

The Syntactic Agreement of Verbs with Enumerated Controller Subjects in Najdi Arabic: An HPSG Approach

Althawab, Abdulrahman

*Department of English Language & Literature, College of Languages & Humanities,
Qassim University, Buraydah, Saudi Arabia.*

aathaoab@qu.edu.sa

Alsanadi, Ruba

*Department of English Language & Literature, College of Languages & Humanities,
Qassim University, Buraydah, Saudi Arabia.*

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Abstract: *Agreement is a complex linguistic phenomenon that draws attention to language's subtle aspects. Its complexity arises from both its nature and the fact that it interrelates with various linguistic components such as syntax, semantics, morphology, and lexicology. While there is a wealth of literature on the topic of agreement, previous studies have primarily focused on the fundamental aspects of agreement, providing a solid foundation that could help uncover new insights into the idiosyncratic aspects of this phenomenon. Hence, this paper attempts to contribute to the current research on the topic of agreement by providing an in-depth analysis of a particular topic in Najdi Arabic subject-verb agreement, namely the agreement of verbs with enumerated controller subjects. It also aims to investigate the factors that may play a role in the idiosyncratic agreement patterns observed in such constructions. This will be accomplished using the framework of Head-Driven Phrase Structure Grammar, which is one of the main non-transformational theories in generative syntax.*

Keywords agreement, Najdi Arabic, enumerated controllers, HPSG

INTRODUCTION

Agreement is a phenomenon that has garnered significant attention in linguistics, posing various challenges to those working in linguistic areas that interact with it. Despite some disagreements, there seems to be a fairly reasonable consensus that agreement involves “a systematic covariance between a semantic or formal property of one element and a formal property of another” (Steele, 1978, p. 610). This notion of covariance has been the subject of substantial debate. Nevertheless, it has been widely accepted as a valuable concept for describing the intricate relationships between language components, as it includes the idea of asymmetry (i.e., it involves displaced information) (Corbett, 2006). This idea is captured through the interaction of two elements known as “controller” and “target.” The term controller refers to the lexical item that “determines the agreement,” whereas the term target refers to the lexical item “whose form is determined by agreement” Corbett (2006, p. 4). That is, the semantic and syntactic properties of the controller determine the choice of agreement pattern reflected on the form of the target. Note that the term controller is used here to indicate that the paper focuses only on the subject which controls the agreement. To elaborate more on this, let us discuss the examples in (1) and (2).

(1) John loves horses.

(2) *John love horses.

As demonstrated in (1), the verb *loves* (i.e., target) is marked with a singular number feature because of the controller *John*; hence, the verb reflects the number of *John*, not the number of *loves* (i.e., a displaced number feature). The example in (2), on the other hand, is ill-formed because the agreement pattern required by the controller subject is not correctly reflected on the target *love*.

Agreement system in Najdi Arabic (NA) is, to some extent, an under-researched topic; hence, as its title indicates, the paper attempts to contribute to the ongoing research on agreement by exploring a specific aspect of agreement in NA, namely the agreement of verbs with enumerated controller subjects. A detailed analysis of these topics will also provide a deeper understanding of the structure and grammar of this Arabic variety, contributing to the literature of Arabic in general and the literature of NA in particular.

The idiosyncrasy of enumerated controllers’ agreements can be briefly introduced here with reference to the Polish examples in (3), where the numerals determine the agreement form in this language.

(3) a. *Dwie dziewczyny/ dwa koty przyszły*
 two.F girl.PL / two cat.M.PL came.PL
 ‘Two girls/cats came.’
 b. *Pięć dziewczyn / kotów przyszło.*

five girl.PL / cat.M.PL came.SG
'Five girls/cats came.'

(Matushansky & Ionin, 2016, p. 2)

In Polish, paucal numerals (i.e., from two to four) trigger plural verb agreement as in (3.a), while higher numerals, such as the numeral five in (3.b), fail to control the verb agreement (i.e., give rise to default masculine singular agreement), although the enumerated noun is still plural (Matushansky & Ionin, 2016; Xiang et al., 2011). This provides evidence that the syntax of numerals represents a challenging area of research. Therefore, a deeper understanding of the factors contributing to its complexity is needed. This paper will elaborate on these interesting aspects of agreement by providing both a sufficient description and a theoretical account of NA verb agreement with enumerated controllers.

