# A Survey of Two Types of Alternating Agentive Nominals in Persian[*]

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## 1.    Introduction

### 1.1.  Preliminary Issues

The main problem addressed in this article is characterizing the range of possible meanings and referents for words formed, including newly-formed words, in agentive **-ande(h)** suffix and its alternating **zero-suffix** (**Ø-suffix**) in Persian. Persian has two productive processes for deriving agentive nouns from verbs via the affixation of (1) *-ande(h)* and (2) a ***zero-suffix*** (= ***Ø-suf***). The resulting nominals formed with the former suffix are frequently referred to as *'esm-e/sefat-e    fâ'el-e    sâde/morakkab* 'simple/compound agentive nouns/adjectives', like ***gu-y-ande*** 'speaker, teller', ***pâk-kon-andeh*** 'cleaner' (1a, 1c). The ***Ø-suf*** nominals are named *'esm-e/safat-e fâ'li-ye morakkab-e morakham* 'truncated agentive compound nouns/adjectives', i.e. ***soxan-gu-Ø*** 'speaker of an organization', and ***medâd pâk-kon-Ø*** '(pencil) eraser' (1b, 1d). The latter is called *morakham* 'truncated', in traditional grammar books, because it is/was assumed that the ***Ø-suf*** nominals are/were derived from the *-ande(h)* suffix nominals by deleting the *-ande(h)* suffix from the first type of *-ande(h)* agentive nominals while keeping their agentive semantic interpretation. That is to say, in the traditional analyses of these data, in order to derive a ***zero-suffix*** agentive word like *soxn-gu-**Ø*** 'speaker', the noun *soxan* 'speech' joins the base derived agentive noun **gu-y-<span style="color:red">ande</span>** 'teller' and forms *\*soxan-gu-y-<span style="color:red">ande</span>*, an impossible word in Persian, and then the **<span style="color:red">-ande</span>** suffix deletes while its agentive meaning is still kept intact, resulting in the agentive nominal **soxan-gu** 'speaker of an organization'. The resulting nouns were then called '***truncated agentive compound nouns/adjectives***' since it was assumed that the *-ande* suffix was deleted from the base constituent. There is no recognition of a ***Ø-suffix*** with its own morpho-syntactic properties as it is being suggested in this article (1a-b):

1a)    gu-y-**ande**                          'speaker/teller'
       tell.prs-and suf

1b)    soxan-gu-**Ø**                        'speaker (of an organization)'
       speech-tell.prs-Ø

1c)    pâk-kon-ande                         cleaner
       clean- do.prs -ande suf

1d)     medâd pâk-kon-Ø          pencil eraser
        pencil-clean- do-prs- Ø- suf

The resulting derived/compound words with both suffixes can alternatively function both as nouns and adjectives. The category of the output words, i.e., noun, adjective, or both, is not predictable based on the structure of the constituent parts. This is reflected in the category label of such derived and (synthetic) compounds in traditional grammar book: *'esm-e/sefat-e fâ'eli- ye sâde / morakkab"'* '***simple/compound agentive nouns/adjectives***'. Most of the forms derived via these two processes count as synthetic compounds like *taxi-driver, baby-sitter, lifesaver* in English. The goals of the article are:

- To provide a morphosyntactic account of ***ande-suffix*** agentive nominals, and ***zero-suffix*** nominals in Persian within the Distributed Morphology framework which can account for the internal structure and referents of the words formed with the two suffixes.
- To show that the occurrence/alternation of the ***-ande*** agentive nominals and the ***Ø-suffix*** agentive nominals is regular and predictable.

In the following section I will present a detailed description of the distribution and properties of the agentive suffix *-ande* and the proposed alternating zero suffix, *Ø-zero*-suffix.

## 2.    Presentation of Data and Analysis

### 2.1    Simple Derived Agentive Nouns/Adjectives with the -ande suffix

The -**ande** suffix is added to the present stems of almost all simple transitive verbs, similar to simple derived forms like *driver, player* (2), and to the present stem of almost all simple intransitive, **unergative** verbs (3-4) leading to simple derived agentive nouns/adjectives unlike the synthetic compound *truck-driver*:

2a)     gu-y-**ande**       'teller, speaker'    (goft-an (Vtr) 'to tell, to say')
        tell-…-ande suffix

2b)     nevis-**ande**      'writer'             (nevesht-an (Vtr) 'to write')
        write-ande suffix

3a)     dav-**ande**        'runner'
        run.prs-ande suf

3b)     par-**ande**                'jumper, bird'
        fly-ande suf

4a)     goriz-**ande**              'escapee'
        escape-ande suf

(*gorixt-an* 'to escape' (take an *az* 'from' PP complement))

4b)  setiz-**ande**        'challenger, fighter with'
     fight-**ande suf**
     (*setizid-an* 'to challenge, to fight' (takes a *bâ* 'with' PP complement))

The **-ande** suffix, however, does not attach to the simple intransitive, **unaccusative** verbs, and to some transitive psychological verbs (5):

5a)    * xâb-**ande**              (xâbid-an 'to sleep')
         sleep-ande suf

5b)    * ras-**ande**              (rasdid-an 'to reach')
         reach-ande suf

