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The Study of Suppletion in Persian Inflected Nouns and Verbs

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Abstract

Suppletion is a morphological process which can be found in inflectional system and word formation processes of languages. It refers to the inflected forms of words which do not share a common etymology with the base in other forms of the same word. Suppletion describes the instances where a lexical meaning and a grammatical meaning are represented by a single indivisible form. For example, in English many of the past tense forms of the verbs have suppletive stems, e.g., grow and grew. In fact, their root is different from the base or there is a little similarity to the root. This article aimed at studying the suppletion process in inflected form of nouns and verbs in Persian. Moreover, it dealt with the structure of plural nouns and inflected form of verbs and identified partial and complete suppletion within those structures. The findings showed that suppletion process works in the structure of Persian nouns and verbs. Partial suppletion occurs in some Persian nouns which are made plural by adding "-ān" and "-āt" as well as in broken (mokassar) plurals. It also occurs in inflected forms of the verbs, while total suppletion can be found only in two verb forms. Suppletive forms are considered to be inflected allomorphs of a word. This may have historical and phonological explanations.

Keywords: Partial suppletion, Total suppletion, Morphological structure, Stem

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1.Introduction

Morphological processes including inflection and word formation usually occur by means of particular rules; however, they may sometimes seem to be irregular though they have their own particular reasons. Some linguists such as Bauer (1992) believe that although many rules govern morphology and linguistic patterns, sometimes different forms of a word are quite distinct from each other and they cannot be obtained through general rules. Such forms are called "suppletive forms" (Bauer, 1992, p. 41). In fact, these irregular and unpredictable forms usually occur due to historical and phonological reasons in a language.

Suppletion usually occurs in noun and verb inflections in Persian language and produces inflected forms which are usually partial forms. The grammar seeks to design and apply rules for every linguistic product but suppletive forms cannot be explained by general and predictable rules. Therefore, we should try to find a reason for such inflected forms which usually originate from lexical borrowing from other languages and/or phonological changes. This article looks at the process of suppletion in noun and verb structures in Persian language using descriptive analysis method.

This study makes an attempt to explore the process of suppletion in noun and verb inflections, in the structure of plural nouns and inflected form of verbs in Persian, and identify the partial and total suppletion therein. The research questions are addressed in this study

1.How is the suppletion process realized in noun and verb structures?

2. What are the partial and total suppletive forms in noun and verb structures?

We assume that suppletion occurs partially in the inflection of nouns and verbs which are phonologically conditioned and realized and they are sometimes historically accounted. Also, another assumption is that partial (and total) suppletion is observed in the inflection of a great number of plural nouns and past tense forms of the verbs in Persian.

2. Review of literature

In Linguistics and Etymology, suppletion is traditionally understood as the use of one word as the inflected form of another word when the two words are not cognates. For those

learning a language, suppletive forms will be seen as "irregular" or even "highly irregular". The term "suppletion" implies that a gap in the paradigm was filled by a form "supplied" by a different paradigm. Suppletive forms are considered as allomorphs of their words.

Suppletion can be studied synchronically and diachronically. In other words, Synchrony and diachrony have been mixed up, at times, with regard to suppletion. Rudes (1980) is a representative of this tendency. This author distinguishes between genuine and pseudo-suppletion. Genuine suppletion covers forms that are etymologically different, such as *go* and *went*; the present tense forms of the verb “be” in English (*am*, *is*, *are*) are examples of pseudo-suppletion since they go back to one and the same Indo-European etymon. This distinction is not widely shared. Mel’čuk (1994, p. 355) rejects it explicitly and a number of scholars follow the author in this respect. Different kinds of suppletion are distinguished depending on the kinds of linguistic signs it affects. Thus, it is customary to distinguish between *affixal* and *stem* suppletion. A case of affixal suppletion is, for example, the plural affix *en* in English *oxen*. It is not motivated by any morphophonological rules of English, unlike other plural allomorphs such as /-z/ or /-s/ as in /bɔiz/ and /ʃops/, respectively (Boyé, 2006). A case of stem suppletion is an unpredictable change of stems in a paradigm, as in English *go* for the non-past tenses and *went* for the past tense. Corbett (2000) and Corbett (2007) restrict the term *suppletion* to describe exceptions to morphophonological patterns that can be strictly identified as inflection, that is, those expressing categories without which a word in a given language becomes ungrammatical. For instance, the verbs in English must always be specified for tense. Consequently, the forms *go: went* are suppletive in his view. Other works such as Dressler (1985), Mel’čuk (1994), and Veselinova (2006) allow the term *suppletion* to also cover exceptions to derivational patterns.