The paper is organized as follows. In Section [2], we will briefly introduce the theoretical framework used in the paper. In Section [3], we will provide a descriptive and theoretical analysis of enumerated controller idiosyncrasies in NA verbs agreement. This section [3] will be divided into two subsections: the data and the analysis. The data provides a descriptive account illustrating the basic linguistic facts of enumerated controllers' verb agreement in NA and identifying the reasons behind the variations, if any. The analysis can then draw on the syntactic facts to build a theoretical account of the underlying structures of these agreement issues using the framework of HPSG. Finally, section [4] concludes the paper, discusses some implications, and offers suggestions for future work.

2. Theoretical Background

As briefly introduced in the previous section, agreement is not a simple phenomenon but a complex area of research. It considers various levels of linguistic structure, such as syntax, semantics, morphology, and pragmatics. This is consistent with HPSG, which assumes that every syntactic structure is associated with a set of features. These features carry, among others, syntactic, semantic, and pragmatic information. They are expressed in HPSG via a system known as Attribute Value Matrices (AVMs). The feature PHON, in Figure (1), represents the string of phonemes, whereas the feature SYNSEM provides the syntactic and semantic proprieties of a *sign*. Furthermore, within this feature (i.e., SYNSEM), the feature CATEGORY encodes syntactic information, CONTENT encodes semantic information, and CONTEXT encodes pragmatic information (Abeillé & Borsley, 2021). Hence, this system provides a powerful tool for analyzing the intricate relationship between syntax, semantics, and pragmatics, significantly contributing to our understanding of language structure.

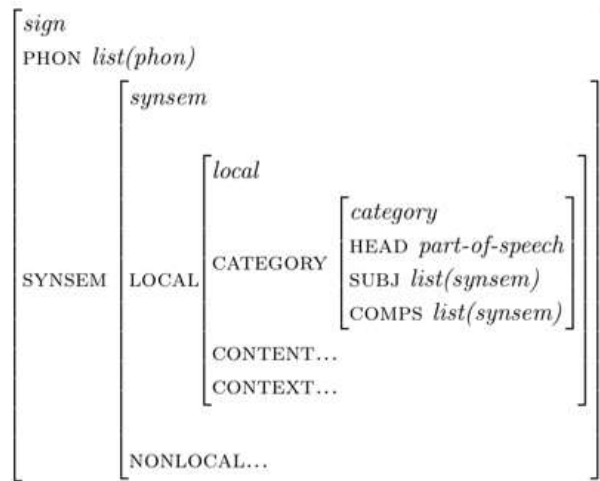


Figure 1. A General Structure of AVM

Agreement occurs in HPSG when two distinct linguistic objects in a sentence demonstrate compatible feature values. This compatibility is achieved through “unification,” where the two distinct objects must share the same feature value. According to Wechsler and Zlatić (2003), there are two types of agreement features: INDEX (NP-external) and CONCORD (NP-internal). Conversely, Levine (2010) argues that subject-verb agreement is not a reflection of INDEX agreement but a reflection of AGR. Osenova (2003), on the other hand, argues against the whole distributive approach to agreement and combines all agreement features into a single feature (i.e., AGR). This is consistent with Sag et al.’s (2003) view of agreement, which will be adopted in this paper assuming that a verb and its subject have an AGR feature, which is part of the HEAD feature that gets passed up from words to phrases. This feature includes all morphosyntactic features subject to covariation. It encompasses the values of PERSON, NUMBER, and GENDER (*phi*-features). Consequently, the verb and its subject must share the same AGR features. This is represented in HPSG by the boxed numeral (i.e., a number used as a tag like [1] and [2] indicating that two or more values are identical) as shown in Figure (2).

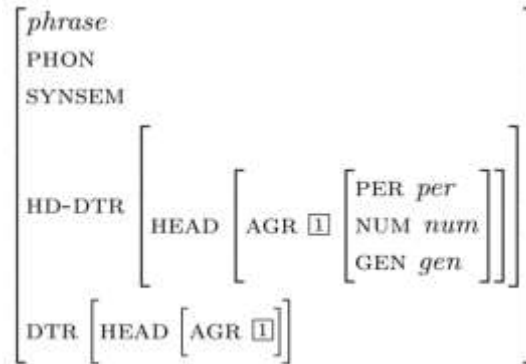


Figure 2. Agreement AVM

Enumerated Controller Subjects

The Data

This section aims to provide a better understanding of enumerated controller subjects in NA by exploring two types of agreement: noun-numeral agreement (i.e., NP ‘internal’) and subject-verb agreement (i.e., NP ‘external’).

NA has two types of numerals: ordinal (i.e., which indicates order or position, such as *θa:ni* ‘second’) and cardinal (i.e., which indicates quantity or count, such as *θala:θ* ‘three’). These numerals behave differently and may precede or follow the enumerated noun (i.e., the entity counted or modified by the numeral). To elaborate more, consider the following examples.

