and interpreted within syntax. In order to handle this two-level analysis, the treatment proposed in this paper is largely inspired by Miller (1992) and Tseng (2003), particularly in the use of EDGE feature percolation.

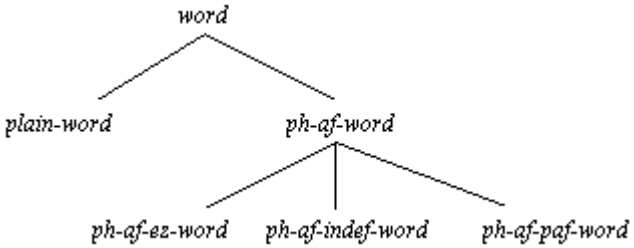
6.1. EDGE Features

Relying on the idea of EDGE features introduced by Klavans (1985) to determine clitic placement, and its GPSG formalization by Miller (1992), Tseng (2003) proposes an analysis of French definite article and the prepositions *de* and *à* as phrasal affixes within HPSG. The basic idea is to handle the mismatch between the morphological scope of the phrasal affixes *le*, *de* and *à* (a single word) and their syntactic and semantic scope (phrase) by a treatment which is split between two levels. Affixation is thus handled by morphological rules in the

lexicon, while interpretation is handled by unary syntactic rules. The link between the two levels is ensured by information encoded in EDGE features, which propagate from the peripheral daughters to the mother in all branching syntactic combinations. Since Ezafe, and other phrasal affixes such as the article *–i* and possessive affixes always occur on the right periphery of the constituent they attach to, the use of EDGE features seems appropriate for handling them.

At the first step, phrasal suffixation applies freely to existing words, creating different kinds of suffixed words: Ezafe suffixed words, personal affix suffixed words and *–i* suffixed words:

(137) (Partial) *word* hierarchy



Leaving aside personal affixes and the indefinite *–i*, I will focus on Ezafe along the lines that follow.

As mentioned previously, the syntactic and semantic contribution of phrasal affixes cannot be always integrated at the point where suffixation is realized. The immediate effect of the phrasal affix on the lexical item it is adjoined to, is to add a positive EDGE specification on the latter. Concretely, the effect of the Ezafe suffixation may be encoded by a boolean feature [± EZ]. The morphological rule of Ezafe suffixation applies to a [- EZ] word and switches its specification to [+EZ]. As we have already seen, Ezafe has a dual behavior: when added to the head (noun, adjective or nominal preposition), it functions as a word affix, which means that its syntactic contribution must be integrated immediately, by the suffixation rule itself. When added to a modifier, it functions as a phrasal affix and thus its syntactic contribution must be integrated once the phrase is made up. In this case, (right) EDGE feature specifications are percolated from the right-most branch to the mother, until a phrase that Ezafe could scope over (i.e. an adjectival or prepositional phrase) becomes available. Then a unary syntactic rule applies and incorporates the syntactic effect of Ezafe into the phrase. Once the Ezafe interpretation rule is applied, the positive EDGE value for Ezafe must be removed in order to prevent its percolation to a higher node.

Figure (3) illustrates this two-step analysis of Ezafe for the following example:

(138)

mojgân-e	az rimel sangin-e	(maryam)
eyelid.PL-EZ	of mascara heavy-EZ	(Maryam)

‘Maryam’s mascara-laden eyelids’

