

Persian adjectives in the light of Typological Prototype Theory

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Abstract: This study seeks to examine the lexical category of adjective in Persian using the Typological Prototype Theory (TPT) as its theoretical framework. This study aims to (a) evaluate TPT in determining the prototypical features of Persian adjectives, (b) account for the morphological and syntactic differences between prototypical and non-prototypical adjectives in Persian, and (c) determine the association between frequency of occurrence and prototypicality of Persian adjectives. Having collected the data from Persian Language Database as well as Bijankhan Corpus and analyzed them based on the criteria and sub-criteria of TPT, we concluded that TPT can distinguish between Persian adjectives denoting property, action and object, but is actually incapable of accounting for the behavioral differences among the sub-categories of these adjectives due to the insufficient set of criteria and sub-criteria proposed for this purpose. Actually, this theory could prove more helpful in distinguishing between prototypical and non-prototypical parts of speech if it had considered the monosemy and polysemy phenomena, more various syntactic functions of POS, different morphological features like derivation, and class range. It was also shown in this research that there exists a relationship between the traditionally-categorized adjective types in Persian and their degree of prototypicality, in such a way that property adjectives and object adjectives are the most and the least prototypical respectively, while the action adjectives are in between them in terms of prototypicality.

Keywords: adjective, Iranian, parts of speech, Persian, prototype

For citation: Karimi A., Rezai V. Persian adjectives in the light of Typological Prototype Theory. *Voprosy Jazykoznanija*, 2020, 2: 104–123.

DOI: 10.31857/S0373658X0008828-9

Персидские прилагательные с точки зрения теории типологических прототипов

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Аннотация: В данной статье лексическая категория прилагательных в персидском языке исследуется с точки зрения теории типологических прототипов (ТПП). Цель исследования заключается в том, чтобы (а) оценить возможности ТПП в выявлении прототипических свойств лексической категории на материале персидских прилагательных, (б) описать морфологические и синтаксические различия между прототипическими и непрототипическими прилагательными в персидском языке и (в) определить связь между частотностью персидских прилагательных и степенью их прототипичности. Собрав данные из двух корпусов персидского языка и проанализировав их в соответствии с критериями ТПП, мы приходим к выводу, что данный подход позволяет различить прилагательные с семантикой качества, объекта и действия, но не позволяет учесть различия в употреблении между более мелкими подклассами прилагательных, поскольку предлагаемый набор

критериев для этого недостаточен. Данная теория могла бы более эффективно различать прототипические и непрототипические части речи, если бы учитывала явление полисемии, большее количество синтаксических функций частей речи, словообразование и размер категорий. В статье также демонстрируется наличие связи между традиционно выделяемыми типами прилагательных в персидском языке и степенью их прототипичности: прилагательные с семантикой качества ближе всего к прототипу, прилагательные с семантикой объекта — дальше всего от него, в то время как прилагательные с семантикой действия находятся в этом отношении посередине.

Ключевые слова: иранские языки, персидский язык, прилагательные, прототип, части речи

Для цитирования: Karimi A., Rezai V. Persian adjectives in the light of Typological Prototype Theory.

Вопросы языкознания, 2020, 2: 104–123.

DOI: 10.31857/S0373658X0008828-9

Introduction

Parts of speech (POS) are the basic linguistic categories in a language which play a key role in most syntactic theories and morphological analyses. They are “classes of words established primarily on the basis of grammar, where they occur in clauses, what words they combine with and pattern of agreement and government” [Brown, Miller 2013: 474]. It is not easy to define POS because they have, besides their unmarked usages, extended and marked usages so that a particular syntactic function may be fulfilled by different lexical categories. This is why Hengeveld [1992] used the phrase “without further measures being taken” in his definitions of POS including adjectives¹, by which he means the marked and unmarked functions of POS. As one of the most important POS found in most languages of the world, adjective is no exception to this rule and has many extended uses in Persian.

The traditional grammarians of the Persian language have described and categorized adjectives in this language based on semantic and/or morphosyntactic factors, but as we know, mere emphasis on these factors cannot account for different functions of this POS in this language, because adjectives do not have identical behavior and features. This is why we have to resort to the Prototype Theory (PT) which considers the members of a set to be hierarchical and unequal, unlike the Aristotelian Set Theory, which posits that all members of a category or set are equal. The PT emphasizes inequality of the members of a category [Lakoff 1987]; that is, a lexical category has central members with all or most of the features of that category and peripheral members with fewer such features. Typological Prototype Theory (TPT), which is the framework for this research, is a typological-functional approach developed by Croft, according to which typological prototypes are defined based on function and are universal and cross-linguistically valid [Croft 2001: 84]. He proposes that prototypical adjectives have the semantic function of “property” and the pragmatic function of “modification”. In comparison with the peripheral members, the central members of a category, which are typological prototypes, have higher frequency of occurrence, less morphological marking and a full behavioral potential [Croft 2003: 1630].

The present research is an attempt to investigate Persian adjectives from the typological prototype perspective. The two main criteria used in this approach to distinguish prototypical members from the peripheral ones are structural coding and behavioral potential. The behavioral potential criterion for adjectives consists of attributive and predicative function, gradability, and frequency of occurrence. Obviously, adjectives used both attributively and predicatively are more prototypical than those used either attributively or predicatively. Furthermore, adjectives which can merely be used attributively are more prototypical than those that can only be used predicatively, because the attributive function is the unmarked usage of adjectives. The gradability sub-criterion, manifested in Persian in comparative and superlative forms, intensifying adverbs and the

¹ “An adjectival predicate is a predicate which, *without further measures being taken*, can be used as a modifier of a nominal head.” [Hengeveld 1992: 37]

reduplication process, will also be used to determine how prototypical an adjective is. The last sub-criterion used in this study is the frequency of occurrence, according to which the more frequently an adjective is used, the more central or prototypical it is. To determine the frequency of adjectives, we will use the Persian Language Database [PLDB] as well as [Bijankhan Corpus].

This is a descriptive-analytical research conducted using the content analysis method. The research data have been collected from PLDB and Bijankhan Corpus. Besides, a part of the raw data was provided by the researchers in such a way that the researchers found suitable adjectives related to different categories and classified them within the framework of TPT. The collected data will be analyzed and different limitations imposed by the Persian language on the use of adjectives will be described and discussed. Since the parts of speech simultaneously do one of the propositional acts of modification, predication or reference on the one hand, and belong to one of the semantic categories of property, object or action on the other, they can be divided into <modification, property>, <modification, object>, <modification, action>, <reference, property>, <reference, object>, <reference, action>, <predication, property>, <predication, object>, and <predication, action>. As adjectives in attributive position perform the propositional act of modification, they belong to <modification, property>, <modification, object>, or <modification, action>. In order to analyze these three types of adjectives in terms of prototypicality, we will select several lexemes of each type and analyze their prototypicality status based on the criteria of the Typological Prototype Approach.

