[1] PHD candidate in linguistics, Science and Research Branch, Islamic Azad University, Tehran, Iran.
E-mail:st.andy1964@yahoo.com

[2] Associate professor of linguistics, Tarbiat Modares University, Tehran, Iran (Correspondent Author)

E-mail:

[3] Associate professor of linguistics, Tarbiat Modares University, Tehran, Iran.

[4] Associate professor of linguistics, Allame Tabatabaei University, Tehran, Iran.

RESEARCH ARTICLE

The Study of Mazandarani Compounds in Terms of Internal Structure, Syntactic Category, Semantic Classification and Head Position

Seyyed Taghi Andy[1], Arsalan Golfam[2] (iD), Ferdows Aghagolzadeh[3], Mojtaba Monhshizadeh[4] (iD)

Abstract: Compounding is one of the most common and also very productive word formation processes among languages in the world. Because of its productivity and high frequency, it has precisely been studied by many Iranian and non-Iranian linguists. However, this productive process has not yet been studied in Mazandarani. In the present study, first Mazandarani compound words taken from Tabari dictionary, have been analysed in the form of a table and based on the criteria such as syntactic category, semantic classification of compound types (endocentric, exocentric and dvandva), the position of head and being verbal or nonverbal. By taking into consideration the above mentioned criteria and based on three fundamental concepts, namely, head, dependent (non-head) and feature percolation, the resulting compounds have been analysed separately. At the end of the article, after studying and evaluating the hypotheses, appropriate explanations have been presented. The high frequency of "N+ N → compound noun construction" refers to their predictability in meaning compared to other constructions. It means that there is a direct relationship between high frequency of a word formation process and its semantic predictability. Also, the reason why endocentric compounds are more frequent than others is due to the fact that both constituents of the compound are used in their original meanings. Hence, endocentric compounds are unmarked elements and are easier to learn in the process of language learning. The above mentioned findings are in line with markedness theory. That is why the frequency of occurrence of unmarked elements is higher than marked ones which is related to language universals.

Keywords: Compound Process; Head Constituent; Non-Head Constituent; Feature Percolation; Endocentric; Exocentric; Dvandva/Coordinate Compound.

Introduction

Contemporary Iranian languages and dialects are the remaining of the Proto-Iranian language which was highly related to Proto-Indo-Aryan language. Their ancestor was Proto-Indo-European language. Iranian languages constitute the western branch of Indo-Iranian languages group. Proto-Indo-Iranian language itself is a branch of Proto-Indo-European language (Dabir Moghaddam, 2014:93-94). Mazandarani is from Indo-European family and is a branch of Indo-Iranian languages and comes from Iranian languages group (Bashirnezhad,2013:11). Compounding is used for word formation in all Indo-European languages (Shakki,1964:10).

Every language employs different ways and processes in creating new words. One of the frequently-used processes in most languages of the world is compounding. Because of its productivity and high frequency, it has received considerable attention by many grammarians and linguists. Some of them will be mentioned in the following section. However, this productive process has not yet been studied in Mazandarani. By taking into consideration Mazandarani compounds taken from Tabari dictionary (Nasri Ashrafi: 2002), the present researcher attempts to analyse compounds with regard to their structural components and present a comprehensive classification based on three basic concepts namely, head, dependent (non-head) and percolation. Finally, after analysing and evaluating hypotheses, appropriate explanations will also be presented.

2. Literature Review

Morphology plays two basic roles, inflection and word-formation (Bauer,1983:34). Word-formation is accomplished through derivation and compounding. Compounding is one of the productive processes of word-formation among languages in the world. Due to its productivity, it has received considerable attention by many Iranian and non-Iranian scholars. Among Iranian scholars, we can refer to Kalbasi (1992), Sameʔei (1996), Tabatabaee (2003), Sadeghi (2004), Khabbaz (2007), Shaghaghi (2007) and Ghonche pur (2013). Among non-Iranian scholars, we can mention Williams (1981), Selkirk (1982), Jensen (1990), Katamba (1993), Faab (1998), Spencer(2000),

Haspelmath (2002), Bisetto and Scalise (2005) and Lieber (2010). Those non-Iranian linguists who have studied compounding process, the concepts head and non-head constituents and also the position of head, have used different terms in their descriptions and analyses. For example, Lieber (1992) has used head-first and head-last, while others have used left-hand and right-hand headed terms.

In addition, other linguists like Selkirk (1982), Spencer (1991) and Katamba (1993) have categorized compounding into root(primary) compounding and synthetic(verbal) one. It should be mentioned that Khabbaz (2007) believes that the terms root(primary) compounding are not adequate enough in Persian. That is why he used the term non-verbal compounding instead. Researches done in Persian regarding compounds can be classified into three groups. The first group refers to traditional works which have the following features. They lack a general theory about language, they don't use the concepts and findings of linguistics in their classifications. They mostly benefit from meaning and most of their evidence is taken from old literary text (Tabatabaei,1382:138).

Gharib et al. (1994), Natel Khanlari (1990) and Khayyampur (1993) belong to this category. The second one refers to analytic researches lacking specific theoretical framework, or special morphological theory. However, they don't suffer the inadequacies of the previous group. Kalbasi (1992), Kord Zaferanlu (1994), Sadeghi (2004) are included in this category. The third group are analytic researches following a specific morphological theory. Shakki (1964), Mostaʔjer Haghighi (1965), Tabatabaei (1982), Khabbaz (2007) and Ghonchepur (2013) fall into this category. No work has studied compounding process in Mazandarani. In addition, this process has not yet been studied or analysed in the framework of a specific morphological theory.

3. Data and Analysis Method

The data of the present study are taken from Tabari dictionary (Nasri Ashrafi 2002) amounting to 8025 compounds. It is worth mentioning that the present researcher who is a Mazandarani native speaker has collected a number of compounds not listed in Tabari dictionary. Including them, the corpus data approximately amount to 8300 compounds.

To select the sample, we referred to Kerjecie-Morgan table. Based on it, if the subjects (here compounds) are below 10000, the sample could be 384. However, in order to increase the measurement accuracy, we increased the sample to 2000 compounds. In the present study which is a theoretical one a descriptive analytical method has been used for the analysis and interpretation of the data. Therefore, the sample compounds have been analysed in the form of a table and based on such criteria as syntactic category, semantic classification of compound types (endocentric, exocentric and dvandva) the position of head and being verbal and non-verbal. An example of this table will be shown in Section (6). It is worth noting here that in most cases, in addition to describing and analysing the data based on the theoretical framework, attempts have been made to provide adequate explanations. To put it another way, the purpose of the present study is not just to achieve descriptive and observational adequacy, rather we have done our best to achieve explanatory adequacy.

