EXPLORING THE SEMANTIC ASPECTS OF PERSIAN COMPOUNDS MADE BY æfkæn (CAST):
A CONSTRUCTION MORPHOLOGY APPROACH

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Abstract. Persian compound words, which are classified into two categories as primary and secondary compounds (Shaghaghi, 2008), are typically examined in the Construction Morphology proposed by Booij (2010; 2016; 2018). Within the framework of the theory, this study has attempted to explore the constructional schemas of the Persian compound words made of the present stem æfkæn (CAST). To this end, 60 compound words have been collected from numerous sources such as Persian linguistic corpora, Persian grammar books, Persian monolingual dictionaries as well as some Persian reliable websites. Comparing the structure of the compounds made by it, taking the meaning of each compound into account and drawing the constructional schemas, we indicate that these compounds are given eight different semantic categories. Additionally, the constructional schema revealed that the semantic interpretation of these compounds may be allocated a continuum with the most semantically transparent compounds and the metaphorical or idiomatic meaning. Indeed, through the theory of Construction Morphology, the semantic distinctions of the compounds made of æfkæn (CAST) could be well specified.

Key words: compound word, complex word, Construction Morphology, present stem, Persian adjectives

1. INTRODUCTION

Compounds are lexemes which are composed of more than one element. Compounding, which pertains to the process of compound formation, is considered a type of word formation by virtue of which a word with multiple morphemes is created. Compound words, hereafter compounds, in English can be written as two separate words like ice cream, as two joined words like greenhouse, and as a hyphenated word like son-in-law.

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The Persian language, which is considered the native language of Iran, has multiple varieties marked for time, place, social situation as well as pragmatic aspects (Bateni, 1970: 8-10). The Standard Persian, however, is the variety on which linguistic analyses have always been based, except in cases when a particular accent or dialect is the focus of a specific study. In this paper, by Persian we mean the standard variety of this language spoken in Tehran.

The words in Persian, as Natel-Khanlari (1972) claims, are divided into two classes: simple and compound. According to him, simple words are the words for which no independent constituent exists. In contrast, compound words contain two or more constituents (Natel-Khanlari, 1972: 162).

Regarding their form and structure, Persian words can be placed into one of these three categories: simple, compound and derived. By simple words it is meant lexical units composed of a single morpheme, such as pənʤere (=window), dər (=door) and medād (=pencil). Compound words, by contrast, refer to words composed of more than one morphemes, generally two, such as dāruxāne (=drugstore). It should be noted that this word is a combination of two lexemes: dāru (=drug) and xāne (=house). By derived words, it is meant words the structure of which contains at least one bound morpheme, such as divāri, which means pertaining to wall (Gholamalizadeh, 1995: 255).

In Persian, there are also two types of verbal stems: past and present. These two stems are called verbal stems, as they are the forms from which different verbal inflections are derived (Jahanshiri, 2020). For example, the infinitive form of the verb əfkəndəm (=to cast; to throw) has two stems: əfkənd (=threw) and əfkəm (=cast; throw). The former is the past stem of the verb, whereas the latter is the present stem.

Stems may also be considered either a single root morpheme or two root morphemes. They can also be a combination of a root morpheme plus a derivational affix. However, what all these forms have in common is the fact that they are linguistic units to which inflectional affixes can be attached (Crystal, 2003).

According to Shaghaghi (2008), compound words in Persian are of two types: primary compounds and secondary compounds. Primary compounds are those whose elements are of some other syntactic category than the verbal stems. The compound golāb (=rose water) is an example of this type whose elements are nouns: gol (=flower) and āb (=water). Secondary compounds comprise those in which at least one of the elements is a verbal stem. In line with the definitions of the typology of Persian compounds from, it should be said that the compounds made by əfkəm (=cast) are regarded secondary compounds.

1.1. Construction Morphology

Construction Morphology, henceforward CM, introduced by Booij (2010; 2018) is a theory established based on syntactic, morphological, and lexical relations, as well as on the semantic characteristics of complex words. It is in fact a lexeme-based approach to the analysis of complex lexemes (Booij, 2010). In this theory, the structure of words is indicated by some schemas at the lexical level in a way that a constant position is allocated to suffixes (Shaghaghi, 2016: 103).