The present research seeks to answer the following questions:

1. Can TPT determine the prototypical features of Persian adjectives?
2. How do Persian prototypical and non-prototypical adjectives differ morphosyntactically?
3. How are the traditionally categorized adjectives of Persian associated with prototypicality?

Considering the fact that no independent research has been conducted on prototypicality of different types of Persian adjectives yet, the present research can fill the existing gap and thus prove helpful for the Persian language and linguistics as well as for translators. Besides, an important point having been neglected in the existing Persian dictionaries is inclusion of information about the attributive and predicative functions of words, which is largely due to the fact that such an important issue is still under research in the Persian language.

1. Previous studies

Due to the importance of adjective as one of the main parts of speech, most Persian grammar books have dealt with the definition, description, and formation of adjectives, but very few of them have actually discussed their different attributive and predicative functions and the limitations imposed by the Persian language on different usages of them. Moreover, the Persian grammar books currently available to readers have mostly confined themselves within the traditional framework, rather than based on modern linguistic theories, although we should never deny the importance of the traditionally-based studies and the large contributions that they have made to our knowledge about Persian grammar. We first introduce these traditionally-based sources and then go to other books or articles written based on modern linguistic theories. We will end this section with an overview of the books and sources written in and about languages other than Persian which concern the research topic and TPT.

Persian grammarians have provided similar definitions of adjective and described and categorized this POS mainly based on the semantic criterion. Natel Khanlari [1964: 179] defines adjective as a word modifying a noun and divides Persian adjectives into descriptive, numerical, demonstrative, interrogative and indefinite types. This author adds that descriptive adjectives in Contemporary Persian precede nouns, although they used to act as postmodifiers in the ancient literature. Sadeghi and Arjang [1979: 3] claim that Persian adjectives can all act

as nominals, adding that some of them are used both adjectivally and nominally simultaneously. Gharib et al. [1984: 47] divide adjectives in Persian into subjective, objective, comparative and attributive types. Shafaei [1984: 20] mentions some practical limitations of the usage of adjectives in Persian, including the fact that some of them are rarely used comparatively and superlatively, because they are derived from nouns. Moreover, he asserts that subjective adjectives take complements and are thus to be regarded as marked adjectives, as they are derived from verbs.

Zamanian [1990: 60] suggests that some of the Persian subjective adjectives are used with the meaning of objective adjectives and vice versa. Monshizadeh [2004] defines adjective of ability as a type of verbal adjective that refers to the future tense in terms of the category of mode. He divides verbal adjectives into objective and subjective types depending on the transitivity or intransitivity of the verb from which the adjective is derived.

Meshkatoddini [2004: 84] asserts that some adjectives such as *javân* ‘young’, *dânâ* ‘knowledgeable’ and *siâhpoust* ‘black’ can also be used as nominals, and some adjectives such as *zende* ‘live’, *morde* ‘dead’, *mozakar* ‘male’ and *xâmuš* ‘switched off’ cannot normally be used in comparative and superlative forms.

Although most of the sources available to readers are based on traditional views rather than modern linguistic theories, there are a few books and articles dealing with Persian adjectives based on the modern linguistic views and criticizing the traditionally-based sources. For example, Bateni [1970: 71] argues that the definitions having been given for POS in Persian grammar books so far are mostly based on their meanings rather than on the formal relations and functions, and this is why such definitions are for the most part misleading and inaccurate. He exemplifies it with the the word *tâze* ‘new’ in three sentences being used as different categories:

- (1) *Ali yek ketâb-e tâze xar-id.*
 Ali one book-EZ new buy-PST.3SG
 ‘Ali bought a new book.’
- (2) *Hame-ye tâze-hâ piš-e šomâ ast.*
 all-EZ new-PL beside-EZ you be.PRS.3SG
 ‘You have all the news.’
- (3) *Rezâ tâze âmad-e ast.*
 Reza new come-PERF be.PRS.3SG
 ‘Reza has just (lit. “newly”) come.’

The word *tâze* is used in the above sentences as an adjectival, a nominal and an adverbial respectively.

Sasani [2001] has used a fuzzy approach to investigate parts of speech and their similarities and differences in Persian and found that lexical categories have no clear-cut boundary in this language. He argues that lexical categories have unmarked functions as well as marked, less common, or peripheral functions which do not necessarily overlap with the primary function of other lexical classes. He adds that not all Persian adjectives can be used both predicatively and attributively.

As mentioned earlier, there are only few books and articles in Persian having dealt with the research topic and its theoretical framework. Now, let us introduce a few of the studies conducted in and about languages other than Persian concerning the research topic and TPT.

Sasse [1993: 661] argues that the prototypical function of adjectives lies in their attributive rather than predicative usage, because adjectives merely have attributive function in a large number of languages of the world. Dixon [2004: 37] divides adjectives into 13 semantic cores of dimension — age, value, color, physical property, human propensity, speed, difficulty, similarity, quality, quantity, location, and ordinals — out of which adjectives which denote the first four characteristics are prototypical. He further calls some non-prototypical adjectives as either “nouny” or “verby”.

Tribushinina [2008] investigated adjectives of color and dimension in terms of prototypicality, coming to the conclusion that adjectives of dimension are less prototypical than adjectives of color. She further divided color adjectives into focal and non-focal adjectives in terms of features including cognitive salience, usage, importance and being simple or compound.

Mpofu [2009] carried out a study on prototypicality of Shona adjectives. She used attributive position, predicative position, agreement, gradability and frequency as some criteria to distinguish prototypical adjectives from peripheral ones in this language and claimed that prototypical adjectives are those that can meet all of the above-mentioned criteria.

Although many studies have been conducted concerning TPT and the lexical category of adjective in different languages so far, the books and articles available on the lexical category of adjective in Persian have mainly used the traditional rather than typologically-oriented approaches in their analyses. This is why we have chosen to investigate Persian adjectives using TPT, which is a functional-typological framework argued to be universally applicable to all languages of the world.

2. Theoretical framework

This research has been conducted within the framework of the Universal-Typological Prototype Theory, presented by Croft [1991; 2001; 2003]. Before we deal with this universal theory, we prefer to give a brief explanation of the general Prototype Theory.