4. Research Theoretical Framework

In the last decades, numerous studies have been conducted with regard to compounding process and its different types by distinguished linguists around the world. Compounds have also been studied concerning their structural constituents, syntactic category, semantic classification (endocentric, exocentric and dvandva) in addition to their categorization regarding the relationship between constituents (verbal and non-verbal). To do them all, the researcher needs to consider three basic concepts namely, head, dependent and feature percolation. Head is of great importance in the studies regarding compounds because it plays an important role in the classification and distinction of compound types. Of the two constituents of a compound, one is head and the other is non-head or dependent. The non-head or dependent constituent specifies or describes the head. Three types of head have been distinguished and studied in the literature; i.e., semantic, syntactic and morphological head which will be dealt with in section 7. 1. According to Lieber (1980) head transfers features like gender and number to the whole

compound. Selkirk (1982: 21) asserts that percolation causes a constituent of a word type to enjoy the same features as those of its head. Therefore, the theoretical framework of the present research includes Lieber's (1980) and Selkirk's (1982) ideas regarding three basic concepts of head and its different types, dependent(non-head) and feature percolation.

5. Compounding Process

Compounding is a productive process of word-formation which is frequently used to add the lexical repertoire of all languages. Due to this productivity, much attention has been paid by many famous grammarians and linguists. Some of the definitions of this process suggested by Iranian and non-Iranian scholars will be presented below. Khanlari (1987: 53) asserts, a new compound word is produced by conjoining two or more separate words each of which has a special meaning. Although a compound word comprises the meaning of its constituents, it conveys a new and independent meaning. Kalbasi (1992: 35) states, compounds are made up of two or more free morphemes. According to Tabatabaei (2007:220), in compounding at least two words are joined to form a new word. Shaghaghi (2007: 91) asserts,

compounding is made by joining two or more lexical morphemes (free or bound) and a functional free morpheme, or by joining two non-simple lexemes. Now we refer to definitions presented by some non-Iranian scholars. In Jensen's idea (1990: 7), compound is a word made up of at least two words. According to Matthews (1991: 2), compounding is a process in which one lexical word is derived from two or more lexical morphemes. To Carstares- McCarty (1992: 142), a compound word comprises more than one root. Crystal (2003:92) believes that a compound is a language unit whose constituents can also be used independently elsewhere. Katamba (2006: 55) assets, compound is a word which contains two bases each of which is either a word or a root morpheme. Finally, according to Lieber (2010: 43) compounds are words that are composed of two or more bases, roots or stems. There are three concepts, namely base, root and stem frequently used in the above definitions which need clarification. Lieber (2012: 33) asserts, the base is the semantic core of the word to which the prefixes and suffixes are attached. He also believes that the stem is usually the base that is

left when the inflectional and derivational endings are removed. According to Tabatabaee (2003:7), root is a form of word to which neither inflectional nor derivational affixes are attached. In addition, a root cannot be divided into a meaningful element and is not derived from another element. He also (1997:12) states, stems in Persian are two forms derived from the verb root and each functions as a base for other inflectional and derivational forms. From the root "pær" taken from "pæridæn" (to run) two stems, namely "pær" =run (present stem) and "pærid"=ran(past stem) are derived.

6. Data Analysis

In analysing the sample data, compounds have been treated in a form of a table and based on such criteria as internal structure of a compound (compound constituents), syntactic category, semantic type (endocentric, exocentric, dvandva/ coordinate) position of the head, and whether a compound is synthetic (verbal) or primary (non-verbal). An example of the above-mentioned table will be shown here. Let us consider number 6, as an example. The compound "Gæl tæle" (mouse trap) is formed via (N + N) combination. The syntactic category of the whole compound is a noun or compound noun. Semantically, it is an endocentric compound in the sense that it has a semantic head. Regarding the head position, it is a head-last/ final one, and finally it is a primary (non-verbal) compound.

	Mazandarani	English	Persian	Internal Structure	Syntactic Category	Compound Type	Head Position	Verbal/ Nonverbal
1	aftab bavrišt	Sun burnt	Aftab suxte	N+ Adj	Comp.Adj	endocentric	Final	Verbal
2	aguz pus	Nut shell	Puste gerdu	N+N	Comp.N	endocentric	Final	Nonverbal
3	bæšesse ĉeš	Shameless	Bihæya/por ru	Adj+N	Comp.Adj	exocentric	-	Verbal
4	bez xu	Tight sleeper	Kam xab	N+N	Comp.Adj	exocentric	-	Nonverbal
5	espe værf	White snow	Sefid bærf	Adj+N	Comp.Adj	exocentric	-	Nonverbal
6	gæl tæle	Mouse trap	Tæle muš	N+N	Comp.N	endocentric	Final	-
7	kæm vin	Jealous	Hæsud	Adj+Adj	Comp.Adj	exocentric	-	-
8	ĉeš vej	Shameless	Væghih/por ru	N+Adj	Comp.Adj	exocentric	-	Verbal
9	kija rika	Daughter son	Doxtær pesær	N+N	Comp.N	dvandva	-	Nonverbal
10	jelo kæš	Spear head	Jelo dar	N+Adj	Comp.Adj	endocentric	Final	Verbal
11	nana xešk	Dry spearmint	Næʔna xošk	N+Adj	Comp.N	endocentric	Initial	Nonverbal
12	sab-sere	Land lord	Saheb xane	N+N	Comp.N	endocentric	Initial	Nonverbal
13	tæn šurun	Bathroom	Hæmmam	N+Adj	Comp.N	endocentric	Final	Verbal
14	šir aš	Rice pudding	Šir berenj	N+N	Comp.N	dvandva	-	Nonverbal

15	ʔu sika	Water bird	Morqabi	N+N	Comp.N	endocentric	Final	Nonverbal
16	terš hæli	Sour plum	Goje sæbz	Adj+N	Comp.N	endocentric	Final	Nonverbal
17	zæn vaĉe	family	Zæno bæce	N+N	Comp.N	dvandva	-	Nonverbal

7. Internal Structure of Compounds in Mazandarani

17 compound constructions (structural patterns) which have already been identified by the present researcher will be dealt with in this section. In other words, based on the theoretical framework of the research, more specifically, three basic concepts, namely, head, dependent (non-head) and feature percolation, compound words will be analysed separately. Finally, after the evaluation of the hypotheses, appropriate explanations will be suggested.