5c)    * pasand-**ande**           (pasandid-an 'to like')
         please-ande suf

5d)    * fahm-**ande**             (fahmid-an 'to understand')
         understand-ande suf

## 2.2    Synthetic Agentive Compound Nouns/Adjectives with the *-ande* suffix

The **-ande** suffix attaches to almost all ***compound verb stems*** (i.e. complex predicate stems). The base verbs in this group are all complex predicate/compound verb stems formed with light verbs in Persian. All the output words in this set count as synthetic compounds like *truck-driver* in English:

6a)    sâder kon-**ande**          'exporter'
       export-do-ande suf

6b)    pâk kon-**ande**            'cleaner' (pâk-kard-an 'to clean')
       clean do.prs-ande suf

## 2.3    Synthetic (Agentive) Compound Nouns/Adjectives with the zero suffix

The **Ø-suffix** only attaches to **compound (verb) stems** (3'). The examples (3') below correspond to the transitive verb roots in (2) above. Incorporation of an internal argument of the simple verb stem, or an adverb, into the verb stem, leads to the formation of a compound verb stem. Only the **Ø-suffix** may be used with this compound verb stem, and the addition of the **-ande suffix** results in ungrammaticality. The alternation between examples (2) above, with the -**ande** suffix, and those with **Ø-suffix** in (3') is productive and predictable.

3'a)    *soxan-gu-**Ø***        'speaker of an organization; speaker'
        speech-tell-**Ø-suf**

3'b)    *soxan-go-y-**ande**

*3'c)*     *por-gu-Ø*             'talkative person'; ('too-much-teller')
           much-tell-**Ø-suf**

*3'd)*     *\*por-gu-y-**ande***

The **Ø-suffix** does not form any compound words with the present stems of almost all simple intransitive, **unergative** verbs (3-4) above, unless they can be compounded/merged with a preverbal constituent. So there are no **Ø-suffix** words with verb roots (3 a-b), perhaps because being unergative, they cannot be merged/compounded with a preverbal constituent. However, the simple verb roots in (4a-b) can, since they normally take an indirect internal PP-complement as in (4' a-e). The **Ø-suffix** attaches to the **compound verb stems** formed from the left-adjoining (incorporation of) an internal argument of the verb root into the verb. Use of the **-ande suffix** leads to ungrammaticality (4'e).

4'a)     mardom-goriz-**Ø**         'recluse, escapee'
          peole-escape-**Ø-suf**        (gorixt-an 'to escape',
                                     (take an *az* 'from' PP complement)
4'b)     qânun-goriz-**Ø**    'an outlaw; person not respecting the law'
          law-escape-**Ø-suffix**

4'c)     zan-setiz-**Ø**               'mesogenist'
          woman-challenge-**Ø-suf**

4'd)     yahudi-setiz-**Ø**            'anti-Jewish, anti-semitist'
          jewish-challenge-**Ø-suf**

4'e)     *yahudi-setiz-**ande**

While the ***ande-suffix*** does not form any derived words with *unaccusative* and *transitive psychological* verbs (cf. 5 a-d above), the **Ø-suffix** freely and productively forms synthetic compound words with such verbs as far as these verb roots are compounded with a preverbal constituent like a noun, adverb, particle. The output words count as synthetic compound nouns/adjectives (5' a-f):

5'a)     xosh-xâb-**Ø** (N/A) 'person who easily falls asleep, happy-sleeper; a
          happy-sleep-**Ø-suf**                 kind of bed'

5'b)     kârton-xâb-**Ø**     (A)          'carton-box-sleeper'
          carton-bon-sleep-**Ø-suf**

5'c)     dast-ras-**Ø** (A)         'reachable by a hand; close'
          hand-reach-**Ø-suf**

5'd)     zud-ras-**Ø** (A)         '(said of fruit) ripe sooner than usual'
          soon-reach-**Ø-suf**

5'e)     mardom-pasand-**Ø** (A) 'sth liked by people; everyone's favorite'
          people-please-**Ø-suf**

5'f)  dir-fahm-**Ø**                    'dumb person; mentally disabled ')
      slow-understand-**Ø-suf**

As we observed in (5 a-d) above, no **ande-**suffixed words are possible with unaccusative verb stems/roots. The formation of -**Ø-suffix** compounds with this set of verbs (5' a-f), which happen to be very productive, frequent and transparent, indicates that the **Ø-suffix** words are formed independently of **-ande suffix** words. That is, the **Ø-suffix words** are not derived from **-ande suffix** words by dropping the final -**ande suffix** contrary to the claims made by traditional grammarians. Moreover, the traditional analyses do not recognize an independent -**Ø-suffix**, as proposed in this article. However, the alternation between the two types of derived words and their relationships needs to be accounted for.