2.1. The Prototype Theory

The Prototype Theory (PT) postulates that categories are formed around prototypes and resemblance to the prototype, and not according to a yes-or-no distinction [Ungerer, Schmid 1996: 14]. A prototype may be defined as the most representative, or most salient, instance of a schema [Taylor 2003: 591], or the clearest, central or best member of a category. Rosch and Mervis [1975] state that the prototypical members of a category have more attributes in common with other members of the same category, but display fewer attributes common with members of contrasting categories. The major premises of the PT are that: a) a category has central and peripheral members, b) category membership is a matter of degree, and c) categories have fuzzy boundaries. Cognitive approaches in linguistics, therefore, regard linguistic categories as prototype notions with fuzzy boundaries and state that a category consists of prototypical and non-typical members [Langacker 1987; Croft 2003; Taylor 2003]. POS are also seen as consisting of a prototype, that is, the central or core member that has all the necessary features for that category; and boundary cases that extend from the prototype to other members in other categories, what Croft [2003: 163] refers to as peripheral members, and that these members do not display the full behavioral potential that a central member displays. Langacker [1987: 14] believes that much of a language is a matter of degree. Linguistic relationships are not invariably all-or-nothing affairs, nor are linguistic categories always sharply defined along the edges.

2.2. The Universal-Typological Prototype Theory

The Universal-Typological Prototype Theory is a cognitive theory which investigates language facts on the basis of function, focusing on how grammatical structures are represented in the mind of the speaker [Croft 2001: 3]. This theory combines modifications based on semantic

class and discourse functions. Croft [2001: 87] asserts that the semantic classes of **objects**, **properties**, and **actions** are the typological prototypes of referring, attributive, and predicative constructions respectively. He adds that these three propositional acts should be able to describe the referring, predicative and attributive constructions of any language.

Croft further discusses the propositional acts on the basis of four semantic criteria, namely, **valency**, **stativity**, **transitoriness** and **gradability**. Valency refers to the inherent relationality of a concept or the number of “arguments” required by the concept. Nouns are said to have a valency of zero because they do not need reference to another concept, while adjectives and verbs are inherently relational with adjectives having a valency of 1, whereas verbs have a valency of 1 and above. Stativity refers to whether a concept is a state or a process, while transitoriness refers to whether the concept is a transitory state, a process or a permanent state. As Croft points out, only states are permanent. The last criterion, gradability, refers to whether a concept is gradable. Croft’s hypothesis is that these four semantic criteria should be able to describe the semantic classes of **objects**, **actions** and **properties**.

The typological prototypes are unmarked in their respective functions of reference, modification and predication. In their prototypical function, POS do not require any additional morphemes in order to encode a particular function. This unmarked function is also referred to by Croft as zero structural coding function [2001: 89]. Croft further highlights that the semantic class and propositional act functions dichotomy constitute the typologically unmarked prototypes. In light of this hypothesis, Croft defines POS as follows: noun = reference to an object; adjective = modification by a property; and verb = predication of an action. However, a property word may also be used as a referring expression, while an action word may also be used as a modifier. In order to be able to perform these non-prototypical functions, the respective POS would require to be overtly marked by additional morphemes, what Croft [2001: 88] calls overt structural coding or typological markedness, and this is presented in Table 1.

Table 1

Overt structural coding constructions for POS [Croft 2001]

	Reference	Modification	Predication
Objects	UNMARKED NOUNS	genitive, adjectivalizations, PPs on nouns	predicate nominals, copulas
Properties	deadjectival nouns action nominals,	UNMARKED ADJECTIVES	predicate adjectives, copulas
Actions	complements, infinitives, gerunds	participles, relative clauses	UNMARKED VERBS

The table above shows that prototypical adjectives are those which belong to the semantic category of property and which perform the propositional act of modification. Other types of adjectives such as participles, which do not belong to the semantic category of property, are marked and peripheral members of the adjective category.

3. Methodology

This is a descriptive-analytical research conducted using the content analysis method. The required data have been collected from two great corpora of the Persian language, namely the Persian Language Database [PLDB] and [Bijankhan Corpus]. The former is a software package with various texts of Persian including the vernacular, formal, stylistic and practical varieties. This corpus includes important literary works such as poetry, stories, drama, children’s literature, newspapers, and literary and scientific periodicals. The latter is a tagged corpus suitable

for natural language processing research on the Persian language. This collection is gathered from daily news and non-specialized texts. In this collection, all documents are categorized into different subjects such as political, cultural, etc.; there are about 4300 different subject categories. The corpus contains about 2.6 million manually tagged words with a tag set that contains 550 Persian part-of-speech tags. To achieve more reliable results, we have used the two corpora so that our data can actually represent the usage in Contemporary Persian. Besides, a part of the raw data was provided by the researchers in such a way that the researchers found suitable adjectives related to different categories and classified them within the framework of TPT. The collected data were then analyzed and different limitations on the use of adjectives were described and discussed.

As shown above, there are three types of propositional acts and three basic semantic categories, so that there are nine theoretically possible usages for a particular word. As the present research is an attempt to determine the prototypicality of descriptive adjectives and descriptive adjectives perform the propositional act of modification, we can divide these adjectives into three types, namely, <modification, property>, <modification, object>, and <modification, action>, and analyze these types in terms of prototypicality.

4. Prototypicality of Persian adjectives

We divide Persian descriptive adjectives into three types: <modification, property>, <modification, object>, and <modification, action>, and then analyze them separately in terms of prototypicality. To distinguish prototypical adjectives from non-prototypical ones, we use two criteria of TPT; namely structural coding and behavioral potential. The latter consists of three sub-criteria, namely gradability, attributive and predicative functions, and frequency of occurrence.

4.1. The <modification, property> adjectives

This type of adjectives are descriptive and morphologically simple adjectives (i.e. not derived from other adjectives) such as *bozorg* 'big', *zibā* 'beautiful', *xub* 'good', *bad* 'bad', *sangin* 'heavy', *čāq* 'fat' and so on. Now we evaluate the prototypicality of this type of adjectives based on the criteria and sub-criteria of TPT:

4.1.1. Structural coding

These adjectives are to be regarded as prototypical based on this criterion, because most of them have received no affix to perform the propositional act of modification².

² It is noteworthy that a few of such adjectives such as *mehrbān* 'kind' and *sangin* 'heavy' are diachronically derivative adjectives, but synchronically speaking, they are considered in the mind of Persian speakers as simplex rather than derivative due to unproductivity of the affixes used in their construction. In other words, few Persian speakers consider *sangin* to be made up of *sang* 'stone' + *in*. However, this is not always the case, as there are some other such constructions the constituents of which are easily reminded by Persian speakers while they are used. For example, upon hearing the adjectives *rangin* 'colored', *khashmgin* 'angry' and *ghamgin* 'sad', all Persian speakers grasp their meaning through their main constituents, namely *rang* 'color', *khashm* 'fury', and *gham* 'grief', respectively. Therefore, the latter group of adjectives are derivatives both diachronically and synchronically, while *sangin* is a derived adjective only diachronically.