7.1. Nominal and Adjectival Compound Constructions

Since in the analysis of compounds and more specifically in the semantic classification of them terms like endocentric, exocentric and dvandva/coordinate are distinguishing features, it is necessary to clarify them here. According to Spencer (1991:310), in endocentric compounds, the meaning of the whole compound is included in the meaning of one of its constituents. In other words, of the two constituents of a compound, one functions as a head and the other one is the modifier (dependent). In Bauer's idea (1983), in exocentric compounds, the meaning of the whole compound is not included in the meaning of its constituents. In other words, there is no semantic head in an exocentric compound. Spencer (1983:311) also believes that in dvandva or coordinate compounds neither constituent functions as head or stands in head position. In other words, in a dvandva/coordinate compound, each constituent bears some aspect of the meaning of the compound or the meaning of the whole compound is derived as the sum of its constituent meanings.

7.1.1. Noun + Noun → Compound Noun

Nominal and adjectival compounds are formed through various structural patterns. One of these structural patterns through which a large number of nominal compounds are made is noun + noun compound construction. Let us consider the following examples. In

"hæli terši" (plum acid) = "hæli" (plum)+ "terši"(acid), the second noun "terši" functions as the semantic head and the first noun "hali"as the dependent or non-head. In other words, the meaning of the whole compound is included in the meaning of the second constituent. It is thus an endocentric head final compound noun.

It should be mentioned here that in compounds whose constituents are of the same category, e.g. two nouns or two adjectives, it is not easy to distinguish which constituent is the syntactic head. However, the constituent which is the semantic head functions as the syntactic head as well. As we mentioned earlier, morphological head receives inflectional endings. Here the inflectional suffix -a which is a plural marker attaches the second constituent, namely "terši" +-a= "teršia" (acids).

Consequently, in head-final endocentric compounds, there is an overlap among semantic, syntactic and morphological heads. In other words, the same constituent has the functions of all three heads. One point should be mentioned here that the criterion for endocentricity or exocentricity is the presence or lack of semantic head. That is, any compound having a semantic head is endocentric and the one without a semantic head is exocentric. In addition, although exocentric compounds lack a semantic head, they do have a syntactic head. As an example, the compound "sær taš"(shameless)= "sær"(head)+ "taš"(cutter), lacks semantic head in the sense that neither the first nor the second constituent functions as the semantic head. Thus it is an exocentric compound. However, the syntactic category of the whole compound is determined by the second constituent "taš"= shaver/ cutter which is an apocopated[1] present participle. In other words, the second constituent which is an adjective percolates its features to the whole compound. Consequently, the whole compound is an adjective.

In "sab xene" (landlord) = "sab" (owner)+ "xene" (house), the first noun "sab"=(owner)

---

[1]. Apocopated present participle is an adjective which will be explained in 7.1. 11.

functions as the semantic head. So it is a head first/initial endocentric compound. The meaning of the whole compound here is included in the meaning of the first constituent. In other words, "sab xene" is a type of "sab" (owner) not a "xene" (a house). However, the second constituent "xene" (house) receives inflectional suffix or plural marker (-a) "sab xenea" (landlords).

Therefore, the second constituent functions as the morphological head. It can be concluded that in head first endocentric compounds, the first constituent functions both as the semantic and the syntactic head, and the second element as the morphological head. The compound "zanvaĉe" (family/wife and children) = "zan" (wife) + "vaĉe" (children) is neither endocentric nor exocentric. In contrast, it is dvandva / coordinate in which each constituent bears some aspect of the meaning of the compound. It means that "zanvaĉe" includes both "zan"(wife) and "vaĉe" (children), like "north west" which is partly north and partly west. Actually, the meaning of the whole compound is derived as the sum of its constituent meanings.

7.1.2. Noun + Noun→ Compound Adjective

It is interesting that in some cases, a compound adjective is formed via noun + noun combinations. In "zig zæle" (chicken-hearted/timid) made up of "zig" (a very feeble bird) + "zæle"(gal), both constituents are nouns, while the resulting compound is an adjective. The derived compound adjective from this construction (noun + noun) is mostly an exocentric compound in which there is no semantic head. In fact, "zig zæle" (chicken hearted) is neither a kind of "zig"(bird) nor "zæle"(gal). Similarly, in "bez xu" (light sleeper) made up of "bez"(goat) and "xu"(sleep), both constituents are nouns whereas the resulting compound is an adjective. It is also an exocentric compound in which the meaning of the whole compound cannot be derived from the meanings of its constituents. That is, "bez xu" is neither a "bez"(goat) nor "xu"(sleep).

### 7.1.3. Adjective + Noun → Compound Noun

Two types of compounds, namely compound nouns and compound adjectives can be formed via adjective + noun combinations. Here, we are dealing with the formation of compound

nouns. The resulting compound in most cases is a head last endocentric compound noun. It means that the second element which is a noun functions as the semantic head. This element is at the same time the syntactic head as well. For example, in "terš hæli" (sour plum) = "terš"(sour)+ "hæli"(plum), the second element "hæli"(plum) which is a noun percolates its synthetic features to the whole compound. In "ĉelik vaĉe"(small baby)= "ĉelik"(small/little)+ "vaĉe"(baby), also the second element which is a noun is the semantic head because "ĉelik vaĉe" is a kind of "vaĉe"(baby). Besides, the same element which is a noun determines the syntactic category of the whole compound, and consequently the whole compound is a compound noun. In the attested data, no head first endocentric and dvandva/coordinate compound noun was observed.