1 In Persian, most of the attributive adjectives are made by adding -i to the end of nouns: divār (=wall) + -i (=attributive adjective maker suffix) = divāri (=relevant to wall)
According to Booij (2009), CM is a lexeme-based approach within the framework of which the internal structure of complex lexemes along with the syntagmatic relations among them is perceived by making a comparison between the systematic correlations of form and meaning. Booij (2010) argues that words are regarded as linguistic signs which possess both the conventional form and meaning associations. Booij (2012) believes that constructional schemas are considered tools for the representation of morphological constructions. Certainly, every construction has two parts: semantic and formal. The former is composed of morphological, syntactic as well as phonological features, whereas the latter comprises semantic, pragmatic, and discourse features, all of which can be presented in the following figure:

![Fig. 1 Constructions as pairings of form and meaning](image)

CM considers word-formation patterns as abstract schemas where forms and meanings are paired. For instance, when native speakers of a language like English are exposed to such words as *writer, speaker, driver, listener, follower, and runner*, they will conclude that there is a pattern, i.e. a construction like [[V] _er]N. In other words, native speakers will arrive at the conclusion that as a result of attaching –er to the simple form of the verbs, the nominal agent will be produced. Such a production could be called a construction.

As mentioned earlier, a construction is defined as a pairing of form and meaning. Additionally, individual instantiations of each syntactic construction is referred to as ‘construct’ (Booij, 2010).

Using the notion of construction and the constructional schemas, CM can explicate the metaphorical phenomena and the semantic dimensions of complex words in any language. That is why the CM theory seems to be more efficient than the theory of lexical morphology, developed by Pesetsky in 1979 and elaborated by Kiparsky in 1982.

According to Bamshadi, Ansarian and Davari Ardakani (2020: 129), compound words in Persian exhibit a kind of hierarchical relationship. They present the following schema for the secondary compound *miveforuʃ* (=fruiter), a compound word which is a combination of a noun *mive* (=fruit) and the present stem of the verb *foruxt* (=to sell), namely *foruʃ* (=sell):
Further, they add that at the topmost level of this schema, i.e. two elements X and Y are combined together to produce a word with category Z. At a lower level, in 3 sub-schemas, the syntactic category of two elements X and Y are specified, which is either a noun or an adjective. In another sub-schema, only the syntactic category of Y is determined which is the verb V. The same sub-schema has two other branches, that is to say two sub-schemas at a lower level where the combinations \([N-V]\) and \([\text{Adj-V}]\) are observable. At still a lower level, instead of the verb in the sub-schema \([N-V]\), the stem \(\mathcal{foru}\) (=sell) is placed; and at the lowest level, the word \(\mathcal{mive}\) (=fruit) is placed to produce the compound word \(\mathcal{miveforu}\) (=fruiter). Thus, the closer we find the underlying cause of the schema, the less the property of being schema and the more the property of being concrete will appear (Bamshadi, et al, 2020: 130).

Taking the compounds made of the verbal present stem into consideration on the one hand and the theoretical framework of CM on the other hand, the problem of this study is the following:

What are the construction schema and the semantic interpretations relevant to the compounds made of the present stem \(\mathcal{afkam}\) (=cast)?

1.2 Literature Review

The CM approach proposed by Booij (2010; 2018) is a recent theory within the framework of which not much research has been done so far. For the same reason, few of studies have been conducted only in languages such as German, Arabic, Chinese, Japanese, Italian, Greek, and English, as far as the literature has shown.

In German, Hüning (2018) has studied the verbs ending in –ierent. He discusses the problems relevant to the study of foreign word-formation. In fact, he has tried to show that CM is appropriate for this phenomenon with respect to its central notions. He shows that CM is conceptually appropriate regarding its central notions for the phenomena and the patterns in this domain of word-formation. He points out some peculiarities of foreign
word-formation, but also shows that there is no difference in principle. Essentially, he notes that word-formation is always the analogical process based on formal and semantic similarities between words and on paradigmatic relationships between (groups of) words.