4.1.2. Behavioral potential

Gradability. To test the gradability of the <modification, property> adjectives, we review the comparative use of some of these adjectives in the two corpora used in the research:

- (4) *noh-sa sâl zamin se barâbar bozorg-tar šod.*
 nine-hundred year Earth three times big-COMP become.PST.3SG
 ‘The Earth became bigger three times as much for nine hundred years.’
- (5) *javân-ân be xâter-e moqeyyat-e behtar xud râ molzam be vorud*
 young-PL to thought-EZ position-EZ better self OBJ required to enter
be dânešgâh na-dân-and.
 to university NEG-know-3PL
 ‘The youth should not consider it necessary for themselves to enter the university in order to attain a better position.’

These sentences show that the <modification, property> adjectives are gradable and thus prototypical in this respect. However, it should be noted that prototypicality consists of a set of components, and thus adjectives which are used comparatively and superlatively are not equally prototypical; gradability is a necessary but insufficient condition for prototypicality of adjectives. The following criteria should be met as well.

Attributive and predicative uses of the <modification, property> adjectives can be illustrated with the following sentences:

- (6) *radio ke bâ sedâ-ye boland be kâr oftâd,*
 radio when with volume-EZ loud to work begin
pedar nafas-i be asudegi keš-id.
 father breath-INDF with relaxation take-PST.3SG
 ‘When the radio began working with a loud volume, father felt quite relaxed.’
- (7) *zabân va nahve-ye motafâvet-e zendege-ye mardom*
 language and way-EZ different-EZ life-EZ people
barây-e man jâleb ast.
 for-EZ me interesting be.PRS.3SG
 ‘People’s language and way of life are interesting to me.’

The sentences above show that the <modification, property> adjectives can be used in both attributive and predicative positions and there is no limitation as to their attributive and predicative usages. This type of adjectives can thus be considered prototypical in this respect.

Frequency of occurrence. The adjectives of this class have a very high frequency of use. The five adjectives of this category presented in Table 2 are just a few examples of these very frequently used adjectives.

The table shows that both positive and comparative forms of the <modification, property> adjectives have a high frequency of occurrence in the corpora, which confirms that they are prototypical. To sum up, we can say that the <modification, property> adjectives have met all criteria and sub-criteria of TPT well enough. However, not all members of this category are equally prototypical, meaning that their prototypicality can be shown along a continuum. The following graph shows the frequency of occurrence of this type of adjectives in the corpora.

The graph (Figure 1) shows that *bozorg* is the most frequently-used and *jâleb* is the least frequently-used adjectives in the <modification, property> type examined in this research, and the other adjectives are in between. A noteworthy point is that we tested 20 adjectives from each category and found that they had similar responses to the criteria and sub-criteria of the Typological Prototype Theory, but for practical purposes we have enlisted only a few representative adjectives from each category in the tables and graphs.

Table 2

Frequency of the positive and comparative forms of the <modification, property> adjectives

Positive / comparative adjectives	Occurrences in PLDB	Occurrences in Bijankhan Corpus
<i>bozorg</i> ‘big’	1748	5567
<i>bozorgtar</i> ‘bigger’	64	423
<i>xub</i> ‘good’	916	1871
<i>behtar</i> ³ ‘better’	780	1529
<i>boland</i> ‘tall’	488	1106
<i>bolandtar</i> ‘taller’	29	51
<i>jâleb</i> ‘interesting’	227	494
<i>jâlebtar</i> ‘more interesting’	18	29
<i>matlub</i> ‘favorable’	274	840
<i>matlubtar</i> ‘more favorable’	15	34

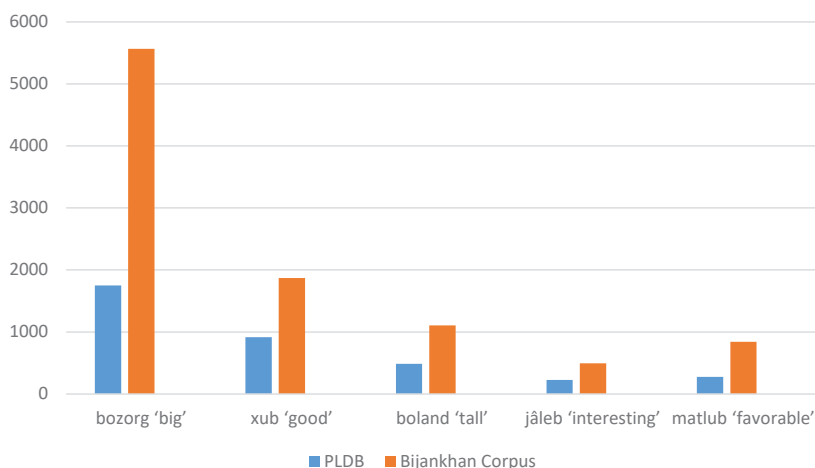


Figure 1. Frequency of the positive <modification, property> adjectives

4.2. The <modification, object> adjectives

The <modification, object> adjectives are noun-derived adjectives such as *mardâne* ‘man-like’, *rangin* ‘colorful’, and *tehrâni* ‘Tehrani’. They are referred to in traditional grammar as relational adjectives. Most of them do not have comparative and superlative forms: **axlâq-e pezeškîtar* (lit. “more medical ethics”), **extelâfât-e qânunitar* (lit. “more legal disputes”), **fizik-e hasteetîtar* (lit. “more nuclear physics”).

³ This is a suppletive form commonly used as the comparative form of *xub* in Persian, although *xubtar* is also rarely used in that sense. However, this word is used so frequently by Persian speakers that most of them conceive of it as a separate positive form, which may account for its higher frequency than that of other comparative adjectives.

The noteworthy point is that not all of the adjectives belonging to the <modification, object> category have equal practical limitations; rather some of them have more limitations and are thus more marked than others. Actually, the high frequency of some of these adjectives cause them to take semantic content, and thus move from marked towards unmarked along the markedness continuum. For example, *châmskiayi* ‘Chomskyan’ and *esfahâni* ‘Isfahani’ are sometimes used in a sense more than just denoting a type of relation to Chomsky and Isfahan respectively; rather, they sometimes denote a property usually attributed to these nouns. This is why we can talk of a person being “very Isfahani” (having a particular property attributed to Isfahani people) or even “more Isfahani” than another one. We may then say that there is no clear-cut boundary between the so-called relational and descriptive adjectives, as we sometimes encounter the process when a particular relational adjective goes away the <modification, object> prototype and approaches the <modification, property> category. This is also the case about adjectives like *axmu* ‘fretful’ and *tarsu* ‘timid’, which have originally been derived from nouns, but are considered property adjectives by Persian speakers due to their high frequency as well as their fossilized affixes. This is why they are used in comparative and superlative forms as frequently as the normally categorized <modification, property> adjectives, which shows that there are fuzzy boundaries between the members of a particular category. Now, we examine the prototypicality degree of this type of adjectives based on the criteria of TPT.

4.2.1. Structural coding

Considering the fact that these adjectives are the result of noun suffixation, the existence of these suffixes shows that they are structurally coded and thus far from prototypical adjectives.