Formally, suppletive forms have been described as *strong* and *weak*, as in Dressler (1985). This distinction is introduced to refer to the fact that some forms, such as *am* versus *was*, do not share any phonological materials (strong suppletion) while others do, such as *child: children* (weak suppletion). Since it is not always clear where to set the limit for what counts as weak suppletion, Mel’čuk (1994, p. 367) introduces the criterion of *uniqueness*. The alternation of two paradigmatically related forms counts as suppletive if it is the only one of its kind in the language. Thus, *child/children* is counted as a suppletion in English,

whereas strong verbs such as *run/ran* are not counted since they are part of a pattern, albeit a restricted one.

According to Jensen (1990), inflectional systems frequently exhibit suppletion: two separate allomorphs with identical meaning (and not related by phonological rules) that appear in distinct contexts. One example of this is in the irregular allomorphs of the English plural. In Latin, there are three allomorphs meaning 'first person singular' ([+I, -II -pl] in the feature system developed in stems, as well as affixes, which may illustrate suppletion. The English verb '*go'* has the suppletive past tense form of *went.* The French verb *aller* has the suppletive future stem of *ir-* and four suppletive forms in the present indicative are *vais, vas, va,* and *vont,* and the imperative of *va(s).* The Latin verb *ferō 'I* carry' has the suppletive perfect stem of *tul-* as in *tuli*' (I carried).' These suppletive stems are best represented as separate allomorphs at the stem level.

Suppletion consists of a complete change in the form of a root (i.e., a word) or in the replacement of a root by another morphologically unrelated root with the same component of meaning in different grammatical contents (Richards et al., 1985; Byrne, 1978; Pei, 1966). For example, *good* and *well* change to *better* and *best* in comparative and superlative forms. Similarly, *bad* and *badly* change to *worse* and *worst*. Likewise, *be* changes to *am, are,* and *is* in the present; *am/is* changes to *was* and *are* changes to *were* in the past. This process yields completely irregular forms. Suppletive forms help to fill the gaps in grammatical paradigms of the language (Zapata Becerra, 2000). In defining suppletive allomorphs, Shaqaqi (2011, pp. 64-65) points out that in such allomorphs, there is no phonological similarity between the two allomorphs and in terms of morphology, one allomorph does not derive from another but they have a common meaning and/or grammatical function. That is why they are called as suppletive allomorphs, like "bin" and "did" that entered the Persian language from two distinct etymological origins and she considers them to be total suppletive forms, while she calls "*kon*" and "*kard*" as partial suppletive forms.

3. Theoretical Framework

An irregular paradigm is one in which the derived forms of a word cannot be deduced by simple rules from the base form. For example, someone who knows only a little English can deduce that the plural of *girl* is *girls* but cannot deduce that the plural of *man* is *men*.

Language learners are often most aware of irregular verbs, but every part of speech with inflections can be irregular. For most synchronic purposes, first-language acquisition studies, psycholinguistics, language-teaching theory, it suffices to note that these forms are irregular. However, Historical Linguistics seeks to explain how they came to be so and distinguishes different kinds of irregularity according to their origins. Most irregular paradigms (like *man:men*) can be explained by philological developments that affected one form of a word but not another (in this case, Germanic umlaut). In such cases, the historical antecedents of the current forms constituted a regular paradigm. Historical Linguistics uses the term "suppletion" to distinguish irregularities like *person: people* or *cow: cattle* that cannot be explained because the parts of the paradigm have not been evolved out of a single form. Hermann Osthoff coined the term "suppletion" in German in a study of the phenomenon in Indo-European languages.

Suppletion exists in more than 71 languages around the world. These languages are from various language families: Indo-Aryan, Dravidian, Arabic, Romance, etc. For example, in Georgian, the paradigm for the verb "to come" is composed of four different roots (*di-*, *-val-*, *-vid-*, and *-sul-*). Similarly, in Modern Standard Arabic, the verb *jāʾ* ("come") usually uses the form of *taʿāl* for its imperative, and the plural of *marʾah* ("woman") is *nisāʾ*. Nonetheless, some of the more archaic Indo-European languages are particularly known for the existence of suppletion. Ancient Greek, for example, has about twenty verbs with suppletive paradigms and a great number of verbs with three separate roots.