The -**Ø-suffix** synthetic compounds in the next set (6' a-b) corresponds to the "*Compound, synthetic agentive nouns/adjectives with the -ande suffix*" in (6a-b) formed with the compound verb stems. Here, a preverbal constituent, normally corresponding to an internal argument of the compound verb stem, incorporates into the (already) compound verb stem, resulting in a '*three-root/base compound verb stem*' which is then suffixed with the -**Ø-suffix**. Again these formations are very productive, are spontaneously formed, and regularly alternate with their corresponding **-ande** forms (6 a-b):

6'a)  barf-pâk-kon-**Ø**    (N)              'windshield-wiper
      snow-clean-do-**Ø-suf**

6'b)  doshman-shâd-kon-**Ø**  (A)    'sth/sb that make the enemy happy'
      enemy-happy-do-**Ø-suf**

In the set of data presented in the next subsection, *zero-suffix* attaches to bases that are non-verbal, and hence an *-ande* agentive derived noun is potentially impossible and non-existent with these stems.

## 2.4  Ø-suffix agentive compound adjectives/nouns with a non-verbal base

The first set of examples (7) is with the nominal base *bâvar* 'belief'. There is no simple verb *bâvarid-an* 'to believe', but there is a compound verb *bâvar-kard-an* 'belief-do; to believe'. However, there is no *-ande* derived word with the noun base *bâvar*. That is, ***bâvar-ande*** is unacceptable and non-existent.

7a)  din-bâvar-**Ø**                    'believer in religions'
     religion-belief-**Ø-suf**

7b)  xosh-bâvar-**Ø**                   'optimistic'
     happy-belief-**Ø-suf**

The second set of **Ø-suffix** synthetic compounds with a nonverbal root/stem is formed with the nominal root ***dust*** 'friend'. There is no simple verb ***dustid-an*** 'to become friend, to like' with this root. However, there is a

compound verb stem *dust-dâsht-an* "to love, to like". The related *-Ø-suffix* synthetic compounds with the root *dust* 'friend' in (8) are semantically related with this compound stem and not with the noun root *dust* 'friend'. There is no derived form with *-ande* and this noun stem, i.e. \**dust-**ande**** and \*dust-*dâr-***ande.***

8a)   vatan-dust-**Ø**          'patriot'
        home-love-**Ø-suf**

8b)   namak-dust-**Ø**     'salt-lover; said of a kind of plant the likes salt'
        salt-love-**Ø-suf**

The 3<sup>rd</sup> set of **Ø-suffix** synthetic compounds with a nonverbal root/stem are formed with the nominal root *kâr* 'work'. There is no simple verb with this nominal root but there is a compound verb stem *kâr-kard-an* 'work-do, to work'. There is no derived form with *-ande* and this noun stem either, i.e., \**kâr-ande*, but k*âr-kon-**ande** '*worker' sounds fine though very rare.

9a)   sâf-kâr-**Ø**          'car body repairman'
        smooth-work-**Ø-suf**

9b)   shab-kâr-**Ø**                      'night shift worker'
        night-work-**Ø-suf**

The -**Ø-suffix** words formed with *bâvar*, *dust*, and *kâr*, which lack **-ande suffix** equivalents, further supports the observation made above (3') that the *Ø-suffix* words are formed independently of *-ande suffix* words. That is, the *Ø-suffix* words are not derived from the *-ande suffix* words by dropping the final *-ande suffix* contrary to the claims made by numerous traditional grammarians.

The 4<sup>th</sup> set of -**Ø-suffix** synthetic compounds with a non-verbal roots/stem are formed on compound noun/adjective stems. That is to say, the base of -Ø-suffix word is a compound adjective base/stem.

10a)   xosh-del-**Ø**          'happy-hearted person'          (A)
         happy-heart-**Ø-suf**

10b)   xosh-sedâ-**Ø**     'person with mellifluous voice'          (N/A)
         happy-voice-**Ø-suf**

10c)   xosh-soxan-**Ø**     'eloquent orator/speaker'          (A)
         happy-speech-**Ø-suf**

The -**Ø-suffix** words formed on non-verbal bases are very productive, transparent and are not confined to the types of bases presented here.[1]

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[1] Despite the high productivity of the non-verb *Ø-suffix* words, they are not the only types of *Ø-suffix* words formed with non-verb stems. There are also productive *Ø-suffix* words formed with *savâr* 'on board, riding' as in *docharxe- savâr* 'bike-rider', *asb- savâr* 'horse-rider', with *mehvar* 'axis, centre' like *xod-mehvar* 'self-cntered, autonomous', with

*To summarize so far*

- The output words of both **ande suffix** and **Ø-suffix** may alternatively be a noun or adjective. The categories of their outputs are not predictable based on the structure or constituent parts.
- **Ande-suffix** nouns/adjectives are formed with all types of verbs except unaccusative verbs.
- The base of the *ande suffix* nouns/adjectives can be a simple or compound verb stem.
- **Ø-suffix** nouns/adjectives are formed with all types of verbs, including unaccusative verbs.
- The base of *Ø-suffix* noun/adjective must be a compound stem.
- The compound stem/base of a *Ø-suffix* noun/adjective may be a non-verb on the surface.
- **Ø-suffix** words are formed independently of the *ande* suffix forms and are not derived from the *ande* suffix forms by dropping the *ande suffix.*

In the next section I will address the referents and interpretations of the agentive simple derived and synthetic compound nouns formed with the *ande suffix* and the proposed *Ø suffix*.