- (4) a. *θa:ni* *bint*
 second.M.SG girl.F.SG
 b. *al-bint* *aθ-θa:niyi-h*
 the-girl.F.SG the-second-F.SG
 ‘The second girl.’

Pre-nominal ordinals, such as in (4.a), are usually masculine, regardless of the following noun’s gender. In contrast, post-nominal ordinals (i.e., attributive construction), as in (4.b), agree with the preceding noun in gender, number, and definiteness. Furthermore, these numerals can stand alone and behave as complete independent nouns, as demonstrated in (5), where the post-nominal ordinal takes the place of the argument in the sentence.

- (5) a. *aθ-θa:niyi-h* *ra:h-at* *l-al-bait*
 the-second-F.SG go-F.SG to-the-home
 b. *ra:h-at* *l-al-bait* *aθ-θa:niyi-h*

go-F.SG to-the-home the-second-F.SG
 ‘The second girl went home.’

On the other hand, cardinal numerals, which are the focus of this paper, show idiosyncratic agreement behavior that varies across languages. Some languages require an overt plural marker in numeral-noun-constructions (NNCs), while others do not (Alexiadou, 2019; de Swart & Farkas, 2010; Ortmann, 2000). Cardinal numerals in NA can be classified into two groups based on their NNCs agreement preferences. The first group includes the numerals (3-10). These numerals are semantically considered plural and, therefore, require the combined noun (i.e., the counted noun) to be plural, as demonstrated in example (6). Note that the exclamation mark will be used throughout the paper to indicate that the agreement pattern may be acceptable to some speakers but not to others, as demonstrated in (6.b).

- (6) a. *θala:θ* *bana:t*
 three.M.SG girl.PL.F
 b. *!θala:θ-at* *bana:t*
 three-F.SG girl.PL.F
 c. **θala:θ* *bint*
 three.M.SG girl.F.SG
 ‘Three girls.’

These numerals can come pre-nominally preceding an indefinite noun, as in (6.a) and (6.b), or post-nominally following a definite noun, as in (7.b), and they usually agree with the definiteness of the enumerated noun. In addition, when they are used pre-nominally, they act more like nouns, whereas when they are used post-nominally, they act more like adjectives (i.e., adjectives are usually placed in this position in Arabic). This supports Corbett’s (1983) statement that cardinal numerals fall between nouns and adjectives.

- (7) a. *aθ-θala:θ* *bana:t*
 the-three.M.SG girl.PL.F
 b. *al-bana:t* *aθ-θala:θ*
 the-girl.F.PL the-three-M.SG
 c. *al-bana:t* *aθ-θala:θ-ih*
 the-girl.F.PL the-three-F.SG
 ‘The three girls.’

Moreover, they may show reversed gender agreement with the combined noun, also known as gender polarity. This phenomenon can be seen in (6.a), (7.b), (8.a), and (8.d), where numerals combined with feminine nouns show masculine gender features instead of feminine, while those combined with masculine nouns take feminine gender features.

- (8) a. *θala:θ-at* *irdza:l*
 three.SG-F man.M.PL
 b. *θala:θ* *irdza:l*

- | | |
|-----------------------------|---------------------|
| three.M.SG | man.M.PL |
| c. * <i>a-rdʒa:l</i> | <i>aθ-θala:θ</i> |
| man.M.PL | three.M.SG |
| d. <i>a-rdʒa:l</i> | <i>aθ-θala:θ-ih</i> |
| man.M.PL | three.F.SG |
| ‘Three men.’ | |

Conversely, the other group involves numerals with a higher numerical value, indicating homogeneity and generality. Therefore, they require the enumerated noun to be in its singular form. For a detailed explanation, consider the following example in (9).

- (9) **a.** *θala:θ-tʰaʃaʃ* *radʒil*
 three-ten.M.SG man.M.SG
b. **θala:θ-tʰaʃaʃ* *irdʒa:l*
 three-ten.M.SG man.M.PL
 ‘Thirteen men.’

The observation that can be seen in the previous examples (6-9) supports Corbett's (1983) argument that there is a correlation between numerical value and agreement preferences. That is, higher numerals tend to require singular agreement, while lower numerals referring to plural are more likely to allow semantically justified agreement. This inversely correlates with the enumerated noun's individuation level, meaning that the higher the numerical value, the more likely the enumerated controller is seen as one unit. Furthermore, it is interesting to note that when higher numerals such as *θala:θ-tʰaʃaʃ* ‘thirteen’ in (9) appear pre-nominally in a noun-like position, they trigger an indefinite singular enumerated noun. However, when the same numeral appears post-nominally in an adjective-like position, it only allows for a definite plural enumerated noun (i.e., when combined with a singular noun, the numeral *θala:θ-tʰaʃaʃ* ‘thirteen’ becomes an ordinal, not a cardinal), as in (10).