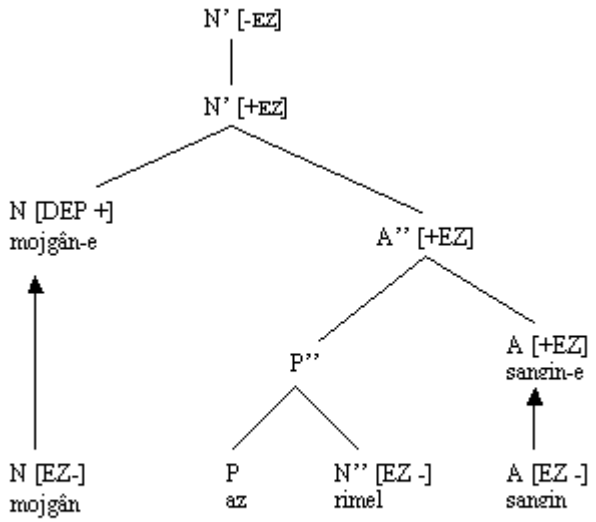


Figure (2)
Ezafe suffixation with interpretation

Lexical rule application, concretely Ezafe suffixation, is indicated by the arrows. Here, the rule applies twice, once on *mojgân* 'eyelid', which is the head of the NP, and once on *sangin* 'heavy', which is the right-most element within the adjectival phrase that precede the Possessor NP. In the first case, the syntactic effect of Ezafe may be integrated immediately on the head noun. This is done by the feature [DEP], which will be explained in the following parapgraph. In the second case, on the contrary, Ezafe's scope is the whole AP, and thus it cannot be interpreted immediately. A positive EDGE value for EZ is consequently introduced on *sangin* 'heavy', and is percolated along the right periphery until an N' is available. A unary syntactic rule applies then and the effect of Ezafe is integrated into N'.

Let us consider now the syntactic effect of Ezafe. As shown in the figure (2), Ezafe does not switch the syntactic category of the constituent over which it has scope. A noun remains a noun and an AP remains an AP. The only syntactic contribution of Ezafe, as mentioned previously, is to indicate that the constituent must be followed by a noun, an AP, a PP or an NP. In order to encode this information, a new Boolean feature, [DEP(ENDENT) $\pm$], is added to all *nominal* lexical categories (i.e. nouns, adjectives and P1 prepositions) and to their projections. Since this feature is not passed up from the head daughter to the mother, it cannot be a HEAD feature. Consequently, it will be added to CAT features, at the same level as HEAD and VAL(ENCE) features. For *lexemes*, the value of DEP is always negative, since lexemes have not undergone lexical rules. For *words* and *phrases*, it is negative by default, unless the Ezafe suffixation rule or the Ezafe interpretation rule has switched the negative value into a positive one.

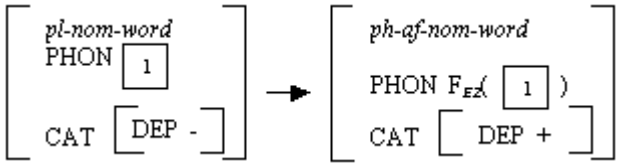
6.2. Formalization

6.2.1. Lexical suffixation rules

Ezafe suffixation is handled by lexical rules. These rules are of type *word-to-word*: their input as well as their output is a *word* and they apply optionally. I will postulate two Ezafe suffixation rules.

The first one is used when Ezafe is adjoined to the lexical head within an NP, an AP or a PP. As noted previously, the scope of Ezafe in this case is always a word and its effect may be integrated immediately. Thus, there is no need to appeal to EDGE features to percolate the information about Ezafe along the syntactic tree. The first Ezafe suffixation rule is stated bellow:

(139) Ezafe suffixation rule (1)



The left part of the rule describes its input and the right part its output. The rule applies to a *pl-nom-word* (i.e. a *nominal word* containing no phrasal affix) and turns it into a *ph-nom-af-word* (i.e. a *nominal word* containing a *phrasal affix*). The requirement that the input be *pl-nom-word* keeps the rule from applying to words already containing a phrasal affix, and prevents thus phrasal affix stacking with Ezafe. The phonological form of the output is given by F_{EZ}, a morphological function that applies to a nominal base. This function is sketched below:

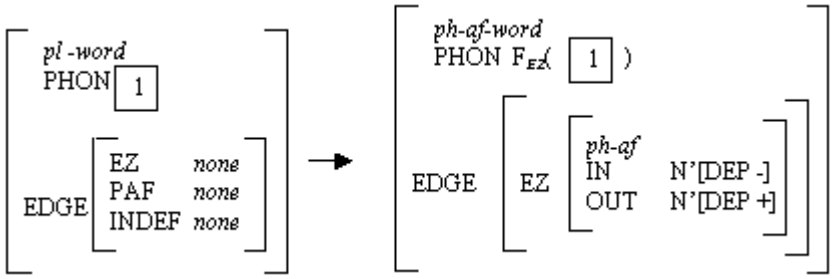
(140)

X	F_{EZ} (*X*)
X ending with vowel ≠ [i]	X-ye
otherwise	X-e

Finally, the rule switches the negative value of DEP to a positive value and the syntactic effect of Ezafe is thus incorporated on the head.

The second Ezafe suffixation rule, which applies only within noun phrases, is used when Ezafe links a N' to a modifier or to the possessor NP:

(141) Ezafe suffixation rule (2)

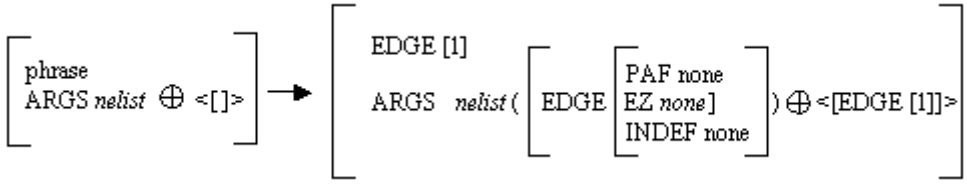


The rule in (141) selects a *plain word* as its input and produces a phrasal affix word. The same morphological function F_{EZ} is used to adjoin Ezafe. Let us consider now EZ, which was suggested previously to have a Boolean value. The negative value of EZ is encoded by *none*, but the implementation of the positive value is more complex, as shown in (141). In this case, the value of EZ is of type *phrasal-affix*. Two *sign*-valued attributes IN and OUT are associated to the type *ph-af*, which encode the potential grammatical effects of the suffix. The IN value provides a description of the sort of the constituent Ezafe would combine with, that is an N' [DEP-]. The OUT value provides a description of the sort of the constituent that would result from this combination, which is the same constituent with a positive value for DEP. Following Tseng (2003), it is assumed here that any features not mentioned in the OUT specification are shared with the IN value.

6.2.2. Edge feature propagation and suffix interpretation

EDGE features propagate from the peripheral daughters to the mother in all branching syntactic combinations. A positive EDGE feature specification indicates the presence of a phrasal affix whose syntactic and semantic effect have not yet been integrated into the phrase the phrasal affix scopes over. This integration occurs only if an appropriate phrase (matching the phrasal affixe's IN value) becomes available in the syntactic construction. As long as such a phrase is not available, positive EDGE specifications must remain visible in syntax, passing up from one level to another. This propagation cannot be handled by the HEAD Feature Principle, since the phrasal affix does not occur necessarily on the head daughter of a phrase. The EDGE Feature Principle is introduced to take care of EDGE features propagation. The following statement of this principle is borrowed from Tseng (2003), with slight modifications in order to adopt it to Persian data:

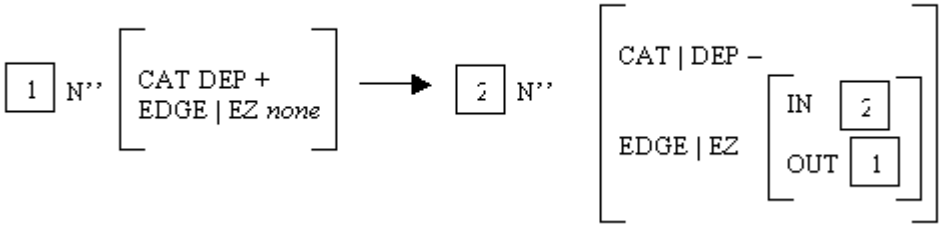
(142) (Right) EDGE Feature Principle



ARGS is a *list*-valued feature. Its value lists all daughters of a *sign* according to their surface order. The last member of ARGS list corresponds to the right-most branch. The EDGE feature principle requires that in any branching syntactic structure, the EDGE features of the right-peripheral daughter be shared with the dominating phrase. The other daughters must bear a negative value for phrasal affix features (i.e. Ezafe, personal affixes and the enclitic *–i*).