7.1.4 Adjective + Noun → Compound Adjective

As mentioned in 7.1.3, in addition to compound nouns, compound adjectives can also be made through adjective + noun combinations. The resulting compound in

most cases is an exocentric compound adjective. For example, in "per taš"(sensual/ passionate)= "per"(full)+ "taš"(fire) neither constituent functions as a semantic head. In other words, the meaning of the whole compound is not included in the meaning of its constituents. Thus, it is an exocentric compound and does not have a semantic head. However, the syntactic category of the whole compound is determined through percolation by the first constituent per(full) which is an adjective. The compound "espe ĉeš"(shameless/rude)= "espe"(white)+ "ĉeš"(eye) can be treated exactly in the same way. That is, it lacks a semantic head and hence is an exocentric compound adjective. As mentioned earlier, exocentric compounds though do not have a semantic head, possess a syntactic head. In both cases the first element "per"(full) and "espe"(white) which are adjectives are the syntactic heads and render the whole compounds adjective. To substantiate that the above compounds are adjectives, we can test them by adding inflectional suffixes like "ter"(more) and "terin" (the most) to them. For example, "per taš"+ "ter"= "per taš ter"(more sensual) and
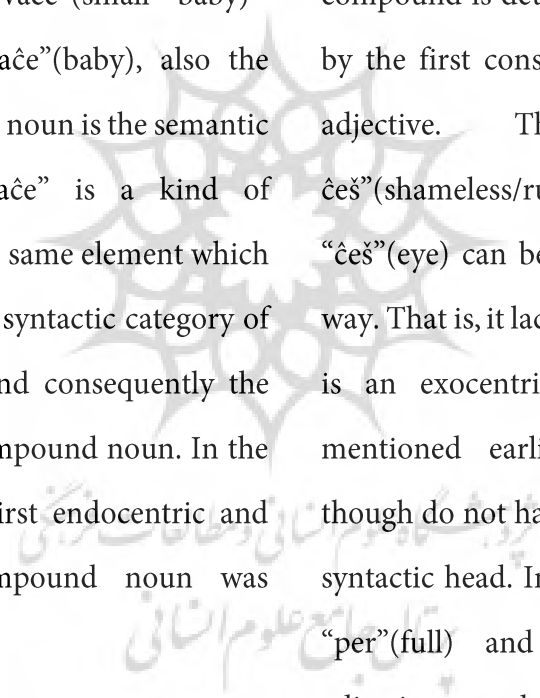
"per taš"+ "terin"= "per taš terin"(the most sensual) are well-formed expressions in Mazandarani. Intensifiers like "xæle"(very) can also precede adjectives. Therefore, expressions such as "xæle per taš"(very sensual) and "xale espe ĉeš"(very rude) are also well-formed in Mazandarani. It should be mentioned that some adjective + noun combinations are literally endocentric but figuratively/metaphorically exocentric. For example, "terš xiar" (sour cucumber)= "terš" (sour) + "xiar" (cucumber) literally means a big cucumber and metaphorically an angry person.

7.1.5 Noun + Adjective → Compound Adjective

Compounds formed via noun + adjective combinations are mostly compound adjectives. The resulting compound is mainly an exocentric compound in which there is no semantic head. For example, "ĉeš tang"(jealous)= "ĉeš"(eye) + "tæng"(tight) is neither a "ĉeš" (an eye) nor "tæng"(tight). By the same token, "dæs jæm"(mean/stingy) = "dæs"(hand)+ "jam"(tight) is neither "dæs" (a hand), nor "jam"(gathering). As a result, both

compounds are exocentric in the sense that the meaning of the whole compounds are not included in the meaning of their constituents.

7.1.6 Numeral + Noun → Compound Noun/ Adjective

Compounds made up of numeral +noun constructions are chiefly nouns. To distinguish whether such constructions are nouns or adjectives, we can test them by using demonstrative adjectives like "in" (this) and "un" (that) before them. For example, the expressions "in ætta tim" (this unique child) and "in de ĉak" (this two- footed) are well formed. It means that using the demonstrative adjective "in" (this) before these compounds does not lead to ill-formed expressions. Thus, they both fall into the category of noun. It is worth mentioning here that these compounds are literally endocentric nouns, but metaphorically exocentric adjectives. In the former case, the second constituent which is a noun functions as the semantic head and the first element which is a numeral is the dependent or headless constituent. In "ætta tim" (unique child) = "ætta" (one) + "tim" (item / child), the second constituent "tim"

(item / child) bears the core semantic properties of the whole compound. In "de ĉak" (two-footed) = "de" (two) + "ĉak" (foot), also the second element "ĉak"(foot) which is a noun is the semantic head. Therefore, they are both endocentric head final compounds. However, in their metaphorical use, they are exocentric compound adjectives. That is, "ætta tim" means this unique child and "de ĉak" means quick / nimble.

7.1.7. Self-Pronoun +Apocopated Present Participle → Compound Adjective

"Xad/xed"(xod in Persian) as a self-pronoun joins an apocopated present participle to make a compound adjective. The construction of present participle will be dealt with in (7.1.9) in detail. Briefly, it should be mentioned here that present participle in Mazandarani is formed via present stem + "-ende" combination. The second constituents in "xad dar"(patient/resistant) and "xad ruš"(ostentatious/treacherous), "dar" (owner) and "ruš"(seller), are present participles taken from "darende" (owner) and "rušende" (seller) respectively. Forms without the derivational suffix -ende are called apocopated present

participle, which are the same as the present stems. Compounds made up of "xad"(self) +apocopated present participle are chiefly exocentric compound adjectives in the sense that the meaning of the whole compound is neither included in the meaning of the first nor the second constituent."Xad dar" (patient/resistant)= "xad"(self)+ "dar"(owner) is neither "xad"(self) nor "dar"(owner) .In "xad ruš"(ostentatious/treacherous)= "xad"(self)+ "ruš"(seller) also, neither constituent functions as the semantic head. Besides, in both cases, the second constituents, namely "dar" (owner) and "ruš" (seller) are the syntactic heads and percolate their features to the whole compound.

7.1.8. Self-Pronoun/ Adjective + Noun → Compound Adjective

Compounds formed via self-pronoun/adjective + noun combinations are mainly exocentric adjectives. In "xad sar"(headstrong/obstinate)= "xad"(self)+ "sar"(head), neither the first constituent "xad"(self) nor the second one "sar"(head) bears the core meaning of the compound. In

other words, it lacks a semantic head and thus is an exocentric compound.

In "xad xari"(worry)= "xad"(self)+ "xari"(eating) also the meaning of the whole compound is not included in the meaning of its constituents. That is, it does not have a semantic head, so it is an exocentric compound. In fact, "xad xari"(worry) is neither "xad"(self) nor "xari"(eating). Moreover, the second constituent as a syntactic head determines the syntactic category of the whole compound through percolation.