## 3.    Semantic Properties of ande-suffix and Ø-suffix Nominals

### 3.1    Event vs non-event interpretation

I will address two issues in this section regarding the argument taking and referential properties of the two types of derived and synthetic compounds. Levin & Rappaport (1988) and Rappaport & Levin (1992) present a detailed analysis of *-er* nominals in English. They make a basic distinction between two types of *-er* nominals in English, i.e. **event -er nominals** like '*grinder (of fine coffee)*' that inherit the complement structure of the base verb, and **non-event -er nominals** like a '(*coffee-)grinder*' that do not:

**A-** English **-er** nominals that inherit the complement structure of the base verb receive an event interpretation which they call **event** -er nominals, e.g., '*destroyer of the city*' refers to someone who has actually participated in the event of destroying the city and thus presupposes that destruction has occurred. Similarly '*a grinder of fine coffee*' is someone who has ground fine coffee.

**B-** English **-er** nominals that do not inherit the complement structure of the base verb receive a non-event interpretation which they call non-event -er nominals, e.g. *destroyer* on the non-event interpretation refers to something '*intended to*' be used for the purpose of destroying, typically a specific type of warship. Something can be called a *destroyer* on the non-event interpretation even if it has never destroyed anything. On the non-event interpretation, the nominal does not presuppose an event of destroying. For example a *(coffee-)grinder* has an instrument interpretation and refers to a machine 'intended for grinding' coffee. But this machine need never have ground coffee [before] and

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*parvâz* 'flight' (N) like *bolnad- parvâz* 'ambitous person', with *zabân* 'tongue, langugae' like *fârsi-zabân* 'Farsi speaker', *farânse-zabân* ' French speaker', etc.

need not be used exclusively for this purpose- it could, for example, be used to grind spices.

Returning to Persian data, we see a clear correspondence between two types of Persian agentive suffixes and the two types of English **-er** nominals. That is to say, the English **-er** nominals with an event reading correspond to Persian **ande-suffix** nominals while the English **non-event -er** nominals correspond to Persian Ø-suffix nominals. The **-ande** nominals systematically inherit the complement structure of the base verbs and may take complements in a nominal EZÂFE construction (11a, 11c). Ø-suffix nominals (11b, 11d-f), on the other hand, do not inherit the complement structure of the base verbs, (or base complex/compound verb stems), and cannot take complements in a nominal EZÂFE construction (11 e-f). More importantly, similar to the non-event use of English **-er** nominals that tend to be formed on compound bases, i.e., *coffee-grinder, lifesaver, firefighter, windshield-wiper, truck-driver*, **Ø-suffix** nominals are systematically formed on compound stems/bases only, while **-ande** nominals are formed on both simple verb roots and on compound verb stems (of complex predicate structures) in Persian as in (11-12).

11a)     pâk-kon**-ande** -ye <u>shishe</u>     'someone/something that wipes the
            clean-do-ande- EZ glass          widows/windshields'

11b)     shishe-pâk-kon**-Ø**  'a windshield wiper'
            clean-do-Ø andeh suf-ye- pencil

11c)     pâk-kon**-ande** -ye  <u>medâd</u>  'someone/something that erases
            clean-do-ande- EZ pencil      the writings by a pencil'

11d)     medâd-pâk-kon**-Ø**  'a (pencil) eraser.'
            pencil-clean-do-**Ø-suf**

11e)     *medâd-pâk-kon**-Ø**    -e        medâd/kâghaz
            pencil-clean-do-**Ø-suf**  -EZ    pencil/paper

11f)     *pâk-kon**-Ø**  **-e**    medâd/kâghaz
             clean-do      EZ    pencil/paper

In (11a, 11c) we have **-ande** nominals formed on the already compound verb stems/bases (or Complex Predicate) i.e., *pâk-kon-, pâk-kard-an* 'clean-do, to clean'. They clearly have an event interpretation. They both (can) take a complement within a nominal EZÂFE domain (underlined) corresponding to the internal arguments of the base compound verbs (or complex predicates).

However, the internal arguments/complements in (11a, 11c) (underlined) may incorporate into the already compounded/complex verbal head *pâk-kon-* as in (11b, 11d). The resulting doubly-compounded verb stems/heads, *shishe-pâk-kon-* and *medâd-pâk-kon-* (11b, 11d), are then suffixed by **Ø-suffix** to form the instrumental non-event nominals in (11b, 11d). A *medâd-pâk-kon***-Ø** 'a (pencil) eraser' (11d) is an instrument 'intended to' clean writings by a pencil, and a

*shishe-pâk-kond-Ø* 'a windshield wiper' (11b) is an instrument 'intended to' clean windshields.

The observations so far indicate that *-ande suffix* nouns/adjectives systematically inherit the complement structure of the base verb stems and receive an event interpretation while *Ø-suffix* nouns/adjectives do not inherit the complement structure of the base verb stems and denote a non-event interpretation. We now return to the referential properties of these nominals.