- (10) *a-rdʒa:l* / **ar-radʒil* *aθ-θala:θ-tʰaʃaʃ*
 the-man.M.PL / the- man.M.SG the-three-ten.M.SG
 ‘Thirteen men.’

This idiosyncrasy could be due to the influence of the noun's definiteness, which appears to increase the controller's individuation level (i.e., they are seen as individual entities), resulting in semantically justified agreement (i.e., plural). This observation aligns with Bursted's (2000) argument regarding the individuation continuum, which suggests that several factors, including definiteness, can significantly influence it.

Additionally, it is worth noting that these higher numerals can be formed in various ways, as demonstrated in the following examples.

- (11) *xams-tʰaʃaʃ* *bint*
 five-ten.M.SG girl.F.SG
 ‘Fifteen girls.’
- (12) *miyyat/ ʔalf /malyu:n* *bint*

one hundred.F.SG/ thousand.M.SG/ million.M.SG girl.F.SG

‘One hundred/ thousand/ million, girls.’

- (13) *xams au ʕfri:n bint*
 five and twenty girl.F.SG
 ‘Twenty-five girls.’

As can be seen in (11), numerals from 11 to 19 are formed by attaching a simple numeral stem (i.e., *xams* ‘five’) to a suffix (i.e., *tʕaʕaf* ‘ten), while tens numerals as *miyyat/?alf /malyu:n* ‘one hundred / thousand / million’ in (12) consists only of a simple numeral (i.e., this applies to all tens numerals such as, *ʕfri:n* ‘twenty’, and *θala:θi:n* ‘thirty). On the other hand, compound tens, as in (13), are formed by combining two or more numerals (i.e., via the conjunction *au* ‘and’). Furthermore, as illustrated in previous examples (9-13), gender polarity is not observed with higher numerals.

It is interesting to note that the formation of numerals between 11 and 19 in NA differs from that in SA. While SA combines two words to form these numerals (i.e., the numeral +*ʕaʕar*), NA seems to use a suffixation method, combining the numerals with *-tʕaʕaf*, which we are assuming here that it is a suffix (i.e., it cannot stand alone and requires a root to be attached to) as shown in (14). This is clearly demonstrated in (9) and (11), where the numeral and the suffix are ingeniously combined to create a new word.

- (14) a. **tʕaʕaf bana:t*
 ten.M.SG girl.F.PL
 b. *ʕaʕar bana:t*
 ten.M.SG girl.F.PL
 ‘Ten girls.’

Although numerals above one commonly indicate plurality by assigning a plural number value to the combined noun (Matushansky & Ionin, 2016), no universal rule requires the enumerated noun to trigger plural verb agreement. This variation in agreement can be attributed to the position of the predicate (i.e., verb) in Corbett’s Agreement Hierarchy (1979), which can lead to interesting mismatch cases by constraining the distribution of agreement choices. That is, the likelihood of semantically justified agreement will increase “monotonically” as we move rightward along the hierarchy.

“attributive - predicate - relative pronoun - personal pronoun.”

(Corbett, 1979, p. 204)

This becomes particularly noticeable when numerals are used. To better illustrate this point, consider the following examples in (15).

- (15) a. *fa:z-an al-bana:t b-al-musa:baqah*
 win-F.PL the-girl.F.PL in-the-match
 b. **fa:z al-bana:t b-al-musa:baqah*
 win.M.SG the-girl.F.PL in-the-match
 c. **fa:z-at al-bana:t b-al-musa:baqah*

win.F.SG the-girl.F.PL in-the-match

‘The girls won the match.

As demonstrated in example (15), the plural human controller *al-bana:t* ‘girls’ can only trigger strict agreement. However, the corresponding enumerated plural form of the human controller *bana:t* ‘girls’ may take feminine plural (i.e., strict agreement) as in (16.a), masculine singular (i.e., default) as in (16.b), and to a lesser extent, feminine singular verb agreement as in (16.c). Note that the agreement pattern in (16.b) may also be called “equivocal agreement” since the target is less specified in terms of gender and number features (Fregson, 1989, p. 9).