4.2.2. Behavioral potential

Gradability. In normal circumstances, the <modification, object> adjectives cannot be used in comparative and superlative functions, although there are rare cases where they come to be used as property adjectives and thus take the comparative and superlative suffixes. An example is when we talk of a woman having a more *mardâne* ‘manly’ appearance than another one, in which case *mardâne* is used as a <modification, property>, rather than a <modification, object> adjective.

Attributive and predicative usages. Having reviewed the corpuses to evaluate prototypicality of the <modification, property> adjectives, we encountered the following sentences:

- (8) *dar ân ruz-e bârâni raftoâmad qeire 'âdi bud.*
 in that day-EZ rainy traffic unusual be.PST.3SG
 ‘There was an unusual traffic on that rainy day.’
- (9) *šab-e âxar-i ke be gardeš raf-t-am havâ bârâni bud.*
 night-EZ last-INDF that to picnic go-PST-1SG weather rainy be.PST.3SG
 ‘It was raining last night when I went on a picnic.’

However, certain <modification, object> adjectives are used in attributive position more frequently than in predicative position. Consider the following sentences:

- (10) *modir yek hošdâr-e axlâqi be ân-hâ dâd.*
 manager one warning-EZ ethical to that-PL give.PST.3SG
 ‘The manager gave them an ethical warning.’
- (11) *hošdâr-e modir be ân-hâ (xeili) axlâqi bud.*
 warning-EZ manager to that-PL (very) ethical be.PST.3SG
 ‘The manager’s warning to them was (very) ethical.’

The two sentences show that *axlâqi* in the NP *hošdâr-e axlâqi* ‘ethical warning’ cannot be used predicatively. We may then say that the <modification, object> adjectives are more marked and peripheral than the <modification, property> adjectives. The researchers examined this category of adjectives in terms of the criteria and sub-criteria of the Typological Prototype Theory and found that the adjectives of this category have the same behavior with respect to these criteria and sub-criteria, some of which are presented in the following table:

Table 3

Prototypicality degree of <modification, object> adjectives

Adjective	Structural coding	Behavioral potential		
		gradability	attributive use	predicative use
<i>noqre-ei</i> ‘silver’	+	–	+	+
<i>kudakâne</i> ‘child-like’	+	–	+	+
<i>pašmi</i> ‘woolen’	+	–	+	+
<i>abrišami</i> ‘silky’	+	–	+	+
<i>bârâni</i> ‘rainy’	+	–	+	+

As the table above shows, the <modification, object> adjectives can be considered prototypical in terms of attributive and predicative functions, but they are structurally coded as well as non-gradable. With every aspect of prototypical adjectives in mind, we may say that the <modification, object> adjectives are to be considered as non-prototypical, although they are by no means equally peripheral. Now we will see whether the sub-criterion frequency of occurrence confirms this conclusion or not.

4.2.3. Frequency of occurrence

The data from PLDB and Bijankhan Corpus shows that the adjectives of this class do not have high frequency of use. The five adjectives of this category presented in Table 4 are just a few examples. We also examined their comparative forms in order to confirm the gradability criterion of prototypicality.

Table 4

Frequency of the positive and comparative forms of the <modification, object> adjectives

Simple / comparative adjectives	Occurrences in PLDB	Occurrences in Bijankhan Corpus
<i>noqre-ei</i> ‘silver’	0	37
<i>noqre-eitar</i> ‘more silver’	0	0
<i>kudakâne</i> ‘child-like’	23	38
<i>kudakânetar</i> ‘more child-like’	0	0
<i>pašmi</i> ‘woolen’	4	20
<i>pašmitar</i> ‘more woolen’	0	0
<i>abrišami</i> ‘silky’	15	28
<i>abrišamitar</i> ‘silkier’	0	0
<i>bârâni</i> ‘rainy’	42	65
<i>bârânitar</i> ‘rainier’	0	1

The table above shows that <modification, object> adjectives are less frequently used in the corpora than <modification, property> adjectives, and the comparative forms of such adjectives have no frequency at all, which confirms that they are non-prototypical adjectives. To sum up, we can say that the <modification, object> adjectives do not meet some criteria and sub-criteria of TPT. However, not all members of this type of adjectives are equally non-prototypical, meaning that their prototypicality can be shown along a continuum. The following graph shows the frequency of occurrence of the <modification, object> adjectives in the corpora.

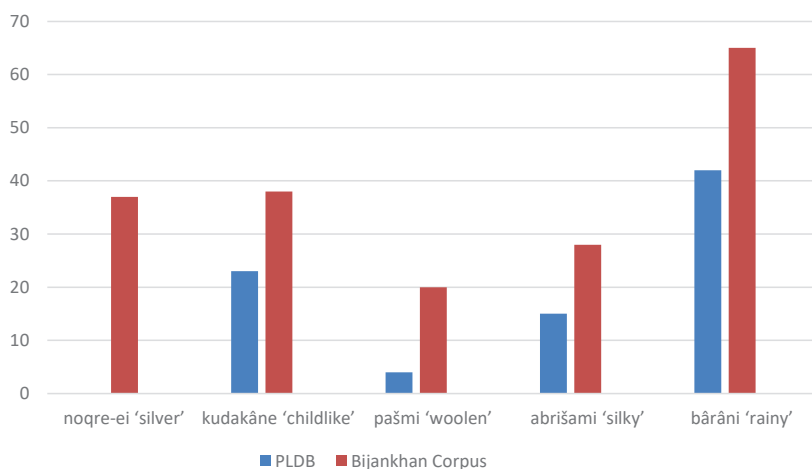


Figure 2. Frequency of the positive <modification, object> adjectives

The above graph shows that the <modification, object> adjectives have a low frequency of occurrence in both Bijankhan Corpus and PLDB. A noteworthy point is that the most frequently used adjective of this category, i.e. *bârâni* has a lower frequency of occurrence in the two corpora than the least frequently used adjective of the <modification, property> category, i.e. *jâleb*, showing that the <modification, object> adjectives are to be regarded more peripheral adjectives than the <modification, property> adjectives in terms of frequency of occurrence. Now, we investigate prototypicality of the <modification, action> adjectives.

4.3. The <modification, action> adjectives

Although this type of adjectives modify nouns, they denote actions rather than properties. The adjectives of this group are derived from verbs. They are present and past participles which are referred to as subject and object adjectives respectively in the traditional Persian grammar. An important point worth noting is that the <modification, action> adjectives lend themselves more easily than other types of adjectives to category shift; that is, there are many more nominalization cases of the <modification, action> adjectives than other types of adjectives in Persian. For example, nominals such as *nevisande* 'writer', *xaridâr* 'buyer', *forușande* 'salesperson', and *jangande* 'warrior' have originally been adjectives, but are only rarely used adjectivally in contemporary Persian. Now, we examine the prototypicality of the <modification, action> adjectives based on the criteria of TPT.