The interpretation of phrasal affixes is handled by unary syntactic rules. These rules can be formulated as rewrite rules. The following rule is used for Ezafe:

(143) EZ discharge rule



The left hand part of the rule describes the dominating node. The right hand part contains a cyclic structure, since the unification of a phrase, namely a N', with its own IN value is the condition for activating the syntactic contribution of EZ. Once EZ is interpreted, its value becomes *none* on the resulting phrase. All other IN and OUT features are identified by default. This is done by the Generalized Head Feature Principle (Ginzburg and Sag 2000). Thus, the mother N' in the rule stated above shares all the features of the daughter N', unless an explicit specification of a different value for a specific feature.

6.2.3. Constraint on the distribution of phrases with [DEP +] specification

At this point, the treatment sketched for Ezafe does not constrain the distribution of consituents with a positive value for DEP. Consequently, nothing prevents such phrases from appearing outside the Ezafe domain, without being followed by a modifier or a possessor NP, giving thus rise to ungrammatical sequences such as:

(144) a. * irâni-ân-e moqim-e farânse-ye vâred šod-and
Iranian-PL-EZ resident-EZ France-EZ entered become.PAS-3.PL

b. * maryam zibâ-ye ast
Maryam-EZ beautiful be.PRES
(putatively) 'Maryam is beautiful'

In order to rule out such examples, words and phrases specified as [DEP +] must be constrained to be followed immediately by another phrase within the constitent they occur. This requirement may be stated as a constraint on *dep-exp(ression)* type:

(145) *dep-exp*:
H [CAT | DEP +], [ ]

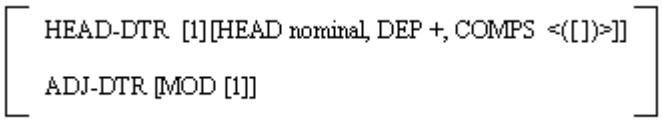
The constraint in (140) says that if the head daughter within a phrase bears a positive value for DEP, it must be followed by another phrase. This constraint, which correctly rules out (139) examples above, is still not sufficient by itself, since it cannot rule out the following set of examples:

(146) a. * irâni-ân javân moqim farânse vâred šod-and
Iranian-PL young resident France entered become.PAS-3PL

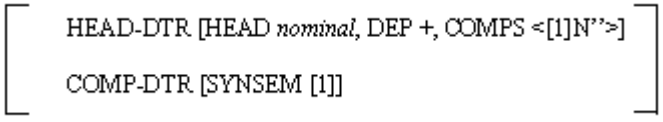
b. * barâdar maryam vâred šod
brother Maryam entered become

In other words, modifiers and the possessor NP must be required to be introduced by Ezafe. This will be done by two phrasal descriptions, the *head-complement-nominal-phrase* (*hd-comp-nom-ph*) and the *head-adjunct-nominal-phrase* (*hd-adj-no-ph*), given bellow:

(147) *hd-adj-nom-ph* =>



(148) *hd-comp-nom-ph* =>



Both of these rules are subtypes of *headed-phrases*. The first one is a subtype of *hd-adj(unct)-ph(rases)* and the second one a subtype of *hd-comp(lement)-ph(rases).* This means that each rule inherits the constraints of its supertype by default, unless they are overridden by an explicit specification in the rule. Each rule describes a phrase with only two daughters.

The *hd-adj-nom-ph* allows a *nominal* to combine with an adjunct, before combining with its optional N'' complement. In this case the nominal must bear a positive value for DEP. Since the rule may apply more than once, several modifiers may combine with a nominal head, be it lexical or phrasal. The *hd-adj-nom-ph* rule cannot match [DEP -] *nominals*, nor can

it apply in case of prepositional complements. Consequently, examples such as (146), where [DEP -] constituents are followed be a modifier are ruled out.