- (16) a. *fa:z-an* *θala:θ* *bana:t* *b-al-musa:baqah*
 win-F.PL three.M.SG girl.F.PL in-the-match
 b. *fa:z* *θala:θ* *bana:t* *b-al-musa:baqah*
 win.M.SG three.M.SG girl.F.PL in-the-match
 c. *!fa:z-at* *θala:θ* *bana:t* *b-al-musa:baqah*
 win.F.SG three.M.SG girl.F.PL in-the-match
 ‘Three girls won the match.’

On the other hand, the enumerated singular form of the same noun *bint* ‘girl’ (i.e., singular because it is combined with a numeral higher than ten and seen as a unit) may trigger feminine singular (i.e., strict agreement) as in (17.a) and masculine singular verb agreement (i.e., default), as in (17.b). Note here that the target in (17.b) is less specified in terms of gender only. Thus, we cannot use the term “equivocal” here.

- (17) a. *fa:z-at* *θala:θ-tʃaʃaf* *bint* *b-al-musa:baqah*
 win-F.SG three-ten.M.SG girl.F.SG in-the-match
 b. *fa:z* *θala:θ-tʃaʃaf* *bint* *b-al-musa:baqah*
 win.M.SG three-ten.M.SG girl.F.SG in-the-match
 ‘Thirteen girls won the match.’

These cases of mismatch in (16.b) and (17.b) could be due to the syntactic role of the numerals. As maintained earlier, pre-nominal cardinal numerals are noun-like numerals; hence, they may prevent access to the enumerated noun features. However, as they are not absolute nouns or adjectives, they cannot govern the agreement but rather modify a head as adjuncts. Consequently, they will give rise to the ‘default’ (i.e., M.SG) agreement feature (Corbett, 1983). It should be noted, however, that with post-nominal verbs, strict agreement is the only possible pattern, as shown in (18) and (19). This could be because no numeral is intervening between the target and the controller.

- (18) a. *θala:θ* *bana:t* *fa:z-an*
 three.M.SG girl.F.PL win-F.PL
 b. **θala:θ* *bana:t* *fa:z*
 three.M.SG girl.F.PL win.M.SG
 ‘Three girls won.’

- (19) a. *θala:θ-tʰaʃaf bint fa:z-at*
 three-teen.M.SG girl.F.SG win-F.SG
 b. **θala:θ-tʰaʃaf bint fa:z*
 three-ten.M.SG girl.F.SG win.M.SG
 ‘Thirteen girls won.’

The behavior of masculine plural enumerated controller subjects has been observed to be similar to that of feminine controllers in triggering strict agreement (i.e., masculine plural) as in (20.a) and default agreement (i.e., masculine singular) as in (20.b).

- (20) a. *fa:z-au θala:θ irdza:l b-al-musa:baqah*
 win-M.PL three.M.SG man.M.PL in-the-match
 b. *fa:z θala:θ irdza:l b-al-musa:baqah*
 win.M.SG three.M.SG man.M.PL in-the-match
 c. **fa:z-at θala:θ irdza:l b-al-musa:baqah*
 win.F.SG three.M.SG man.M.PL in-the-match
 ‘Three men won the match.’

Meanwhile, the corresponding singular form of the same controller can only trigger masculine singular agreement, as shown in (21).

- (21) *fa:z θala:θ-tʰaʃaf radzil b-al-musa:baqah*
 win.M.SG three-ten.M.SG man.M.SG in-the-match
 ‘Thirteen men won.’

On the other hand, when the speaker is referring to an abstract plural enumerated controllers as *ʔyya:m* ‘days’ and *sa:ʃa:t* ‘hours’ in (22), they may trigger masculine singular agreement as in (22.a), feminine singular as in (22.b), and to a lesser degree feminine plural as in (22.c), but not masculine plural as in (22.d).

- (22) a. *marr θala:θ sa:ʃ-a:t / ʔyya:m ʃala: al-mauʃid*
 went.M.SG three.M.SG hour-F.PL/day.M.PL on the- appointment
 b. *marr-at θala:θ sa:ʃ-a:t / ʔyya:m ʃala: al-mauʃid*
 went-F.SG three.M.SG hour-F.PL/day.M.PL on the- appointment
 c. !*marr-an θala:θ sa:ʃ-a:t / ʔyya:m ʃala: al-mauʃid*
 went-F.PL three.M.SG hour-F.PL/day.M.PL on the- appointment
 d. **marr-au θala:θ sa:ʃ-a:t / ʔyya:m ʃala: al-mauʃid*
 went-M.PL three.M.SG hour-F.PL/day.M.PL on the- appointment
 ‘Three days/hours passed after the appointment.’