Strictly speaking, suppletion occurs when different *inflections* of a lexeme (i.e., with the same lexical category) have etymologically *unrelated* stems. The term is also used in looser senses, albeit less formally.

The total number of suppletive forms found in 64 languages (main sample) with a particular lexical meaning is given. Any additional meanings included are given in brackets. Thus, 4 instances of *brother* also include one instance of a lexeme meaning younger brother to a man and one instance of a lexeme meaning younger brother.

Suppletion does not seem like a random phenomenon. Instead, we may draw some important conclusions at this point: (1) Suppletion is observed with nouns that refer to humans, often proper or improper kinship terms; (2) The most common lexical meaning

involved in suppletion is *child*; (3) The most common grammatical feature involved in nominal suppletion is number followed by possession, and vocative case, in decreasing order of frequency; (4) Improper kinship terms show a tendency towards number suppletion whereas proper kinship terms may also be involved in possessive suppletion; (5) Inanimate referents are almost always suppleted regarding number and less commonly possession; (6) Suppletion is not a very rare phenomenon as almost half of the examined languages had suppletive nouns; (7) Vocative suppletion is attested in one language of the main sample, namely Tariana, and only affects kinship terms; (8) Improper kinship terms are slightly more common as suppletive nouns than proper kinship terms; (9) Younger siblings are more often suppletive than older; this follows the markedness hierarchy of kinship terms given by Greenberg.

For Corbett (2000), this profile adds up to the claim that such cases do not involve contextual realization, or 'suppletion' but rather, what is involved is verbal number marking which is not sensitive to context. Absent sensitivity to context, verbal number is typically taken to involve a change in the inherent meaning of the verb, or in traditional terminology, a lexical property … and indeed, the vast majority of scholars who have considered the paradigm take it to involve two distinct verbs. According to her criteria, Veselinova remains rather skeptical that these are true cases of suppletion. By analogy, one should consider the English verbs *murder* and *massacre* side by side to see how extremely similar content can give rise to distinct expectations concerning the number of object participants.

Inflectional suppletion is understood as an extreme irregularity of form within one paradigm while it is impossible to explain the relationship of the forms through a regular morphological operation. It is defined by Greville Corbett on a scale of less or more canonical. According to Melčuk's (2000, p. 512) definition (abbreviated), the language does not operate such rules that would relate the two forms within the paradigm. In his definition, Corbett uses 14 criteria to define suppletion. He covers (unlike Meľčuk) merely the intra-paradigmatic relations and refers to "lexeme" and "stem", as "lexeme with more stems is more canonically suppletive than one with fewer".

Typically for IE, the suppletion in verbal paradigms lies in use of distinct PIE roots, although regular sound changes and other minor reasons are the source of suppletion as well. Kölligan 2007, p. 345) describes ten cases of so called “weak suppletion”, which on a synchronic level appear suppletive but are known to have developed from a formerly regular paradigm, which has undergone some phonological changes within the internal development of Greek.

In this paper, I consider only suppletion of stems (not affixes). When examining written records, we need to rely on philologists´ research and decision-making about the two distinct forms belonging to one paradigm. Many defective paradigms are also found among the ancient languages. In these (certain) cases, the fact whether the respective perfect stem matches the semantics of certain present stem and can be considered as belonging to the same paradigm may be a matter of debate.

3.1. Semantic Relations

The term "suppletion" is also used in the looser sense when there is a semantic link between words but not an etymological one; unlike the strict inflectional sense, these may be in different lexical categories, such as noun/verb. English noun/adjective pairs such as father/paternal or cow/bovine are also referred to as collateral adjectives. In this sense of the term, father/fatherly is non-suppletive. *Fatherly* is derived from *father*, while father/paternal is suppletive. Likewise, cow/cowy is non-suppletive, while cow/bovine is suppletive. In these cases, *father/pater*- and *cow/bov*- are cognates via Proto-Indo-European, but 'paternal' and 'bovine' are borrowings into English (via Old French and Latin). The pairs are distantly etymologically related, but the words are not from a single Modern English stem.