7.1.9. Demonstrative Adjective + Noun → Compound Noun

Compounds made up of demonstrative adjective + noun combinations are mostly endocentric compound nouns. Based on this construction, demonstrative adjectives like "in"(this) or "un" (that) combine with a noun forming a compound noun signifying time and location. In "inje" (this place/ here)= "in"(this)+ "je" (place), the second constituent is the semantic head. The same constituent which is a noun je(place) also functions as the syntactic head and determines the syntactic category of the whole compound through

percolation. In "un geder"(that time)= "un"(that)+ "geder"(time), again the second constituent "geder"(time) functions as the semantic head since "un geder"(that time) signifies a specific time. The same constituent is the synthetic head as well, and the syntactic category of the whole compound is determined by it.

It is noteworthy that the word "ham/hem"(co- / same) as a self or common adjective combines with a noun forming a large number of compounds. The resulting compounds can be interpreted both as nouns and adjectives. In their literal use, they are nouns, while in their metaphorical use, they are adjectives. For example, "ham qetar"(colleague)= "ham"(co-/same)+ "qetar"(train) does not necessarily refer to people who are in the same compartment or train, rather it means or may mean companions, colleagues or fellow-soldiers, etc.

"Hamkeres" (companions)= "ham"(co-/same) + "keres"(stable) also does not necessarily consist of lambs, kids and calves that are kept in the same stable, rather it refers to coevals, companions, colleagues, classmates, etc. In its literal sense, "ham keres" refers to

animals such as lambs, kids and claves; however, in its metaphorical sense refers to human beings such as companions, colleagues and classmates.

7.1.10. Present Participle + Noun → Compound Adjective

Present participle is directly related to notions like root, present stem and past stem both in Mazandarani and Farsi. To understand present and past participle constructions, we need to clarify them here. Tabatabaee (1997: 44-49) asserts, in Farsi the root is an abstract form of which both present and past stems are derived. Seemingly, this root and the present stem are alike. However, theoretical considerations necessitate us considering a root for every verb of which both present and past stems are made. These two stems are used as bases for other morphological processes of which new forms are derived. Infinitive in Farsi is derived from past stem by adding infinitive marker "-æn", e.g. "saxt"(make)+ "-æn"= "saxtæn"(to make).

In Mazandarani similar to Farsi, present and past stems are taken from the root. Let us consider the verb "baxerden"(to eat). Its root is "xer" which is the same as the present stem.

However, Mazandarani verbs mainly differ from Farsi in that they are used with prefixes like "ba- , be- , he-, and ha". For example, the verbs "xordæn"(to eat), "kærdæn"(to do) and "nesastæn"(to sit), are used in the form of "bæxerden", "hækerden" and "heništen", respectively. As mentioned above, the root of "bæxerden"(to eat) is "xer", which is the same as the present stem. Past stem is made by adding past markers namely "–t" or "–d" to present stem, e.g. "xer"+ "-d" = "xerd" (ate).

In case the present stem appearing with a prefix like bæ- in "bæxer", its past stem is also made by adding "-t" or "-d" (past markers) e.g. "bæxer"+ "-d" = "bæxerd". Infinitive in Mazandarani is formed through the addition of infinitive markers (-en or –ien) to the past stem e.g. "bæxerd" + "-en"= "bæxerden"(to eat), and "bæters"+ "-ien"= "bætersien"(to fear).

Present participle in Mazanderani is formed via two different processes. One way to form a present participle is to add the derivational suffix "-a" to the present stem, e.g. "xer"+ "a" = "xera"(edible), "gir"+ "-a"= "gira"(biting/confusing) and "xes"+ "-a"= "xesa"(inactive/ lazy). The compound "xesa gu"= "xesa"(lazy)+ "gu"(bull/ox) refers to a

bull or ox that evades ploughing or pretends not to be able to plough. "Gira sag"(biting dog)= "gira"(biting) + "sag"(dog) does not mean a dog that just barks rather a dog that barks and bites. "Gira nun"(confusing bread)= gira(confusing) +nun(bread) refers to some sort of bread that makes a person seem fuddled and confused. "Gira ĉes" (evil eyed)= "gira"(evil) + "ĉeš"(eye) refers to a person who has an evil-eye or is evil-eyed. The above-mentioned compounds are endocentric ones. For example, in "gira sag", the second constituent bears the core meaning of the whole compound, namely it is the semantic head. In other words, "gira" sag is a kind of dog. The second element "sag"(dog) is the syntactic head as well, and determines the syntactic category of the whole compound. However, if used to refer to a person, it is actually used in a metaphorical sense, and is considered as an exocentric compound adjective meaning a quarrelsome person.

7.1.11. Noun + Apocopated Present Participle → Compound Adjective

The second process through which present participle is made is the addition of "-ende"(doer) to present stem. "-Ende" is known as the present participle marker. For example, xar+ -ende= "xarende"(eater) and "taš"+ "-ende"= "tašende"(reaper/harvester) are present participles. In most cases, present participle appears without "-ende" which is called apocopated present participle by traditional grammarians. It is interesting to know that noun + apocopated present participle combinations are very productive in the sense that above 700 compounds have been made via 30 present participles. Compounds made up of noun + apocopated present participle combinations are mostly compound adjectives. Since apocopated present participle is used in the construction of such compounds, they are called apocopated present participle compounds.

In "ĉeš vej"(shameless)= "ĉeš"(eye)+ "vej"(digger), neither constituent functions as the semantic head in that it is neither a "ĉeš" (an eye) nor "vej"(a digger). In "kæʔi pæj"(housewife/ wife) = "kæʔi"(pumpkin)+"pæj"(cook) also the meaning of the whole compound is not included in the meaning of its constituents. In other words, it lacks a semantic head. Thus,

both compounds are exocentric ones. As mentioned earlier, exocentric compounds have a syntactic head though they lack a semantic head. In these compounds i.e. "češ vej" and "kaʔi paj", the second constituents "vej"(digger) and "pæj"(cook) are syntactic heads and render the whole compounds adjective through percolation. However, "palun duj"(saddle sewer)= "palun"(saddle)+ "duj"(sewer)and "hæli ruš"(plum seller)= "hæli"(plum)+ "ruš"(seller) are endocentric adjectives in that they have a semantic head. To put it another way, "palun duj" is a kind of sewer and "hæli ruš" is a kind of seller. In fact, the second constituents function as the semantic head.