It is worth noting that while the singular form of the controllers in (23) can trigger masculine singular, as shown in (23.a), the feminine abstract singular enumerated controller *sa:ʃih* is the only one capable of triggering feminine singular.

- (23) a. *marr θala:θ-tʰaʃaf sa:ʃih / yu:m ʃala: al-mauʃid*
 went.M.SG three-ten.M.SG hour-F.SG/day.M.SG on the- appointment

b. marr-at	<i>θala:θ-tʰaʃaf</i>	<i>sa:ʃih</i> /* <i>yu:m</i>	<i>ʃala:</i>	<i>al-mauʃid</i>
went-F.SG	three-ten.M.SG	hour-F.SG/day.M.SG	on	the- appointment
c.*marr-an	<i>θala:θ-tʰaʃaf</i>	<i>sa:ʃih</i> / <i>yu:m</i>	<i>ʃala:</i>	<i>al-mauʃid</i>
went-F.PL	three-ten.M.SG	hour-F.SG/day.M.SG	on	the- appointment
d.*marr-au	<i>θala:θ-tʰaʃaf</i>	<i>sa:ʃih</i> / <i>yu:m</i>	<i>ʃala:</i>	<i>al-mauʃid</i>
went-M.PL	three-ten.M.SG	hour-F.SG/day.M.SG	on	the- appointment

‘Thirteen days/hours passed after the appointment.’

This difference between the triggered agreement patterns in the previous examples (20-23) supports Corbett's (1983, 2000) argument that animate controllers are more likely to take plural agreement than those with inanimate referents. This possibility is the highest when the controller is both animate and precedes its predicate but falls in the middle when only one factor is present. (Corbett, 2000)

Compound numerals, particularly those over 100, show another idiosyncratic pattern. Consider the following examples in (24) and (25), where the enumerated noun agrees only with the nearest numerals.

(24)

a. fa:z-at	<i>miyyat</i>	<i>bint</i>
win-F.SG	hundred.F.SG	girl.F.SG
b. fa:z	<i>miyyat</i>	<i>bint</i>
win.M.SG	hundred.F.SG	girl.F.SG
c.*fa:z-an	<i>miyyat</i>	<i>bint</i>
win.F.PL	hundred.F.SG	girl.F.SG

‘One hundred girls won.’

(25)

a. fa:z-an	<i>miyyih</i>	<i>au</i>	<i>arrbaʃ</i>	<i>bana:t</i>
win-F.PL	hundred.F.SG	and	four.M.SG	girl.F.PL
b. fa:z	<i>miyyih</i>	<i>au</i>	<i>arrbaʃ</i>	<i>bana:t</i>
win.M.SG	hundred.F.SG	and	four.M.SG	girl.F.PL
c.*fa:z-at	<i>miyyih</i>	<i>au</i>	<i>arrbaʃ</i>	<i>bana:t</i>
win.F.SG	hundred.F.SG	and	four.M.SG	girl.F.PL

‘One hundred and four girls won.’

Note that the enumerated noun in (25) is plural, although combined with a numeral higher than 10. This could be because of the numeral *arrbaʃ* ‘four,’ which is the nearest numeral to the enumerated noun. This numeral requires the combined noun to be plural, which results in feminine plural and masculine singular subject-verb agreement. However, in (26) *θalaθi:n* ‘thirty’ is the nearest numeral; hence, the noun is singular, triggering feminine and masculine singular subject-verb agreement. This behavior has also been noticed in SA (Haywood & Nahmad, 1995).

(26)

a. fa:z-at	<i>miyyih</i>	<i>au</i>	<i>arrbaʃ</i>	<i>au</i>	<i>θala:θi:n</i>	<i>bint</i>
win.F.SG	hundred.F.SG	and	four.M.SG	and	thirty.M.SG	girl.F.SG
b. fa:z	<i>miyyih</i>	<i>au</i>	<i>arrbaʃ</i>	<i>au</i>	<i>θala:θi:n</i>	<i>bint</i>

win.F.SG hundred.F.SG and four.M.SG and thirty.M.SG girl.F.SG
c.! *fa:z-an miyyih au arrbaʕ au θala:θi:n bint*
 win.F.SG hundred.F.SG and four.M.SG and thirty.M.SG girl.F.SG
 ‘One hundred and thirty-four girls won.’

Thus, it seems that the nearest numeral to the enumerated noun in NA plays a role in determining the numeral-noun agreement and, consequently, the enumerated subject-verb agreement.