3.2. Strong Suppletion

Unlike analogy and contamination, sound change can lead to either a weak or strong suppletion. Meanwhile, another source of strong suppletion, incursion, does not appear to induce weak suppletion (though in principle it could). Synchronically, strong suppletion falls into two basic types, which I call overlapping and non-overlapping. Overlapping suppletion is a situation in which forms of one lexeme also belong to a suppletive relationship with forms of another lexeme. The Ibero- Romance preterit forms of ser ‘to be’ and ir ‘to go’ display this

type of suppletion; in this case the forms in question are in a suppletive relationship with forms in both paradigms, though this is not always the case (in Catalan, e.g., the form estat is a regular participle of estar ‘to be’ and is also a suppletive participle of another copula (és)ser). Non-overlapping suppletion does not involve such sharing of forms across lexemes and is by far more widespread; among the numerous examples are the forms of the English verb to be.

3.3. Sound Change

With suppletions induced by sound changes, the difference between weak and strong outcomes is essentially one of a degree in that over long periods of time, series of sound changes (it does not appear to matter when it is regular or ‘irregular’) can result in a chain of development from a regular paradigm to a weakly suppletive one and ultimately to a strongly suppletive one. An example of strong suppletion induced by a sound change is found in the English verb *to be*, in which Proto-Indo- European **esmi*, **esti* yielded *am* /æm/, *is* /Èz/.

3.4. Incursion

The main source of strong suppletion in inflectional verbal paradigms, however, is incursion, or the incorporation of forms from one lexeme into another historically separate lexeme. There are three types of paradigms to which this happens: defective, suppletive, and regular. Defective paradigms are paradigms missing an expected element. In these cases, it is perhaps misleading to refer to the incorporation of forms from other lexemes as incursion, since no form is actually being replaced; nevertheless, it captures the similarity to other situations and the contrast with other possible processes, such as analogy. An example of a formerly defective paradigm which has undergone incursion is the non-overlapping case of *to be*, which actually includes forms from two previously separate defective paradigms centered on the PIE roots *es- ‘be’ (*am, is, are*) and **bheu*-/*bhu Ú - ‘become’ (be, been) (*was* and *were* are from a third root **wes*- ‘live, dwell’; see Buck, 1949, pp. 635-636).

In the case of previously suppletive paradigms, incursion tends to change the phonological substance of the allomorphy but leaves the suppletive pattern intact. This happened when the Old English pattern go~e Ú ode gave way to *go~went*, as well as in verbs meaning GO in various Romance varieties, as will be discussed below. Finally, incursion can

also affect regular paradigms, as in the case of Italian *andare* ‘to go’, which, like most Romance verbs meaning GO, also has reflexes of Lat. *vädere* ‘to wander’; the case of French *aller* ‘to go’ is similar, but here there is also incursion by forms from *ïre* ‘to go’ (in the future and conditional). In most Romance languages, the verb meaning *go* displays both weak and strong suppletion resulting from a combination of all of these factors. Before looking at details, let us consider some possible motivations for these developments.

3.5. Weak Suppletion

The term "weak suppletion" is sometimes used in contemporary synchronic morphology in regard to sets of stems (or affixes) whose alternations cannot be accounted for by current phonological rules. For example, stems in the word pair *oblige/obligate* are related by meaning but the stem-final alternation is not related by any synchronic phonological process. This makes the pair appear to be suppletive, except that they are related etymologically. In historical linguistics, "suppletion" is sometimes limited to reference to etymologically unrelated stems. Current usage of the term "weak suppletion" in synchronic morphology is not fixed.

In this study, a basically historical or phonologically conditioned allomorphic approach to suppletion has been considered to account for the irregular inflected forms of some inflected verbs or nouns in Persian. So, synchrony and diachrony have been regarded, at times, to explain the suppletion.

According to Haspelmath and Sims (2011, pp. 176-177), one type of inflection is suppletion. Suppletion is said to take place when the syntax requires a form of a lexeme that is not morphologically predictable. In English, the paradigm for the verb *be* is characterized by suppletion. *Am*, *are*, *is*, *was*, *were*, and *be* have completely different phonological shapes, and they are not predictable on the basis of the paradigms of other English verbs. We also find suppletion with pronouns. Compare *I* and *me* or *she* and *her*. Suppletion is most likely to be found in the paradigms of high-frequency words, as seen in French words *aller* ‘to go’ /**vais** ‘go (1sg)’ **or être** ‘to be’/ **suis**‘am (1sg).