4.3.1. Structural coding

Since the <modification, action> adjectives are derived from verbs by the addition of an adjective-making suffix, they can be said to be structurally coded adjectives. These adjectives are thus to be considered peripheral or non-prototypical adjectives in terms of structural coding.

4.3.2. Behavioral potential

This criterion is related to the behavior or usage of prototypical adjectives. It has three sub-criteria, namely gradability, attributive and predicative uses, and frequency of occurrence.

Gradability. The <modification, action> adjectives, in their unmarked usages, are only rarely used comparatively or superlatively:

- (12) **qazâ-ye* *poxte-tar*
 food-EZ cooked-COM
 ‘more cooked food’

However, the <modification, action> adjectives, like other types of adjectives, also have extended usages, which may make us categorize them as other types of adjectives. For example, *poxte* is also used in Persian to modify a person rather than food in the sense of ‘experienced’, or ‘well-rounded’, in which case it is to be categorized as a <modification, property> adjective. This is the very reason why it lends itself to comparative or superlative positions as easily as do other <modification, property> adjectives. This is indeed the non-inherent use of this word, just as the use of the word *šekanande* ‘fragile’ in the following sentence from the corpus:

- (13) *ma* *borukrasi-ye* *besyâr* *šekanande-yi* *dâr-im*.
 we bureaucracy-EZ very fragile-INDF have-PRS.1PL
 ‘We have a very easily-affected bureaucracy.’

In (13), the adjective *šekanande*, which is morphologically a present participle, is used in an extended, non-inherent, or, more precisely, metaphorical sense — as a “property” rather than “action” adjective. This is why it can be modified by an intensifying adverb. We can come to the conclusion that prototypicality is a context-dependent phenomenon and words should not be evaluated in terms of prototypicality independently from the contexts where they appear. However, we may say that the <modification, action> adjectives are actually used in comparative or superlative forms less frequently than those of the type <modification, property>, and the very few comparative uses of such adjectives can be accounted for by the fact that they have come to denote property rather than action, a phenomenon which can be referred to as demarcation and can be said to comply well with the so-called fuzzy theory, which is one of the major principles of TPT.

Attributive and predicative functions. The following sentences from the corpora suggest that <modification, action> adjectives are used in both attributive and predicative positions:

- (14) ...*ke* *yak-i* *az* *čand* *xatari* *ast*
 which one-INDF of few danger be.PRS.3SG
 ke *solh-e* *šekanande* *dar* *Kabol* *râ* *tahdid* *mi-kon-ad*
 that peace-EZ fragile in Kabul OBJ threat IPFV-do-PRS.3SG
 ‘...which is one of the few dangers that threaten the unstable peace in Kabul.’

- (15) *in* *nazarieh* *az* *didgâh-e* *qoumšenâsi* *šekanande* *be* *nazar* *mi-res-ad*.
 this theory from view-EZ ethnology fragile to view IPFV-reach-PRS.3SG
 ‘This seems not to be a strong theory from the perspective of ethnology.’

To summarize, the adjectives of this category have the same behavior with respect to all of the criteria of TPT except for the sub-criterion of gradability. Some of these adjectives are presented in the following table:

Table 5

Prototypicality degree of the <modification, action> adjectives

Adjective	Structural coding	Behavioral potential		
		gradability	attributive use	predicative use
<i>raftani</i> 'about to go'	+	–	+	+
<i>binâ</i> 'able to see'	+	+	+	+
<i>kušâ</i> 'hard-working'	+	+	+	+
<i>šekastani</i> 'breakable'	+	–	+	+
<i>šekanande</i> 'fragile'	+	+	+	+

As the table above shows, these <modification, action> adjectives are used in attributive and predicative positions, but they are structurally coded words. On the other hand, some of them are gradable, while others are not. What we can conclude is that this type of adjectives cannot be considered prototypical based on structural coding and gradability criteria. Now we will see whether the sub-criterion of frequency confirms this conclusion or not.

Frequency of occurrence. According to the data of PLDB and Bijankhan Corpus, adjectives of this class have a very low frequency of use. The five adjectives of this category presented in Table 5 are just a few examples representing these low-frequency adjectives. We also examined their comparative forms in order to confirm the gradability criterion.

Table 6

Frequency of the positive and comparative forms of <modification, action> adjectives

Positive / comparative adjectives	Occurrences in PLDB	Occurrences in Bijankhan Corpus
<i>raftani</i> 'about to go'	9	7
<i>raftanitar</i> 'more likely to go'	0	0
<i>binâ</i> 'able to see'	6	16
<i>binâtar</i> 'more capable of seeing'	1	0
<i>kušâ</i> 'hard-working'	2	35
<i>kušâtar</i> 'more hard-working'	0	1
<i>šekastani</i> 'breakable'	1	1
<i>šekastanitar</i> 'more breakable'	0	0
<i>šekanande</i> 'fragile'	37	53
<i>šekanandetar</i> 'more fragile'	0	3

These data confirm that these adjectives are peripheral, or non-prototypical. However, in the case of *šekanande*, which occurs with a higher frequency than the other adjectives of this category, we may say that this adjective has come to be used in an extended and metaphorical sense to denote a human state or property (as a <modification, property> adjective), which accounts for its high frequency.

To sum up, we can say that the <modification, action> adjectives do not meet at least two criteria of TPT. However, not all members of this category are equally non-prototypical, meaning

that their prototypicality can be regarded as a continuum. The following graph shows the frequency of occurrence of the <modification, action> adjectives in the corpora.

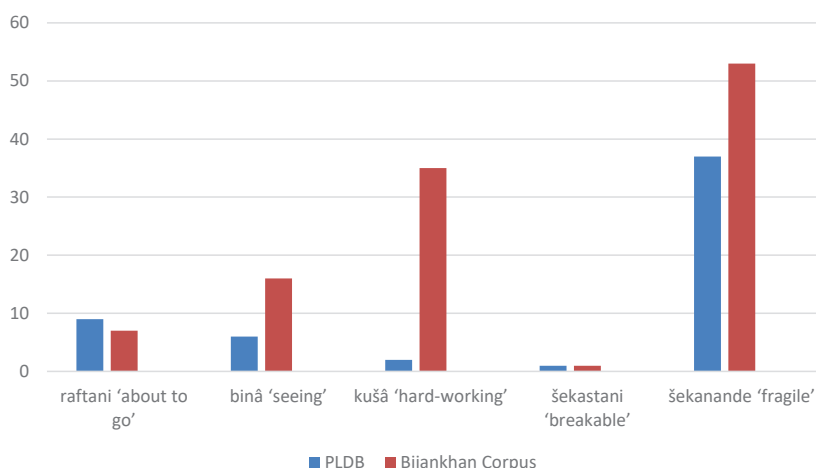


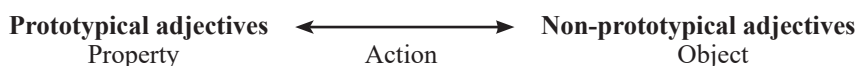
Figure 3. Frequency of occurrence of five representative <modification, action> adjectives

The above graph shows that the examined adjectives have a low frequency of occurrence both in Bijankhan Corpus and in PLDB, with *šekastani* and *šekanande* at the two extremes of the continuum. A noteworthy point is that the most frequently used adjective of this category, i.e. *šekanande*, has a lower frequency in the two corpora than the least frequently used adjective of the <modification, property> category, showing that the <modification, action> adjectives are not as prototypical as the <modification, property> adjectives in this respect. To have a more illustrative view of prototypical and non-prototypical adjectives, let us compare all three types based on the criteria and sub-criteria of TPT.