### 3.2    Reference

Our next step is to observe, describe and discuss the referential properties of the words formed with these two types of suffixes, i.e., what determines the referent of the (agentive) words formed with *ande-suffix* and *Ø-suffix*? In spite of the difference between event vs nonevent *-er* nominals, based on inheritance or lack of inheritance of the complement structure, Levin and Rappaport (1988) and Rappaport and Levin (1992) do not make a distinction between them with regard to their referential properties. That is, Levin & Rappaport (1988:1070) claim that both types of English *-er* nominals simply refer to the syntactic external arguments of the base verbs and are derived from verbs which have external arguments. That is, although the referents of English *-er* words correspond to the agent, cause, instrument, recipient, and experience roles, arguments bearing these roles can independently function as syntactic external arguments. They, thus, propose that adherence to syntactic external argument, and not to theta role labels, would be enough and necessary to account for the reference of English *-er* nominals.

As examples (12) indicate, the Persian *ande-suffix* nouns may refer to a limited range of theta roles like agent, cause, instrument, and experiencer, goal of the base verbs. Each of these theta roles can function as the syntactic external argument and as the subject of a clause formed with these verb stems.

12a)    bin-**ande**          'looker, seer'        (agent, experiencer)
        see-ande suf

12b)    daryâft-kon-**ande**  'receiver'        (source/goal)
        receive-do-ande suf

12c)    gir-**ande**          'receiver'        (source/goal)
        receive-ande suf

12d)    tahdid-kon-**ande**              'threatener' (N, A) (agent,    cause,    instrument)
        threat-do-***ande-suf***-

12e)    pâk-kon-**ande**              'cleaner'   (N, A)   (agent, cause, instrument)
        clean-do-ande suf

Thus, *tahdid-kon-ande* 'threatener' in (12d) refers to an animate or inanimate agent, cause or instrument of 'threat'. Each of these roles counts as the syntactic external argument for the base compound verb stem, *tahdid-kard-an* 'to

theaten', and as the subject of a clause headed by this verb stem. In many *-ande suffix* nouns which also function as an adjective (12d-e), the adjective modifies, or is predicated of, the same theta roles, or arguments, of the base verbs that the corresponding noun refers to, i.e., the argument which qualifies as the syntactic external argument and may function as the subject of a clause headed by the base verb stems (12f). In (12f) the superlative adjective *tahdid-kon-ande-tarin* 'the most threatening' modifies the NP *niru-ye xâreji* 'forgein force' which can function as the syntactic external argument of the base compound verb *tahdid-kard-an* 'to threaten', and as the referent of the noun *tahdid-kon-ande.*

12f)     tahdid-kon-**ande**-tarin                    niru- ye    xâreji
         threat-do-**ande- suf**- superlative suf    force EZ    foreign
         The most threatening foreign force

I conclude that event *ande-suffix* nouns/adjectives inherit the complement structure of the base verb stems, and refer to that argument that qualifies as the syntactic external argument of the stem verbs, and which can function as the subject of a clause headed by the active stem verb, irrespective of its theta role label.

I now return to the referential properties of non-event *Ø-suffix* nouns/adjectives. Rappaport & Levin (1992: 145) note that "*although English nonevent -er nominals may bear any of a wide range of semantic relations to the verbs from which they are derived, they most systematically correspond to the external argument of the base verb*", which they refer to as the '*external argument generalization*' (EAG).

In the following Persian data, we observe that even though the EAG seems to hold for many *Ø-suffix* words (13), it (EAG) does not seem to hold for a good number of non-event *Ø-suffix* nouns/adjectives (14-15). Specifically, we note that the adjective uses of non-event *-Ø-suffix* words frequently have a passive interpretation and modify the patient and/or theme internal arguments (14a-d). Alternatively, frequent nominal uses of *Ø-suffix* words may also either refer to theme, patient roles, which are considered to be syntactic internal arguments/complements (14 b-c), or they refer to participants that cannot be considered as syntactic arguments of the base verb stems at all (15). That is, the EAG does not hold for this set.

13a)     ketâb-xân-**Ø**              (N, A)         (agent)      'book-reader'
         book-read-**Ø suf**

13b)     dast-forush-**Ø**           (N)            (agent)      'street vender'
         hand-sell-**Ø-suf**

13c)     dast-band-Ø               (N)            (instrument) 'necklace'
         hand-bind-Ø-suf

14a)     dast-'âmuz-Ø      (A)      (modifies the patient argument of the stem verb)
         hand-teach-Øsuf
         'tame/trained/domisticated by hand (of animals)'

14b)     gol-chin-**Ø**          (N, A)   (patient; modifies the patient argument of the
        flower-pick-**Ø-suf**             stem verb)
        'anthology of songs, literary pieces, arts'

14c)     dast-nevis- **Ø**          (N)      (patient)   'handwritten note'
        hand- write- **Ø suf**

14d)     mohabbat-'âmiz-**Ø** (A)    (modifies the theme argument of the stem verb)
        amour-mix-**Ø-suf**
        'affectionate, gentle'

More interesting examples are presented in (15) in that the *Ø-suffixed* words modify and/or refer to entities/participants that donot qualify as syntactic arguments of the base verb stems at all. The examples in (15a-c) all refer to a location where the action of the stem verb may take place. The example (15d) refers to the time 'dawn', not a syntactic argument.