We can look at Historical Linguistics for an explanation regarding how suppletive forms arise. The paradigm of the verb ‘*to go’* in French, for example, comes from three different Latin sources. The infinitive, *aller*, and the first person and second person plural

forms in the present, *allons* ‘we go’ and *allez*‘you (pl) go’, come from Latin *ambulāre* ‘to walk, to walk along’. The stem of future and conditional forms, such as *irai* ‘will go (1sg)’, has evolved from the Latin verb *īre* ‘to go’. Finally, forms like *vais* ‘go (1sg)’ or *vont* ‘go (3pl)’ come from Latin *vādere* ‘to go, to walk’. Indeed, the idiosyncrasies of languages today can often be explained by looking at the languages of yesterday.

In certain cases, such as with *catch~caught* or *think~thought* and other verbs like them in English, it is most convenient to speak of partial suppletion. In these cases, the initial phoneme or phonemes of the word remain the same, but there is both internal change and change to the end of the word (loss of segments and addition of a past tense indicator [t]. Thus, for this type of suppletion to be accounted, phonological context should be called for.

This argument has recently been countered by Haugen (2015) who, in the spirit of Kiparsky’s (2006) amphichronic programme for linguistics, points to the history of the forms showing ‘weak suppletion’ as the reason behind their similarity. Still, the amphichronic argument as used by Haugen is not easily extendable to those stem-specific alternations which are robust enough to be carried over to new forms e.g., English ‘ablaut’ in sn/ɪ⊃/k - sn/↵/ck or Polish o-raising in Sk/o/d+a - Sk/ʊ/d ‘Skoda (car), nom, sg. - gen. pl’.

4. Data Analysis

4.1. Suppletion in Noun Structure

The main part of each word is its theme [base]. It includes specific meaning of the word and other parts are attached to it and it expresses the type of noun in terms of number, gender, and case (Khanlari, 1987). Number is an inflectional category which represents the contrast between countable quantities *likemardān* (men) or *ketābhā* (books). Every language has a particular system to express such secondary meanings which applies equally to all themes. For example, "*ān*" and "*hā*" are added to nouns to make them plural. "*ān*" is added to animate nouns, whether men, plants, animals, and even body members, such as *zanān* (women), *deraxtān* (trees), *janevarān* (animals), *dastān* (hands), and *-hāis* added to inanimate nouns such as *mizhā* (desks), *kifhā* (bags).

In addition, there are some Persian nouns that end in "e". These words can be traced back to Old Persian where they ended in "*-ag*"; such as "*mive"* (fruit) which was *"mivag"* in

its old form. When "*ān*" is added to these nouns to make them plural, that old "*-ag*" appears again. For example:

Parande→parandag→parandegān (birds)

Khazande→khazandag→khazandegān (reptiles)

What is so called as the change of the "word structure" is the change that is made in the base of the word as well as its morphological parts. There are some Persian words whose final "e″ has changed to "*g*" (see Table 1).

Table 1

Some Examples of Suppletion in Noun Structure

noun	Plural noun following the suppletion process
setāre	Setāregān
geravide	geravidegān
farzāne	farzanegān
morde	mordegān
bande	bandegān

These changes in the above words are due to historical as well as phonological reasons. Suppletion in these words is not productive and it is considered as partial suppletion as they ended in "*ig*" or "*ag*" in Middle Persian, but their final consonant was omitted and only the vowel "a" was kept which was gradually replaced by the vowel "*e*"; the plural form of these words end in *"-gān*" today (Khanlari, 1987, pp. 92-93). After all, if this vowel change is to be rule-governed, it must apply to all words ending in "e". But we know that this rule cannot be applied to all words ending in "e" like *nāmeh* /*name-hā.*

Suppletion can also be found in Persian words ending in vowels when they are to be made plural using "*ān*". In words such as "*bānu*, *zānu*, ā*hu*" that end in a vowel and include a morphological stem such as bānov, zānov, ?āhov: stems that belong to the same lexeme (as a lexeme may have different stems), we can also find partial suppletion (Table 2).