The *hd-comp-nom-ph* rule allows a *nominal* to combine with an N'' complement. This combination is possible only if the nominal bears a positive value for DEP. Thus, examples such as (146), where the head noun, without Ezafe is followed by a NP complement are ruled out.

7. Conclusion

Previous works on the Ezafe construction in Persian have pointed out different kinds of restrictions on this construction and provided a syntactic account for them. In this paper, on the basis of numerous attested examples, I have first shown that a part of these restrictions, which have played a key role in the elaboration of the syntactic accounts, does not stand up to closer inspection. I have then argued that the morphological properties of Ezafe, which may be viewed as a phrasal affix, and crucially its interplay with other phrasal affixes, such as personal affixes or the enclitic *–i*, can successfully account for the constraints on the Ezafe construction in Persian.

It has been further assumed that despite important differences between West Iranian languages, the morphological status of Ezafe can provide an enlightening insight into its peculiarities in each language. Certain dialects of Kurmancî Kurdish, for instance, display two different paradigms of Ezafe referred to as primary and secondary forms (Mackenzie 1961: 157-8). Primary forms are attached directly to the noun or occur after the definite suffix *–aka*. Secondary forms occur after the indefinite suffix *–ak*. In some studies (Rebuschi 2002, among others), this difference has been assumed to reflect (in)definiteness concord between the head noun and Ezafe, and consequently the terms *definite Ezafe* and *indefinite Ezafe* have been used to designate each paradigm. The problem is that the so-called *definite Ezafe* (primary forms) occurs not only after the definite suffix, but also after 'bare nouns' and after numerals, as shown by the following example:

(149)	pênc	kur-ên	ganc	di-hê-n	(Diarbekir dialect)
	five	boy-EZ.PL	young	TAM-arrive-3.PL	
	'Five young boys arrive'				

Furthermore, as mentioned by Mackenzie (1961), in some dialects, secondary forms are used in all cases where the noun stem is followed by an affix, included the definite *aka*. This is the case of Surči dialects, as shown by the following examples:

(150) mirow-aka-y xwārê 'the lower man' [Mackenzie 1961, 160]

Consequently, the distribution of primary and secondary forms is not conditioned by the definiteness / indefiniteness of the noun, but by the morphological nature of the element to which Ezafe is attached. It may be assumed that in some dilalects the Primary forms must be attached directly to a word or to a lexical affix. The definite suffix *–aka* is clearly a word affix in all Kurdish dialects, since it bears lexical stress. The status of the indefinite *–ak*, on the contrary, is rather problematic. Historically *–ak* comes from the numeral *yak* 'un'. Numerals are full-fledged words and they occur in a prenominal position in Iranian languages. Although *yak* has become an enclitic, its status as a lexical is not yet well established in different Kurmancî dialects. With regard to its phonological properties for instance, it behaves like a clitic, in that it does not bear lexical stress (cf. Mackenzie 1961:161). It may be assumed that is in those dilacts where the Secondary forms are used after *–ak* is still perceived as a post-lexical clitic. Consequently, in this case Ezafe is not attached to the head noun, but to a constituent formed by a noun and a clitic. Interestingly, Secondary forms are also used when

more that one modifier are linked to the head noun by Ezafe. To sum up, the Primary forms can be viewed as lexical affixes, while the Secondary forms are arguably phrasal affixes in these dialects.

Abbreviations

COP = copula
CPR = comparative
DEF = definite
EZ = Ezafe
INDEF = Indefinite
INF = infinitive
NEG = negation morpheme
PAF = personal affix
PAS = past
PL = plural
PP = past participle

PRES = present
RESTR = restrictive relative particle
SG = singular
SPR = superlative
TAM = Tense, Mode, Aspect

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