Typically, dual nouns in NA behave syntactically like other enumerated nouns. However, as demonstrated in (27), it uses an inflectional suffix (i.e., *i:n*) to express quantification.

(27) **a.** *fa:z-an bint-i:n*
 win-F.PL girl.F-DU
b. *fa:z-at bint-i:n*
 win-F.SG girl.F-DU
c. *fa:z bint-i:n*
 win.M.SG girl.F-DU
 ‘Two girls won.’

Due to the absence of dual-verb agreement in NA, dual nouns are seen as a special case in that they are considered neither singular nor plural but fall somewhere in between. Thus, as seen in (27), the human feminine dual noun *bint-i:n* ‘two girls’ may trigger feminine plural, feminine singular, and masculine singular subject-verb agreement. This variation in the number feature could be due to the speaker's focus. A singular agreement will be triggered if the speaker focuses on the action, not the agent. However, plural agreement will be triggered when the speaker focuses on the agent. This can also be observed in masculine dual nouns, as demonstrated in (28).

(28) **a.** *fa:z-au radzil-i:n*
 win-M.PL man.M-DU
b. *fa:z radzil-i:n*
 win.M.SG man.M-DU
 ‘Two men won.’

On the other hand, non-human dual nouns behave somewhat differently, as demonstrated in (29).

(29) **a.** *ʔa:ħ Kita:b-i:n*
 fall.M.SG book.M-DU
b. *ʔa:ħ-an Kita:b-i:n*
 fall-F.PL book.M-DU
c. **ʔa:ħ-at Kita:b-i:n*
 fall.F.SG book.M-DU
 ‘Two books fell off.’

The inanimate dual controller *Kita:b-i:n* ‘two books’ in (29) may take the default pattern (i.e., masculine singular) and, to a lesser degree, feminine plural (i.e., it triggers feminine gender agreement because it is a non-human noun). However, as mentioned earlier, dual nouns tend to be highly individuated (i.e., this is so because they represent a number with low numerical value). Thus, they usually do not trigger deflected agreement, as illustrated in (29.c). Nevertheless, this rule has some exceptions, such as example (30), which illustrates deflected verb agreement with an inanimate abstract dual noun.

(30) *marr-at yu;m-i:n bidu:n ma:-aħs*
 went-F.SG day.M-DU without noticing
 ‘Two days went through without me noticing.’

Hence, the combined noun type may affect the range of agreement patterns triggered by the enumerated controller. The observation made in this section supports Corbett’s (1983) argument that there is a considerable variation in verb agreement with NNCs across and within languages. As observed in the previous examples, the enumerated controller numerical value interaction with other controller factors, such as animacy and precedence, may play a significant role in the choice of the agreement pattern. A summary of the observed agreement patterns can be found in Table (1).

Enumerated Controller		Animacy Level							
		Human				Non-human			
		M.SG	M.PL	F.SG	F.PL	M.SG	M.PL	F.SG	F.PL
Feminine Plural	(3-10)	✓		!	✓	✓		✓	✓
Masculine Plural		✓	✓			✓		✓	✓
Feminine Singular	(≥11)	✓		✓	!	✓		✓	
Masculine Singular		✓				✓			
Feminine Dual	(2)	✓		✓	✓	✓		✓	✓
Masculine Dual		✓	✓			✓		!	✓

TABLE 1. VERB AGREEMENT WITH ENUMERATED CONTROLLER SUBJECTS

Analysis

As discussed in the previous subsection, NNCs consist of a numeral and an enumerated noun. The agreement between the verb and enumerated controller subject undergoes different factors. One of which is the intervening numeral in these constructions which creates what can be described as agreement idiosyncrasy in that it relatively blocks the access to the agreement features of the enumerated subject in subject-verb agreement. Regardless of the enumerated subject agreement features, this results in a masculine singular agreement, possibly as a default pattern in addition to the strict agreement, and sometimes, a different agreement type becomes possible, as summarized in Table (1). This has already been illustrated in the previous section with several examples, one of which is (16) repeated here in (31).

- (31) a. *fa:z-an* *θala:θ.* *bana:t* *b-al-musa:baqah*
 win-F.PL three.M.SG girl.F.PL in-the-match
 b. *fa:z* *θala:θ* *bana:t* *b-al-musa:baqah*
 win.M.SG three.M.SG girl.F.PL in-the-match
 c. *!fa:z-at* *θala:θ* *bana:t* *b-al-musa:baqah*
 win.F.SG three.M.SG girl.F.PL in-the-match
 ‘Three girls won the match.’