Another study carried out in 2018 is a work by Davis and Tsujimura on Arabic. They have examined the non-concatenative morphological system of Arabic with respect to CM. They largely take up the nonverbal templatic morphology of Arabic including the comparative, nouns of profession, and the diminutive. In developing formal analyses of these constructions, they specifically address the question of how the prosodic templates that characterize Arabic morphology are incorporated into the schema of CM. Davis and Tsujimura (2018) also touch upon the implication which the construction analysis might have on two (opposing) approaches to Arabic morphology, root-based vs. word-based, given that some templatic constructions in Arabic seem to require the consonantal root as their base.

Arcodia and Basciano’s article (2018) is another study relevant to the analysis of word-formation process in Chinese. They apply the principles of CM to the analysis of Chinese complex words, showing how a constructional approach may best explain several phenomena characteristic of Chinese word formation, including the genesis of new meanings for lexical morphemes as part of word formation schemas, rather than in isolation. They also show that the parameter of headedness in compounding may not be set for the language as a whole, but is rather specified in schemas.

Masindi and Lacobin (2018) focuses on schemas in Italian. They use the tools of CM to explore Italian morphological and lexical constructions characterized by some kind of structural discontinuity. Their objective is to show how a constructionist view of language can account for non-contiguous structures in the lexicon. To achieve this, Masini and Lacobini (2018) use a variety of theoretical tools and notions developed within Construction Morphology and Construction Grammar.

Modern Greek is dealt with in terms of its agent suffixes in Koutsoukos and Pavlakou (2009). They have discussed masculine and feminine suffixes while comparing them to their cross-linguistic data. More specifically, they present the formal and semantic properties of the suffixes -tis, -tria and -tra and argue that these suffixes are directly attached to verbal stems to derive agent nouns. Moreover, they propose a paradigmatic relation between the masculine suffix -tis and the feminine -tria -tra, as well as a formalization of the relationship between the two feminine suffixes. Besides, they implied that pragmatics could impose restrictions on word formation.

In addition, the last but not the least is the most recent study of English by Spuy (2019). In his article, he has delved into English plurals in line with CM. He demonstrates how the theory of Construction Morphology can account for both the regular and irregular plural forms of English nouns. He approved the fact that CM allows representations at varying degrees of abstraction which enables it to account for the morphological structure of forms like oxen and the fact that it is non-derivational precludes incorrect forms like *oxens, while allowing correct forms like wives. As for Persian, it should be stated that there are a few studies carried out in accordance with the approach proposed by CM. However, we find only two studies relevant to the current study. One is the work by Azimdokht and Rafiei (2019). In their study, they have examined the semantic variations of the present stem paz (=cook), and have concluded that the compounds whose second part is stem mentioned have the agentive meaning. Moreover, they demonstrate that the traditional hypothesis of metaphorical extension of agent to instrument
does not hold in Persian. Also, the two constructions of agentive noun and agentive adjective of compound words ending in 'paz' are sister constructions.

The other study is Azimdokht, Rafiei and Rezaei (2018), in which the authors have discovered the semantic variations of the present stem yaab [jāb] (=find) in Persian. The findings of their study show that the initial meaning of the construction should be considered the distinguishing characteristic of the entity related to the concept of finding and the first component which is the most abstract correlation between form and meaning controlling the function of the compound words of [x-[yāb]VPRES] construction in Persian. It seems that the person noun ellipsis has led to the formation of a schema with the meaning of an agent performing the task of finding in relation to the concept of the first component. A similar schema was used in the formation of the instrument schema with the meaning of an object performing the task of finding in relation to the concept of the first component through the application of the device/software noun ellipsis.

It is worth mentioning that as far as we are aware, no other work has analyzed the stem afjam (=cast). Moreover, it should be said that the stem is relevant to the verb afjamadjan, whose prototypical meaning is [BRAVE/COURAGEOUS]. The constructional schema relevant to the categories was drawn, and the compounds were classified into different semantic categories.

2. THE METHOD

In order to gather as many Persian adjectival compounds made of afjam (=cast) Persian, several sources were consulted including the Persian Corpus of Bijankhan, a number of Persian grammar course books, as well as paperback dictionaries, and some electronic sources like online Persian dictionaries, the process of conducting this study proceeded in 4 stages.