15a)     raxt-kan-**Ø**          (N)      (location)         'fitting room'
        clothes-take-off-**Ø suf**

15b)     yahudi-neshin-**Ø**    (N)      (Location) 'jew-dwelling district'
        jewish-sit-**Ø suf**

15c)     bahâr- xâb-**Ø**       (N)      (location)place in a balcony/house
        spring-sleep-**Ø suf**          (nice for napping in spring)

15d)     xorus-xân-**Ø**        (N)      (time)             'dawn'
        rooster- read-**Ø suf**

The non-event *Ø-suffix* nouns/adjectives actually refer to, modify or predicate of (in case of adjectives), entities bearing a wide range of roles/interpretations like 'agent, instrument, experiencer, theme, patient, location, time' which include both syntactic *external* and *internal* arguments of the stem verbs as well as non-arguments. Rappaport & Levin's EAG (1992) cannot account for the wide range of semantic variation of the referents of non-event *Ø-suffix* words. Barker (1998) uses the term '*EPISODIC LINKING*' to determine the reference of *-ee suffixed* word in English, i.e., the denotation of a *-ee suffix* noun must be episodically linked to the denotation of its stem. According to Barker's Episodic Linking rule, the referent of synthetic compounds headed by a *Ø-suffix* word must have participated in an event of the type corresponding to the stem verb and need not necessarily count as a syntactic argument of the base verb. While agent, experiencer, instrument roles can function as external arguments, theme, patient, location and temporal roles are not considered as external arguments. I suggest that the referent of *Ø-suffix* words is determined by Barker's Episodic Linking rule (1998), i.e., the choice of a particular referent may depend as much on linguistic LCS relations as on the pragmatic, encyclopedic, real world context.

## 4.    Syntactic Analysis: Presence versus Absence of an External Argument

The Persian data under study include formations that count as both simple derived words (with *-ande* suffix like *gu-y-ande* 'teller') and synthetic compounds (with both *-ande* and *Ø suffixes* like *ghesse-gu-Ø* 'story-teller', *pâk-kon-ande* 'cleaner', and *medâd-pâk-kon-Ø* 'pencil eraser'). We need to address one remaining question in this study: Are Persian de-verbal synthetic compounds, with both *ande* and *Ø suffixes*, derived by suffixation rules distinct from those rules which produce simple derived agentive nouns with *ande* suffix? That is, what is the internal structure of words formed with these two suffixes? The traditional dilemma for the derivation of synthetic compounds such as *truck-driver, lawnmower* seems to have remained unresolved. Do they have the structure of a root compound as in (16a), or a synthetic compound as in (16b)?

16a)    [N    [N truck ] + [N [V drive ] + -er  ]]   ] ; ([N] + [N V + -er])

16b)    [N   [V [N truck ] + [V drive] ] + -er ] ;         ([V N + V] + -er)

The discussion over structures (16a) versus (16b) has been long standing going back to Roeper & Siegel (1978) who seem to have prefered (16a) over (16b). The preference for the root compound (16a) over the synthetic compound (16b), (cf. Lieber 1983, 2004), is based on the observation that English does not form compound verb stems, [V N-V], like (16b), and *'to truck-drive'* is a non-existent verb while N-N compounds are productive in English.

It remains to be motivated whether we would want to treat simple derived words with *ande-* like *gu-y-ande* differently from majority of all the other synthetic compounds like *medâd-pâk-kon-Ø, pâk-kon-ande* and *ghesse-gu-Ø*. And among the latter three sets, we need to decide whether our theory would select (16c) or (16d). Star sign * means impossible or unavailable form in the language.
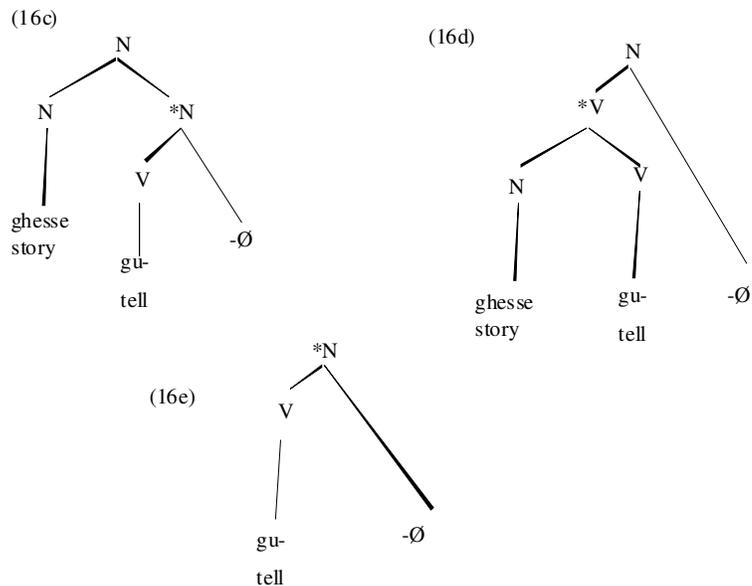
To address this question, and in an attempt to account for the observations and descriptive generalizations about the suffixes under study, I adopt a purely syntactic approach to the analysis of these morphological data within the Distributed Morphology (DM) framework. DM framework attempts to present a fully explicit, completely syntactic theory of word formation (cf. Halle & Marantz (1993, 1994); Harley & Noyer (1999); Marantz (1997, 2000); Harley (2005) among many others). In DM, "all identifiable morphemes [free, bound, zero or root] are realization of terminal nodes of a hierarchical (morpho)syntactic structure" (Harley (2005)).