Table 2

Some Examples of Partial Suppletion

Single form of the word	Plural form of the word
bānu	bānovān
zānu	zānovān
āhu	?āhovān
kandu	kandovān

bānu: + -ān→bānovān

zānu: + -ān→zānovān

?āhu: + -ān→?āhovān

kandu: + -ān→kandovān

To avoid hiatus in the above plural words resulting from appearance of two consecutive vowels, stems are produced where a consonant is inserted between vowels; therefore, they end in "v" sound to avoid hiatus: bane, kandov, … which are partial suppletive forms. Partial suppletion can also be found in plural nouns ending in "āt", the single forms of which are not common in Persian or they are less frequently used. The plural forms of such words are currently used in Persian and can be explained synchronically through partial suppletion. When words such as "adab, doxa, ?amal, laban, māl, ... are made plural by adding "āt", partial suppletion occurs when morphological stems adabiy, dokhaniy, ?amaliy, labaniy, maliyā are produced during the pluralization process. Some of these words may have lost their plural meaning in Persian. See Table 3:

Table 3

Partial Suppletion in Plural Nouns

Single form	Common plural form
doxān	doxaniyāt
'amal	?amaliyāt
laban	labaniyāt
adab	adabiyāt

māl	maliyāt

doxān + /āt/→doxāniyāt

amal + /āt/→'amaliyāt

laban + /āt/→labaniyāt

adab + /āt/→adabiyāt

mal + /āt/→maliyāt

According to Bybee (1985), split forms that are morphologically related can result in suppletive forms. Such a split can also be found in broken plural forms borrowed from Arabic to Persian. Every language borrows some words from foreign languages according to its needs. Thousands of Arabic words and terms including broken plurals have gradually entered Persian language for 14 centuries. All broken plurals can be considered as suppletive forms of their single counterparts, even if their regular forms are commonly used as well. For example, in the first hundred pages of the commentary by Shanqiti, the word "āyatha" has been used 30 times and "ayāt" has been used 69 times when interpreting Quranic verses. This frequency of the broken plural form compared with its regular form can imply that the singular form (āyah) and the broken plural form (ayāt) are suppletive forms where we can see partial suppletion in their broken plural.

Table 4

Partial Suppletion in Broken Plural Nouns

Noun	**Noun after applying suppletion**	**Noun**	**Noun after applying suppletion**	**Noun**	**Noun after applying suppletion**
adib	odabā	omq	A?māq	ellat	elal
osture	asātir	daftar	dafāter	haqiqat	haqāyeq
āthar	āthār	elm	'ulum	khabar	akhbār

4.2. Suppletion in Verb Structure

An important issue in Persian morphology is related to irregular verbs. Many present tense roots of Persian verbs have various allomorphs. For example, if the present root/ stem of a verb ends in "-o", when making imperative forms, this "-o" sound changes to "-av" when present tense verb forms are produced. Such changes are called as *sama'ee* in Persian and these forms are included in irregular forms (Safavi, 2013, p. 157). See Table 5:

Table 5

Suppletion in Verb Structure

	past tense of verb	**present stem of verb (Partial suppletion)**	
1	raft	ro	rav
2	shenid	sheno	shenav
3	javid	jo	jav

Persian verbs, except in few cases, share a common root in all their paradigms (inflected forms). Of course, two types of stems - present and past -are active in Persian morphological system and they usually share a common root. However, one of the Persian verbs that has two distinct roots and each group of its paradigms is derived from a different root is "*didan*". One of these roots is "*di-*" which can be found in the words used in Darius inscription at Naqsh-e Rostam:

Paikaramdidiy (look at this body)

Another root of the verb which can be found in the words used in Darius's Bistuninscription is "*vaina-*":

- Vainahy (you see)

-avaina (he saw)

In Middle Persian and Dari Persian languages, the present stem of the verb is derived from the root "*vin*" and as a rule, the initial consonant "v" changes to "b", but the past stem of the verb is derived from the root "di". It is also the same with the verb "ā*madan"* which is derived from two distinct roots: the infinitive form, past paradigms, and many nominal

derivations of this verb come from the root "*gam*-". The Persian word "*gām*" is derived from this root. However, the present stem of this verb is derived from the root "*ay, i*" which carries the meaning of movement.

Another example of such verbs is "*budan*" which has also two roots. One is "*bav*-" which means *become* and *to be* and produces past paradigms. Another one is "*ah, h*" from which the morphemes "*am, i, ast*" are derived and are used in present paradigms "*hastam, hasti, hast ...*" (Khanlari, 1987, pp. 91-93).

As it has been observed, the past and present tense roots were related to each other in Old Persian, but such relations cannot be recognized today. Thus, the inflected forms of a word are related in the paradigmatic axis and are retained in memory (Karsters, 1994, p. 188). O'Grady (2008) calls this diversity of verbs, where a contrast between two tenses and substitution of one root with another is studied, as suppletion. For example, he believes that using "*went*" as the past form of "*go*" and "*was* or *were*" as the past forms of "*be*" is a sort of inflectional contrast (O'Grady, 2008, p. 189).