First, 60 compounds whose second element was afjam (=cast) were collected and arranged on the basis of the degree of their semantic abstractness. It is also worth noting that the criterion for this was the meaning of the nominal or adjectival base to which the present stem afjam (=cast) has been added. In some cases, the overall meaning of the compound is directly derived from the base while in some other cases it is metaphorically relevant to it. For example, the compound nur afjam (=spotlight) can be considered when the first Element nur (=light) determines the meaning of the whole compound, whereas in a compound such as filafjam, in which the first element is elephant in English, the compound has nothing to do with the compound nurafjam (=spotlight), since its metaphorical meaning is [BRAVE/COURAGEOUS]. The constructional schema relevant to the categories was drawn, and the compounds were classified into different semantic categories.

3. THE FINDINGS

From the semantic point of view, which is the focus of this study, it should be stated that there are eight different semantic categories which should be described.

In Category 1, the stem under study is added to such words as nur (=light), fo’ā? (=radius), parto (=beam) and fo’lo (=blaze) to denote the meaning of spotlight.

The compounds in Category 2 have a meaning related to production. In such words as dud-afjam (=smoke agent), sāye-afjam (=shadow creator) and tamin-afjam (=resonant), the addition of the stem denotes the creation of the nominal base. In other words, the first
elements of these compounds respectively mean smoke, shadow, and resonance, which add the meaning of the object that produces smoke, shadow, and sound respectively.

Sometimes the stem is attached to such words as sāng (=stone), daraxt (=tree) and bomb (=bomb) to denote the act of throwing. Consequently, the compounds samg-աթկ, daraxt-աթկ, and bomb-աթկ mean catapult, tree thrower, and bomber respectively.

In combining with such words as harif (=rival) and adu (=enemy), the stem makes a compound denoting a person who can overpower his enemy.

When the stem is combined with such words as kaf (=foam) and fur (=riot), it produces two compounds which denote an agitator and something that causes foam in the mouth as a result of tiredness, for example.

Although the compounds fir-աթկ, pālāng-աթկ, and fil-աթկ are a combination of an animal name and the stem described above, they never denote animals themselves. Instead, they refer to an individual who is as strong as a particular animal, i.e. fir (=lion), pālāng (=leopard), and fil (=elephant). In other words, in these compounds, the strength or courage of the animal has been transferred to humans by metaphor.

Compounds in this category are different from the six aforementioned categories in that they are less transparent than the previous ones. For example, the word dās-taθk in that they can be regarded idiomatic constructions. The compounds pīj-աթկ and hār-աթկ, whose bases respectively mean ahead and fence mean daydreamer and what makes fence to overturn respectively.

Indeed, the overall constructional schema for the compounds made by the present stem աթկ (=cast) in Persian can be illustrated as follows:

\[[X]_{\text{N/Adj}} \ [\text{-աթկ]}_{\text{PRSTM Adj}} \leftrightarrow \ [\text{SEM}_i \ \text{agent of doing action}]_{\text{Adj}}\]

**Fig. 3** A bilateral relationship between the agent and the adjective obtained from the present stem աթկ

In Figure 3, X refers to the first constituent of the compound, which can be either a nominal or an adjectival element, and N_{i} refers to the whole construction made by adding the stem to the first element. On the other side of the arrow, i.e. the right hand side, SEM_{i} refers to the meaning of the element to which the index i has been allocated. It is the variable X, which can be replaced by nominal or adjectival categories. By Adj_{i}, it is meant that because of adding the stem to a noun or an adjective, an adjective will be created. The newly made adjective states that the meaning of the compound overlaps with its form i.e. the left-hand side of the arrow. In fact, the co-indexation is used to display the systematic association between the form and the meaning.

The lower indices PRS and STM respectively refer to the present tense and the stem of the verb աթկ (to cast). By the expression agent of doing action in the construction, the schema expresses what is interpreted from the compound constructions, the second element of which is աթկ (to cast) denotes the person or the object that do the act of աթկ (to cast/throw). The arrow between the two brackets denotes the fact that

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2 The word brā, which means fence, is an archaic word, which may be still used in ancient Persian literary texts. In Modern Persian, the word for fence is hādīr.
there is a bilateral association, namely the correlation between the form and the meaning of the compound.