4.4. A comparison of the prototypicality of property, object and action adjectives

To compare the prototypicality degree of all types of adjectives, we have used all of the criteria and sub-criteria of TPT, except for the sub-criterion “attributive and predicative use”, because all types of adjectives are used both attributively and predicatively and this sub-criterion is thus redundant. The following graph (p. 119) summarizes the comparison of 15 adjectives selected from three adjective categories based on structural coding and gradability.

This graph shows that the <modification, property> adjectives are prototypical in terms of both structural coding and gradability. However, the <modification, action> adjectives are structurally coded and some of them are not gradable. They are, therefore, peripheral, or non-prototypical. The third group, the <modification, object> adjectives are non-prototypical in terms of both structural coding and gradability. To sum up, we can show the prototypicality degree of these three types of adjectives along a continuum in the following way:



This means that property adjectives are more prototypical than action and object adjectives, and that object adjectives are more peripheral than action adjectives. Now we will see whether the frequency data are in line with this result.

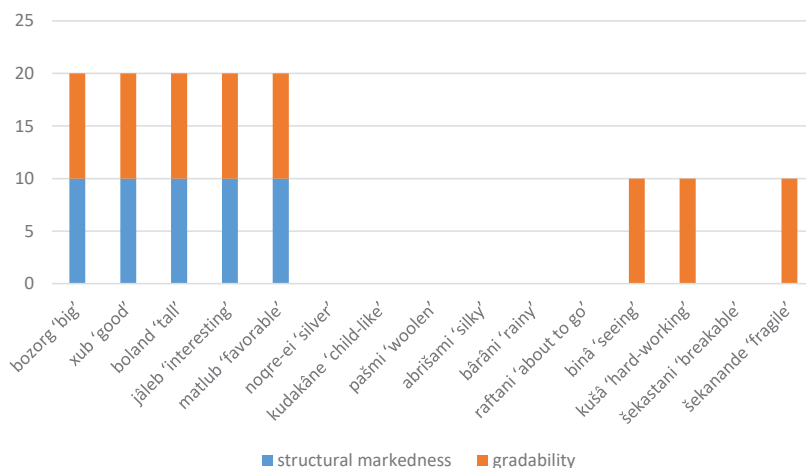


Figure 4. A comparison of property, object and action adjectives based on structural coding and gradability

Next graph (Figure 5) shows that the <modification, property> adjectives are also more frequently used than the other two types, and are therefore closer to prototypical adjectives. However, not all lexemes are equally prototypical, because prototypicality is basically a matter of degree.

One of the major shortcomings of TPT is that it does not provide us with sufficient criteria to enable comparing different adjectives in terms of prototypicality. In other words, the criteria that we can extract from this theory for differentiating between prototypical and peripheral adjectives are not comprehensive enough to be applied to all members of different parts of speech and to lead us to reliable results. It seems that TPT has assigned too many aspects of language to parameters, which has led to the widened scope of parameters and the limited scope of principles. This is the very reason why researchers of specific languages cannot limit themselves to the criteria proposed by TPT in their research. In other words, as people all over the world have many similarities in their behavior, it is not unlikely to have many common features applicable to all languages of the world.

Now the question arises as to how to distinguish the class of adjectives from other parts of speech (nouns and adverbs). As we know, an adjective describes a noun or pronoun, while an adverb describes a verb or anything apart from a noun and pronoun. However, many Persian words such as *tond* 'fast', *xub* 'good/well', and *zibâ* 'beautiful/beautifully' are used both adjectivally and adverbially:

- (16) *Ali rânande-ye xub-i ast.*
 Ali driver-EZ good-INDF be.PRS.3SG
 'Ali is a good (adj.) driver.'

- (17) *Ali xub rânandegi mi-kon-ad.*
 Ali well driving IPFV-do-PRS.3SG
 'Ali drives well (adv.).'

It is the context (the type of verb) that helps us distinguish the part of speech of such words, although adverbs are also made up of a preposition + adjective (+ the suffix *-i*), e.g. *be xub-i* 'well', *be tond-i* 'fast', *be zibâ-yi* 'beautifully', in which case such a construction helps us to determine their part of speech. The same problem exists in the case of words functioning as both adjectives and nouns. For instance, *bozorg* 'big', which is originally an adjective, may come