In the analysis of compounds made up of noun + apocopated present participle combinations, Iranian linguists have taken different views. With respect to the compound "kæm foruš"(one who gives short weight), Tabatabaee (2004:59) regards the first constituent, i.e. "kæm"(little) as the semantic head and believes that the meaning of the first constituent "kæm" which is an adjective is restricted by the noun that follows it "foruš"=seller. In contrast, in Ghonche pur's

view (2013:155) the final constituen"foruš" is the semantic head.

In Tabatabaee's analysis, the second constituent "foruš" was considered as a noun, while in Ghonchepur's, it was regarded as present participle. It seems that Tabatabaee has made a great mistake. It is interesting to know that Tabatabaee was severely criticized due to considering constituents like "foruš" as a present participle by researchers like Xormaee (2008).

7.1.12 Noun + Apocopated Past Participle → Compound Adjective

In 7.1.10, we mentioned that present and past stems are derived from the root which is the same as the present stem and also past stem is formed by the addition of past suffixes -t or -d to the present stem. For example, the present stem of verbs "hækerden"(to do) and "bæxerden"(to eat) are "hæker" and "bæxer" respectively.

Their past stems are made by the addition of "-d" (past suffix) namely "hæker"+ "-d" = "hækerd" and "bæxer" + "-d" = "bæxerd". Past participle is formed through the addition of the derivational suffix -e to the past stem, that is

"hækerd"+ "-e" = "hækerde" and "bxerd"+ "-e"= "bæxerde". These past participles are not normally used independently in the sense that they are mainly used in compound words specially in apocopated forms. In apocopated forms, the past participate marker "-e" is omitted. "Hækerd" and "bæxerd" are apocopated past participles. Compounds formed via noun + apocopated past participle combinations are chiefly endocentric adjectives. In "vareš bæxerd"(rain-touched) = "vareš"(rain)+ "bæxerd"(touched), the first constituent is a noun and the second one is an adjective. The whole compound is also an adjective. Obviously the whole compound has taken its category from the second constituent, namely adjective. In other words, the second constituent which is an adjective percolates its properties to the whole compound. It is noteworthy that such compounds possess both literal and metaphorical meanings. For example, "vareš bæxerd" literally means an object or land, which gets wet by rain, however; metaphorically, it refers to a very experienced person. In "qati hækerd"(got mixed)= "qati"(mixed)+ "hækerd"(got), literally means two or more things that are mixed together

such as rice and wheat. Metaphorically, it means a mad or confused person, however. The whole compound is syntactically an adjective and the second constituent is also an adjective. It is quite clear that the compound has received its category from the second constituent.

7.1.13. Past Participle + Noun → Compound Adjective

Two types of compounds, namely compound nouns and compound adjectives can be formed via past participle + noun combinations. Here, we are dealing with the formation of compound nouns. Compounds derived from this pattern are mostly exocentric ones. In "bæšesse ĉeš" (washed eye) ="bæšesse"(washed)+ "ĉeš"(eye), the meaning of the whole compound is not included in the meanings of its constituents. It is neither "bæšesse" (washed), nor a kind of "ĉeš"(eye), rather it refers to a rude or shameless person. In "bæsute feni"(failed)= "basute"(burnt)+ "feni"(nose) neither constituent functions as a semantic head, thus it is an exocentric compound. It is neither "bæsute"(burnt) nor "feni"(nose), rather it means a failed person.

7.1.14. Past Participle + Noun → Compound Noun

As mentioned in 7.1.13, in addition to compound adjectives, compound nouns can also be made through past participle + noun combinations. The resulting compound in most cases is endocentric head final compound noun. For example, in "bævrište nun" (toasted bread) = "bævrište"(toasted)+ "nun"(bread), the second constituent "nun" bears the core meaning of the whole compound. That is, the second constituent is the semantic head. Besides, the same constituent is syntactically a noun and the whole compound is a noun as well. It is clear that the whole compound has received its syntactic category from the second constituent.

7.1.15. Negative Past Participle + Noun → Compound Adjective

As mentioned in 7.1.10, some verbs in mazanderani are used with prefixes like ba-, be-, he- and ha-. To make a negative past participle, we first omit these prefixes and then add the negative prefix (ne- / næ) instead. For example, in "bexarde"(eaten) first the prefix be- is omitted and then the negative marker ne-

is added. As a result, we will have "nexarde"(uneaten). Through the combination of negative past participle + noun, two types of compounds are made, namely compound adjectives and compound nouns. We are dealing with the formation of compound adjectives here. The resulting compounds are mainly exocentric ones in that the meaning of the compound is not included in the meaning of neither constituent. To put it simply, they lack a semantic head. For example, "nexarde ferni" (innocent of any crime) = "nexarde"(uneaten)+ "ferni"(pudding), neither constituent functions as a semantic head. Besides, "næšesse kæĉe" (unwashed wooden spoon)= "næšesse"(unwashed)+ "kæĉe" (wooden spoon) is neither "næšesse"(unwashed) nor "kæĉe"(a wooden spoon) rather it means "to have a finger in every pie".

7.1.16. Negative Past Participle + Noun → Compound Noun

As mentioned above, besides compound adjectives, compound nouns can also be made via negative past participle + noun combinations as well. The resulting
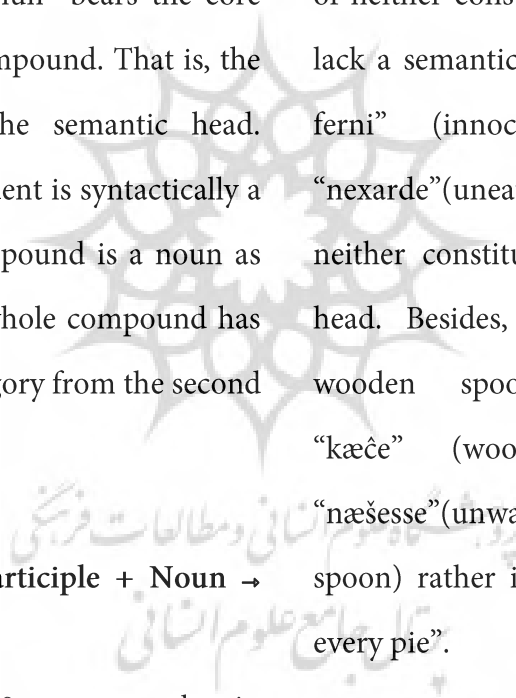
compounds are endocentric in that they have a semantic head. In "næpeja bakele"(not easily cooked bean)= "næpeja"(not easily cooked)+ "bakele"(bean), the second constituent is a noun and the whole compound is also a noun. Obviously, the whole compound has received its syntactic category from the second constituent. The same constituent functions as the semantic head as well, namely the whole compound is a kind of bean which cannot be cooked easily.