Therefore, it can be stated that through the constructional schema of the compounds made by the stem, two facts will be specified:

Firstly, the semantic interpretation as well as the compositional meaning of the compounds studied varies from the most transparent one to the opaquest one, i.e. the least transparent one along a continuum like this:

![Transparent Opaque](Fig. 4)

According to Figure 2, the degrees of such transparency is dependent on the meaning of the base to which the stem is added, the context in which the compound is used, and the relationship between the two elements of the compound. Specifically, it depends upon the construction. In fact, the closer from the left side of the continuum to the right side of it, the more metaphorical meaning appears.

Secondly, according to Tables (1) and (2), there are eight different categories semantically different from each other. The comparison made among the compounds reveals the fact that although this type of compound is a secondary compound, and the compounds are all similar in attaching to the present stem `afkm (=cast)`, they are both syntactically and semantically different. From the syntactic perspective, as far as the data are concerned, the base to which the present stem has been attached is either a noun or an adjective. However, the number of nominal bases is much larger than that of the adjectival ones. As an example, the compound `ā الاثنين afkm` which may mean [SOMETHING THROWN EASILY] can be inferred, in which the first element `āsān` is an adjective meaning [EASY]. only a handful of data is of adjectival base, which have probably been made by analogy. In the following tables, one instance from each category has been selected randomly and displayed:

### Table 1 Semantic categorization of the compounds made by `afkm (=cast)`

<table>
<thead>
<tr>
<th>Compound 1</th>
<th>Meaning</th>
<th>Compound 2</th>
<th>Meaning</th>
<th>Compound 3</th>
<th>Meaning</th>
<th>Compound 4</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>nur afkm</code></td>
<td>SPOTLIGHT</td>
<td><code>tanim afkm</code></td>
<td>RESONANT</td>
<td><code>sang afkm</code></td>
<td>CATAPULT</td>
<td><code>harr afkm</code></td>
<td>STRONG</td>
</tr>
</tbody>
</table>

### Table 2 Semantic categorization of the compounds made by `afkm (=cast)`

<table>
<thead>
<tr>
<th>Compound 5</th>
<th>Meaning</th>
<th>Compound 6</th>
<th>Meaning</th>
<th>Compound 7</th>
<th>Meaning</th>
<th>Compound 8</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>fjar afkm</code></td>
<td>AGITATOR</td>
<td><code>fil afkm</code></td>
<td>BRAVE</td>
<td><code>dast afkm</code></td>
<td>STAFF</td>
<td><code>bäref afkm</code></td>
<td>FENCE THROWER</td>
</tr>
</tbody>
</table>

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3 We say may as the compound meaning was not accessible. It was extracted from an electronic dictionary for the lexical entries of which no definition did exist. It had defined merely the meaning of the stem itself.
4. CONCLUSION

The findings indicate that when the stem afkan (=cast), taken from the present tense form of the verb afkandam (=to cast), is added to a number of nominal or adjectival bases, it will produce a kind of adjective which is both compound and which denotes meanings as cast, throw, spread, defeat, as well as create. Moreover, the stem can be added to some nominal bases to identify metaphorical meaning, as a result of which the whole compound will be taken as an idiomatic expression like filafkam: fil (=elephant) + afkan (=cast) = strong.

In summary, we argue that the constructional schemas relevant to the compounds whose second element is afkan (=cast) can justify the multi-dimensional semantic interpretations of them. Furthermore, as CM is a theory within the framework of which complex linguistic expressions are considered the pairing association of form and meaning alongside other linguistic properties which altogether make a construct and as there are some compounds that cannot be literally interpreted but metaphorically construed, it can be claimed that these compounds are a type of constructs whose interpretation is dependent upon not only their form and meaning but also upon the total construction of the compound. That is to say, it depends on the pairing link between their form and meaning plus metaphorical interpretations evoked by some of them.

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ANALIZA SEMANTIČKIH ASPEKATA PERSIJSKIH SLOŽENICA SA ELEMENTOM ӕfkӕn:
PRISTUP KONSTRUKCIONE MORFOLOGIJE


Ključne reči: složenica, složena reć, konstrukciona morfologija, prezentna osnova, persijski pridevi