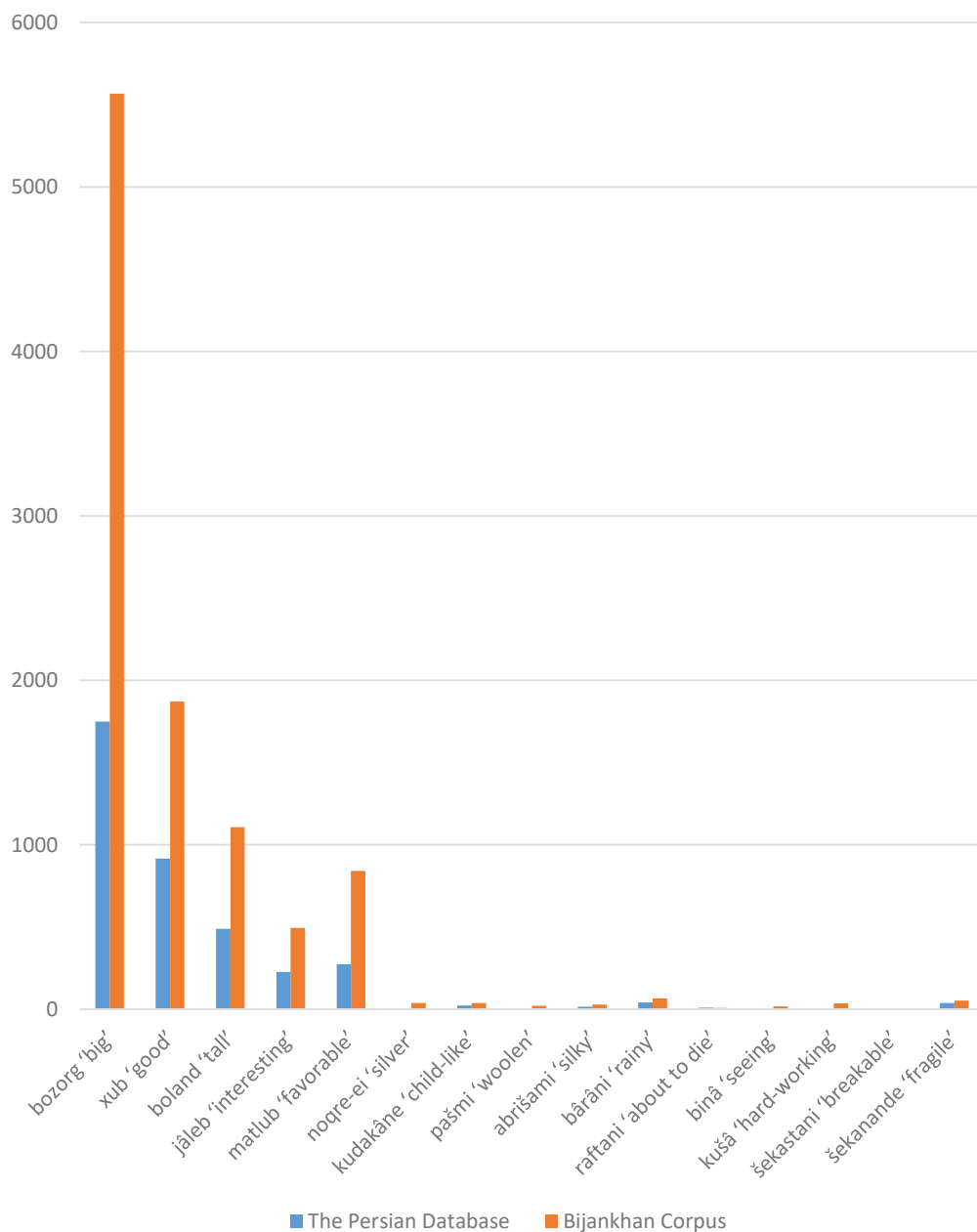


Figure 5. A comparison of property, action and object adjectives in terms of frequency of occurrence

to be used nominally as well, but morphological markers such as suffixes help us to determine their part of speech. For example, *bozorg-ân* 'great people' has taken the plural noun suffix *-ân*, whereas, if it takes the comparative suffix *-tar*, it is certainly an adjective rather than a noun. However, if such flexible words are not accompanied by such distinguishing suffixes, the *ezafe* particle may help us to determine their lexical categories:

- (18) *pedar-e Reza mard-e bozorg-i ast.*
 father-EZ Reza man-EZ great-INDF be.PRS.3SG
 ‘Reza’s father is a great man.’

In this sentence, *bozorg* does not take the *ezafe* particle, so it is an adjective. However, this word takes that particle in the following sentence and is used nominally rather than adjectivally:

- (19) *pedar-e Reza bozorg-e šahr ast.*
 father-EZ Reza great-EZ city be.PRS.3SG
 ‘Reza’s father is the great man of the city.’

Therefore, in addition to the context (type of verb), morphological evidence such as suffixes and the *ezafe* particle marks the class of such flexible words.

5. Conclusion and discussion

This study investigated the lexical category of adjectives in Persian within the framework of TPT. One of important aims of this study was to evaluate TPT in determining the prototypical features of Persian adjectives. Having collected the data from two corpora and analyzed them with respect to the criteria and sub-criteria of TPT, we came to the conclusion that TPT can partly help to determine and define prototypical and atypical adjectives in Persian, but it has certain shortcomings in this respect due to the insufficient set of criteria and sub-criteria proposed for this purpose. In other words, although this theory has proposed two major criteria for prototypicality of adjectives, these criteria are not comprehensive enough to determine the prototypicality degree of different adjectives within the same category. These criteria could have more sub-criteria concerning different morphological, syntactic, semantic, and pragmatic behavior such that they could help us determine the prototypicality degree of different members of a category. More specifically, TPT could prove more helpful in distinguishing between prototypical and non-prototypical words if it considered the monosemy and polysemy phenomena, more various syntactic functions of POS, morphological features like derivation, and class range.

The present study also aimed to account for the morphological and syntactic differences between prototypical and non-prototypical adjectives in Persian. Having tested different types of adjectives using the two criteria proposed within the theoretical framework of the research, we came to the conclusion that prototypical adjectives, unlike peripheral or non-prototypical ones, are structurally unmarked, lend themselves to comparative and superlative forms more easily, and are used both attributively and predicatively. In addition, having investigated the association between frequency of occurrence and prototypicality of adjectives in Persian by using PLDB and Bijankhan Corpus, we concluded that those adjectives which are regarded by TPT as prototypical are also used more frequently in the mentioned corpora.

One of the main questions which the present paper sought to answer was about the degree to which the sub-classes of adjectives in traditional Persian grammar such as descriptive, relational, ability, subjective and objective adjectives are associated with prototypical adjectives in this language. Therefore, one of the hypotheses of this research was that there is a relationship between the traditionally categorized adjective types in Persian and their degree of prototypicality. It was shown that such relationship exists, in such a way that property adjectives are the most prototypical and object adjectives are the least prototypical, while the action adjectives are in between them on the prototypicality continuum. The so-called descriptive adjectives all belong to the <modification, property> category and are thus prototypical. However, the so-called relational adjectives all belong to the <modification, object> category and are thus peripheral, or non-prototypical. The rest of the traditional categories, including the so-called subjective,

objective and ability adjectives are all to be regarded in their unmarked usages as <modification, action> adjectives and are thus also peripheral.

However, it was shown in this study that due to different inherent and non-inherent senses, the same adjective may simultaneously belong to more than one category depending on the context in which it appears. In other words, a specific (metaphorical) sense of a given word may exclude that word from its common and unmarked category and cause it to take the features of another category. This is why we cannot determine the extent to which an adjective, apart from its context, is prototypical. In addition to the demarcation phenomenon, speakers sometimes recategorize a word into another part of speech, the phenomenon known as category shift. This is why we can talk of processes such as adjectivalization, deadjectivalization, nominalization, denominalization, verbalization, deverbalization, and so on in languages. The present paper provided examples of nominalization in Persian, but each of these processes could be used as a future research topic in a particular language.

ABBREVIATIONS

1, 3 — 1st, 3rd person
 COMP — comparative grade
 EZ — ezafe
 IPFV — imperfective
 INDF — indefinite article
 PL — plural

POS — part(s) of speech
 PRS — present tense
 PST — past tense
 PT — Prototype Theory
 TPT — Typological Prototype Theory
 SG — singular

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Получено / received 13.02.2019

Принято / accepted 17.09.2019