In Persian, verbs "*didan*, *budan*", where the present and past tense roots are derived from quite different roots, are considered as total suppletion. See Table 6:

Table 6

Some Examples of Total Suppletion

Word form before applying suppletion	**Word form after applying suppletion**
did	bin
bud	hast

But in a large number of Persian verbs, partial suppletion occurs. In one class of verbs, verb stems that end in [z] sound, like *godaz, riz, afruz, ...* partial suppletion is found in their past stems; that is to say, when the present tense of a verb ends in the phoneme /z/, in order to change it into past tense where it appears next to past tense maker morpheme /t/, it is changed into /x/-using partial suppletion. In other words, the suppletive verb stems *godāx, rix,* and *afrux* are produced through the process of inflection:

/z/ + -/t/→/x t /

godāz→godāxt

riz→rixt

afruz→afruxt

In other Persian verbs, we also find more phonological changes at the end of present tense stem when they appear next to a past tense maker morpheme and produce partial suppletive verb stems. See Table 7:

Table 7

Some Examples of Partial Suppletive Verb Stems

ju	jos –t
pendar	pendash –t
chin	chi –d
tavan	tavanes–t

In the process of inflection, we can find verbal base allomorphs which are formed through suppletion of inflectional forms. These forms which are found in Persian inflected verbs and sometimes nouns through inflectional processes are stems that belong to a content word-noun or verb- and are considered to be partial suppletive forms.Another type of suppletion process which can be found in verbs is related to their negative verb forms. In some cases, prefix "*na-*" is inserted when producing negative form of a verb and phonological changes occur. So, a new form is produced by applying suppletion. For example, when "*na-*" is added to "*alud*" (*na + alud)*, *nayalud* is produced as the result of suppletion. The suppletion used in this case is partial affix suppletion which is represented as "*-nay*".

na + ʔālud ⟶ nayālu:d

na + ʔāsud ⟶ nayāsu:d

The analysis of the data shows that two kinds of non-past stems are derived from the infinitive in SD: (a) regular non-past stems undergoing no phonetic modifications; (b) irregular non-past stems which include two sub-classes: (1) weak suppletive stems, i.e., the stems with vowel and/or consonant modifications, and (2) strong suppletive stems, i.e., the stems with a total phonetic modification.

1- Weak suppletive stems with vowel modification: Some of the non-past verb stems involve vowel modification. In these cases, the infinitive has a short vowel but the derived stem takes a long vowel, instead, as in the examples below:

Infinitive **non- past stem**

/v/ ⟶ /ʊ̄/

/Parid/ to jump ⟶ / pārid/

/resid/ to arrive ⟶ /rēs/

/xazid/ to creep ⟶ /xāz/

2- Weak suppletive stems with vowel and/or consonant modification:

Infinitive **non-past stem**

/u/ ⟶ /ū/

/pušid / to wear ⟶ /pūš/

/suxt/ to burn ⟶ /sūz/

/duxt/ to sew ⟶ /dūz/

5. Conclusion

Studying the process of suppletion in Persian noun and verb structures revealed that suppletion in word structure refers to a change that occurs in both the root and sometimes, in affixes. In Persian, the plural form of some nouns is considered as partial suppletion like *banov-ān, parande-g-ān*. As a result, this type of suppletion is considered as phonologically

conditioned and sometimes historical. Another form of suppletion can be found in broken plural structure.

All broken plurals can be regarded as their singular suppletive forms, though the regular form is also common. The issue of suppletion is found in Persian verb structures as well. This study showed that for a few Persian verbs such as "*didan, budan*", which have quite distinct present and past tense roots, the total suppletive form occurs, while other verbs go under partial suppletion. To sum up, suppletion occurs in Persian noun and verb inflectional paradigms. This type of suppletion is typically partial.

Conflict of Interest

The author(s) certify/certifies that they have no affiliations with or involvement in any organization or entity with any financial interest (such as honoraria; educational grants; participation in speakers' bureaus; membership, employment, consultancies, stock ownership, or other equity interest; and expert testimony or patent-licensing arrangements), or non-financial interest (such as personal or professional relationships, affiliations, knowledge or beliefs) in the subject matter or materials discussed in the present research paper.

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