In "næresie gændem"(green/unripe wheat)= "næresie"(unripe)+ "gændem"(wheat), the second constituent functions as the semantic head because it is a kind of "gændem"(wheat). The same constituent is the syntactic head as well since the whole compound has received its category from the second constituent.

7.1.17. Adjective + Adjective → Compound Adjective

Compounds made up of adjective + adjective combinations are mostly exocentric compound adjectives. In "kæm vin"(jealous)= "kæm"(little)+ vin(observer), the meaning of

the whole compound is included in the meaning of neither constituent. In other words, "kæm vin" neither means "kæm"(little) nor vin (an observer). Besides, in "terš tilen"(nervous)= "terš"(sour)+ "tilen"(muddy), neither constituent bears the core meaning of the whole compound. In other words, it neither means "terš"(sour) nor "tilen"(muddy).

8. Discussion and Conclusion

In addition to describing and analysing the sample data (2000 Mazandarani compounds), based on five different criteria mentioned in data analysis section, the present article aims to evaluate the following questions.

1. Which one is the dominant morphological structure in Mazandarani compounds? Noun + noun, noun + adjective, adjective+ noun or adjective + adjective?

2. What is the proportion between endocentric to exocentric compounds?

The result of the analysis of the sample data in terms of the internal structure of the constituents is presented below.

Table 2. Frequency distribution and percentile of compounds based on internal structure

Internal structure	Noun + Noun	Noun + Adjective	Adjective + Noun	Adjective + Adjective
Frequency distribution	997	572	408	43
Percentile	48.85	28.6	20.4	2.15

According to the table, the internal structure of noun+noun with 48.85 percent has the highest frequency compared to other structural patterns. Adjective + adjective construction with 2.15 percent has the lowest frequency, but noun+ adjective and adjective+noun constructions with 28.8 and 20.4 percent have higher frequency than adjective + adjective construction respectively. With respect to the first hypothesis, two constructions, namely noun+noun and adjective+noun were taken as the dominant morphological structure. It is worth mentioning here that the first hypothesis itself is composed of two parts, that is noun+noun as well as adjective+noun are the dominant morphological structures. The fact that noun+noun with 48.85 percent has the highest frequency indicates that it is the dominant morphological structure. Therefore,

the first part of the hypothesis is accepted. However, adjective+ noun construction has less frequency than noun+noun and noun + adjective constructions. In other words, it is not the dominant morphological structure. So the second part of the hypothesis is rejected.

The reason why noun+noun construction has the highest frequency compared to other constructions is that compounds created via this construction are mainly predictable in meaning. In addition, adjective + adjective construction has the lowest frequency because the resulting compounds are unpredictable in meaning.

Consequently, there is a direct relationship between high frequency of a word formation process with predictability in meaning and also between low frequency with unpredictability in meaning. For example, "aquz pas" (nut shell) =

"aquz"(nut)+ "pas"(shell) is obviously predictable in meaning which is made up of noun+noun construction.

However, "kæm vin"(jealous)= "kæm"(little)+ "vin"(observer) which is made up of adjective+ adjective is definitely unpredictable in meaning. It deserves mentioning that predictability in meaning is not a single dichotomy, namely predictable and unpredictable, rather it is a continuum along which entities can be ranged according to their degree of predictability. Therefore, at one end, we have noun+noun construction which has the highest predictability, and at the other we have adjective+ adjective construction which has the lowest predictability. Two other entities, i.e. noun+ adjective and adjective + noun constructions can be ranged in the middle of the continuum respectively.

The result of the analysis of the sample data in terms of compound types is presented in the following table.

Table 3. Frequency distribution regarding compound types

Type of Compound	Frequency	Percentage
Endocentric	1329	66.45
Exocentric	618	30.9
Dvandva/ Coordinate	53	2.65
Total	100%	100

According to Table 3, endocentric compounds with 66.45 percent has the highest frequency compared to other types. Exocentric compounds with 30.9 percent and dvandva or coordinate compounds with 2.65 percent are less frequent respectively. Consequently, based on the given data, the second hypothesis, namely endocentric compounds are the most frequent type is accepted. One of the important findings of the present article is concerned with the distribution of semantic, syntactic and morphological heads in a particular

compound. In other words, there is no equal distribution among them in different compounds. However, there is overlap among them just in head last/final endocentric compounds in the sense that the same constituent simultaneously plays the role of all three heads. For example, in "terš hæli" (sour plum), the second constituent is the semantic head since it is a kind of "hæli" (plum). The same constituent is also the syntactic head because the category of the whole compound which is a compound noun is determined by the same constituent. Moreover, the same constituent, namely "hæli" (plum) receives the inflectional suffix -a(plural marker). Thus, it is the morphological head. In contrast, head initial endocentric compounds are different in that the first constituent functions both as the semantic and syntactic heads and the second constituent functions as the morphological head. For example, in "nana xešk" (dried spearmint), the first constituent which is a noun is the syntactic head since it determines the syntactic category of the whole compound which is also a noun. The same constituent functions as the semantic head because "nana

xešk" is a kind of nana(spearmint). However, the second constituent is the morphological head for it receives the inflectional suffix. In exocentric compounds, neither constituent functions as the semantic head. However, they have a syntactic head. For example, "særtaš" (shameless), lacks a semantic head in that neither the first nor the second constituent functions as the semantic head. Nevertheless, the syntactic category of the whole compound which is a compound adjective is determined by the second constituent which is also an adjective (an apocopated present participle).

In dvandva or coordinate compounds, it is not easy to distinguish which constituent determines the syntactic category of the whole compound since both constituents are of the same category. In addition, the meaning of the whole compound is the sum of the meanings of its constituents. Therefore, it is said that coordinate compounds lack both syntactic and semantic heads. However, they have morphological head since inflectional suffixes attach the final constituents of coordinate compounds, i.e. "zæn vaĉe" + "-a" = "zæn vaĉea" (wife and children).