Theoretical assumptions suggested for the morpho-synatcic analysis of the Persian data based on the detailed descriptions provided so far and on the DM theoretical approach adopted:

- Both **ande-suffix** words and **Ø-suffix** words are built on syntactic structures that are merged by syntactic computation outside the domain of functional heads.
- **ande-suffix** words are built on a projection of phrasal little v, (vP), that licenses/projects an External Argument. So, they build up on a projection containing an external argument at Spec-vP.
- Having an external argument, *ande-suffix* words can also license and/or inherit an internal argument/complemt. The –*ande-suffix* is co-indexed with the syntactic external argument of the little vP. That's the way *ande-suffix* words get their reference and their agentive, event interpretation.
- **Ø-suffix** words are built up on a projection of little v', and not full vP, that lacks an External Argument. So, they build up on a projection lacking an external argument.
- Lacking an external argument, *Ø-suffix words* also lack the potential to license/inherit an internal argument/complement. Hence, they force the internal complements to incorporate into the simple verb stems. This accounts for the observed morphosyntactic property of *Ø-suffix* in that it is always affixed on a compound verb stem. This also accounts for their inability to inherit the complement structure and, as a result, for their non-event interpretation.
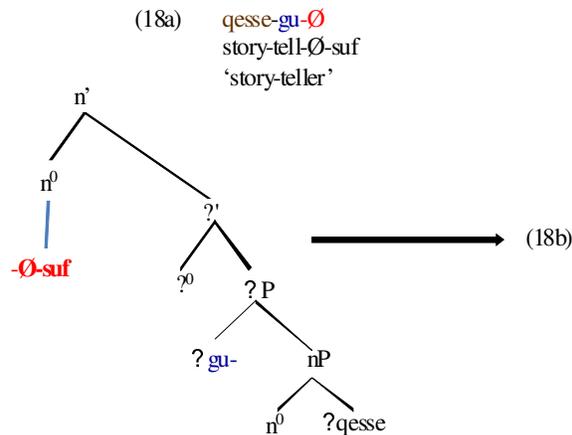
We start with the simple derived word *gu-y-ande* 'teller in (17). In accordance with DM, I take '*gu-*' as a category-less root which merges with a category-determining light verb, little *v*. '*gu-*' must incorrorate into the little *v* which then merges with an NP to form a *v*P. The NP at spec *v*P is the external argument (EA) of the little *v*. As part of its morpho-syntactic feature specification, the suffix *-ande* merges with, or selects, the *v*P. The morpho-syntactic feature specification of the suffix *-ande* is only compatible with a verb that has an external argument. The next step would be for the bound simple verb stem '*gu-*' to incorporate into the suffix *-ande* which gives us *gu-ande*, the desired output with all its semantic and referential properties determined in the morpho-syntactic tree structure (17a-b).
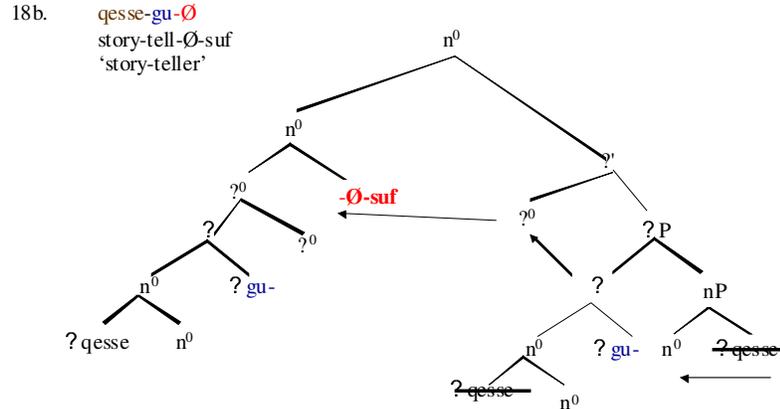
The suffix *-ande* is linked with the NP, the EA at spec *v*P. This accounts for the reference of *-ande-suffixed* nouns we observed above, i.e, that *ande-suffix* nouns/adjectives systematically refer to the syntactic external argument. Having an external argument, the *v*P inside the *-ande suffix* word can potentially license



(17)  gu-y-ande –ye qesse
      tell-ande    story
      'teller of a story'

EA = (External Argument)
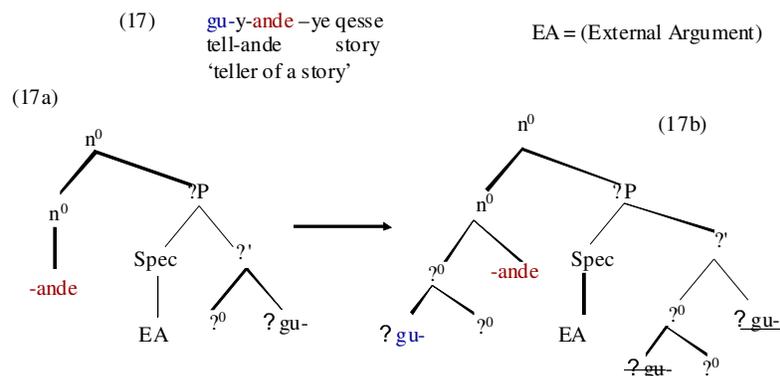
and take an internal argument (cf. Burzio's Gneralization) hence the event interpretation.

Let's analyze the structure of the alternating *Ø-suffixed* synthetic compound *ghesse-gu-Ø* 'story-teller' (18 a-b). Both *ghesse* 'story' and *gu-* as category-less roots need to merge with category determining heads, little *n* and little *v* respectively. The relevant structures are shown in (18 a-b). The morpho-syntactic feature specification of the *Ø-suffix* is only compatible with a V-bar, the little *v'*, which lacks an external argument (EA), not with a VP. The little *v'* in (18) NEVER merges with an NP to form a Spec-*v*P, so lacks a Spec/EA. The -*Ø-suffix* merges with this little *v'*, that lacks an EA. Now, since the little v' has no EA, by Burzio's generalization it cannot take/license an internal argument either. This makes the head of the complement NP/nP, *ghesse* 'story', incorporate into the head $v^0$ to form the '*compound verb stem*' *ghesse-gu-* (16d- 18b), a non-eixstent, but potentially possible and theoretically motivated compound verb stem similar to the non-existant English compound verb (to) *truck-drive-*. Note that the incorporation is not optional. The noun *ghesse* 'story' must incorporate into the $v^0$, *gu-*, because it cannot get case or be licensed by the little $v^0$. This will account for our observation throughout the article that the -*Ø-suffix* only attaches to compound verb stems and never to a simple verb stems as well as for the observation that *Ø-suffix* words cannot inherit the complement structure of the base verb. This also accounts for their *non-event interpretation*. Formation of a compound verb stem is motivated by the morpho-syntactic feature specification of the Ø-suffix and theoretical requirements, i.e., the -*Ø-suffix* is incompatible with a syntactic EA which in turn motivates the incorporation of a syntactic complement into the verb head by theoeretiacl implications. Two major properties of -Ø-suffix words are now accounted for: Their 'compound verb stem' requirement and their 'non-event interpretation'. In the next step, the bound compound verb stem *ghesse-gu-* incorprorates into the *Ø-suffix* head to form the agentive synthetic compound *ghesse-gu- Ø* (18b), the desired order.

(18a)  qesse-gu-Ø
       story-tell-Ø-suf
       'story-teller'

18b.  qesse-gu-Ø
      story-tell-Ø-suf
      'story-teller'

$n^0$

$n^0$  -Ø-suf  ?'

$?^0$  ?  $?^0$  $?P$  ?gu-

?  $n^0$  ?gu-  $n^0$  ?qesse

? qesse  $n^0$  ?qesse  $n^0$

       There remains their reference which is determined by 'episodic linking'. Since the Ø-suffix cannot be linked with the EA, or any other syntactic argument in the trees (18), as there are no arguments available any more, it can only get its reference by 'episodic linking': the referent of a noun phrase headed by a *Ø-suffix* word must have participated in an event of the type corresponding to the stem verb and not necessarily to the syntactic argument structure. The *Ø-suffix* cannot be linked to any syntactic argument because there are simply no arguments in the syntactic trees (18). The *-Ø-suffix* is linked to the 'teller of the story' as the word *ghesse-gu-Ø* is interpreted at LF as part of list-3 (DM) from the encyclopedic knowledge. It could have been linked to any other participants as we noted in examples in the preceding sections. Given the shortage of space, I will have to confine to these two analyses.

## 5.    Conclusion

       A number of other interesting phenomena of Persian directly relate to these two very productive suffixes. The most and primary one is the observation that these suffixes build up on compound verb stems which are closely related to by-now famous Persian compound verbs or complex predicates, another very productive (morpho-)syntactic process in Persian. Proposing a syntactic approach to these suffixes, I also suggest that complex predicate formation can also be handled with the same syntactic tools, i.e., syntactic merge/computation and distributed morphology. There are a number of other derivational suffixes that also build up on the same types of simple, derived and compound verb stems, *-i*, *ghesse-gu-y-i* 'story-telling', and *-ân*, *ghesse-gu-y-ân* 'while story-telling'. The status of lexicon is also relevant to the theory adopted here. The analysis proposed in this article advocates an on-line theory of word-formation based on unique computational rules that can account for both syntactic and morphological structures in a uniform way. The output of such rules does not need to be stored in a lexicon. Lexialization is a processe that works independently of these rules. Below I have summarized the results of analyses of the two Persian suffixes:

- *ande suffix* involves the EA of the base verbs. It, thus, attaches to the functional phrase little vP, that has a Spec position.
- Having an EA/Spec, the *-ande suffix* words may also license a complement. They inherit the complement structure of the base verbs. This gives them their *event interpretation.*
- *Ø-suffix* does not involve the EA of the base verbs. It attaches to the functional head little v′, that does not have a Spec position.
- Lacking an EA/Spec, the *Ø-suffix* words do not license a complement. They do not inherit the Complement Structure of the base verbs. This gives them their *non-event interpretation.*
- *Ø-suffix* words receive their reference by episodic linking which accounts for the wide range of references these words have.

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