References

[1] Afrashi, A., (2010). *"The Structure of Persian Language"* Tehran, Samt press.

[2] Bauer, L., (1983). *"English Word Formation"*, Cambridge: CUP.

[3] Bisetto, A. and S. Scalise, (2005). *"The Classification of Compounds"*, LingueeLinguaggio4 (2):319-332.

[4] Carstares-McCarthy, Andrew, (1992). *"Current Morphology"*, Routledge, London.

[5] Dabir-Moghaddam, M., (2013). *"Typology of Iranian Languages"*, (vol.1). Tehran, Samt press.

[6] Fabb, N., (1998). *"Compounding"*, In A. Spencer and A. M. Zwicky (eds.) The Handbook of: Blackwell, 690-706

[7] Ghonchepour, M., (2013). *"Verbal Compounds in Persian"*, Grammar Journal, (vol.9). Tehran, The Academy of Persian Language and Literature.

[8] Jensen, John, (1990). Morphology: *"word structure in Generative Grammar."* Amsterdam: Benjamin.

[9] Katamba, F., (1993). *"Morphology"*, MacMillan, press. LTD

[10] Khabbaz, M., (2007). *"The Position of Head in Non-Verbal Compounds in Persian"* Grammar Journal, (vol.3). Tehran, The Academy of Persian Language and Literature.

[11] Kalbasi, I., (1992). *"Derivational Structure of Word in Today's Persian"*, Tehran, Institute of Cultural Studies.

[12] Lieber, R., (2010). *"Introducing Morphology,* "Cambridge: Cambridge university press.

[13] Matthews, P.H., (1991). *"Morphology"*. Cambridge University press 2nd edition. Cambridge.

[14] Sadeghi, A. A., (2004). *"Compounds Derived from Verb Stem,"* Grammar Journal, (vol.1). Tehran, The Academy of Persian Language and Literature.

[15] Shaghaghi, V., (2007). *"An Introduction to Morphology"*. Tehran, Samt press.

[16] Spencer, A., (2000). *"Morphological theory: "An Introduction to Word Structure in Generative Grammar"*, Oxford: Blackwell.

[17] Tabatabaei, A., (1997). *"Persian Simple Verb and Word-Formation"*, Tehran, Iran University Press.

[18] Tabatabaei, A., (2003). *"Compound Noun and Adjective in Persian Language"*, Tehran, Iran University Press.

The
International
Journal of
Humanities
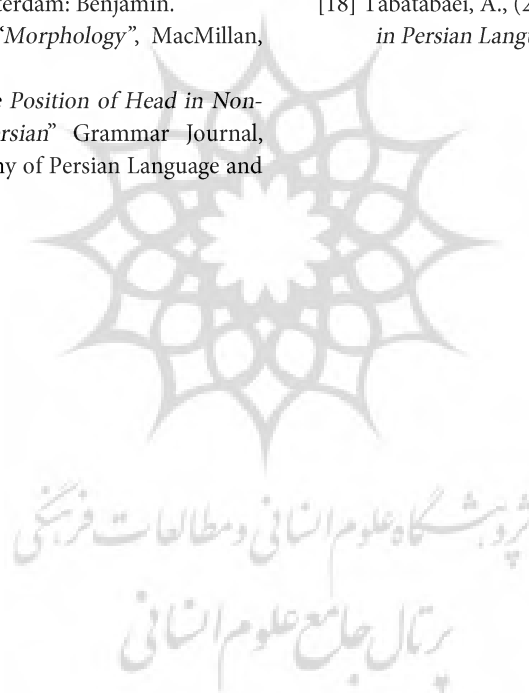
بررسی فرآیند ترکیب و دسته‌بندی آن

از نظر معنایی و رابطۀ بین عناصر سازنده در زبان مازندرانی

سیدتقی اندی¹ ، ارسلان گلفام² ، فردوس آقاگلزاده³، مجتبی منشی‌زاده⁴

¹ دانشجوی زبان‌شناسی، دانشگاه آزاد اسلامی واحد علوم تحقیقات، تهران، ایران
E-mail: st.andy1964@yahoo.com

² دانشیار زبان‌شناسی، دانشگاه تربیت مدرس، تهران، ایران (نویسندۀ مسئول).
E-mail: s

³ دانشیار زبان‌شناسی، دانشگاه تربیت مدرس، تهران، ایران.

³ دانشیار زبان‌شناسی، دانشگاه علامه طباطبایی، تهران، ایران.

چکیده: ترکیب یکی از شاخه‌های صرف و از سازوکارهای واژه‌سازی است که به‌دلیل زایایی و پر بسامد بودن مورد توجه بسیاری از زبان‌شناسان واقع شده است. بااین‌حال، این فرآیند در زبان مازندرانی مورد بررسی قرار نگرفته است. در پژوهش حاضر، کلمات مرکب مازندرانی برگرفته از فرهنگ تبری، از نظر معنایی و از نظر رابطۀ بین عناصر سازنده مورد بررسی قرار گرفته‌اند. بر مبنای دسته‌بندی بیستو و اسکالیز، به‌عنوان چارچوب نظری پژوهش، ترکیب سه دسته اصلی هم‌پایگی، اسنادی/ توصیفی و وابستگی را دربر می‌گیرد. از نظر رابطه بین عناصر سازنده، ترکیب دو دسته فعلی و غیرفعلی را شامل می‌شود. تأکید مقالۀ حاضر عمدتاً بر ترکیب فعلی و دسته‌بندی آن است. ترکیب فعلی نوعی ترکیب وابسته است که در ساختار آن سازۀ غیرفعلی، متمم سازۀ فعلی است. ترکیب‌های فعلی از نظر معنایی به چهار دستۀ موضوعی، غیرموضوعی، گروهی و مکرر تقسیم‌بندی می‌شوند. شواهد نشان می‌دهد که انطباق به‌نسبت کاملی بین مازندرانی و دسته‌بندی ارائه شده توسط بیستو و اسکالیز وجود داد.

واژه‌های کلیدی: فرآیند ترکیب، ترکیب فعلی، سازۀ فعلی، سازۀ غیرفعلی، ترکیب وابستگی، ترکیب هم‌پایگی، ترکیب اسنادی.