According to Maekawa’s (2013) analysis of the phrase ‘two weeks’, NNCs can be classified as *hd-funct-ph*, a subtype of *head-adjunct-phrases*. In this type of construction, numerals are considered ‘functors’ or non-heads that select their heads. This is represented in HPSG by the feature (SEL)ECT, which is encoded in the HEAD feature of the adjunct daughter, as demonstrated in Figure (3).



Figure 3. SEL Feature in *hd-funct-ph* (Adopted from Van Eyden (2006))

Furthermore, Maekawa (2013) employed another syntactic feature, MARKING (MKG), which is part of the (CAT)EGORY. This feature is used to distinguish between *marked* and *unmarked* nominals and to differentiate *numeral* from *non-numeral* nominals and *bare* from *incomplete*. This can be illustrated as follows. The expression is *marked* if it is a determiner (e.g., *a*, *an*, and *the*) or contains a determiner; otherwise, it is *unmarked*. The values of *numeral* and *non-numeral* distinguish between numerals and other nominal expressions. That is, numerals themselves are [MKG *numeral*], enumerated nouns, plural nouns, and abstract nouns are [MKG *bare*] (i.e., *bare* in that they can stand alone without

a determiner). Singular nouns, on the other hand, are [MKG *incomplete*] (i.e., they require a determiner) (Van Eynde, 2006, p. 167 & Maekawa, 2013, p. 414). This can be represented hierarchically, as illustrated in Figure (4) adopted from Maekawa (2013, p. 415).

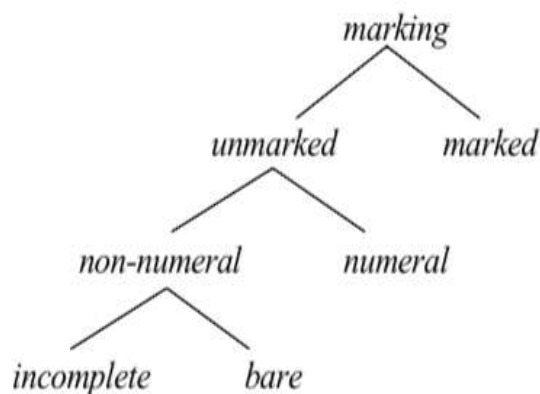


Figure 4. A Hierarchy of the Feature *marking*

He further assumes that the AGR(EEMENT) feature is part of MKG, specifying the selected noun's morphosyntactic information, as demonstrated in Figure (5) adopted from Maekawa (2013, p. 415).



Figure 5. A Lexical Description of the Numeral 'two'

It is important to note that the lexical category of numerals in Arabic can vary (i.e., they may be considered as nouns, adjectives, or even quantifiers), as pointed out by (Al-Bataineh & Branigan, 2020; Alqarni, 2015, among many others). Therefore, we will not consider them as nouns to avoid making any assumptions. Furthermore, as illustrated in Figure (6), the distinction between *incomplete* and *bare* nominals will not be adopted here, as this is irrelevant in NA. Instead, we will divide the type *numeral* into two types: <11 and ≥ 11 (i.e., these two symbols $<$ and \geq are used here and throughout the paper to indicate less than 11 ($<$) and equal to or greater than 11 (\geq)), which will allow us to better understand and analyze the relationship between numerals and enumerated nouns, precisely the effect of the numerical value of the intervening numeral on the enumerated noun's NUM value.

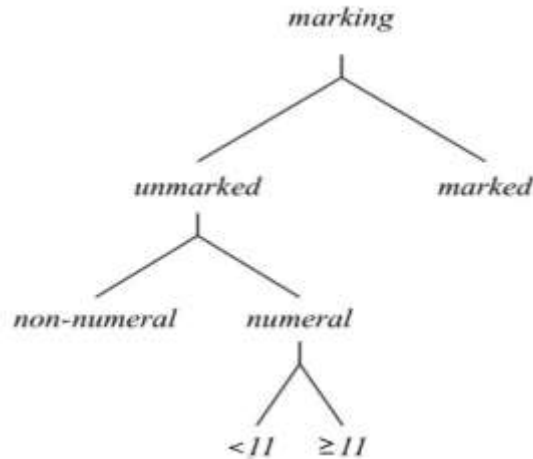


Figure 6. A Hierarchy of the Feature *marking* in NA with the Numeral <11 and ≥ 11

Given this, we can propose two constraints on NA enumerated controllers based on the numerical value of the adjoin numeral. The first constraint states that when the value of the feature MKG is <11 , the enumerated noun NUM value will be plural, as shown in Figure (7).

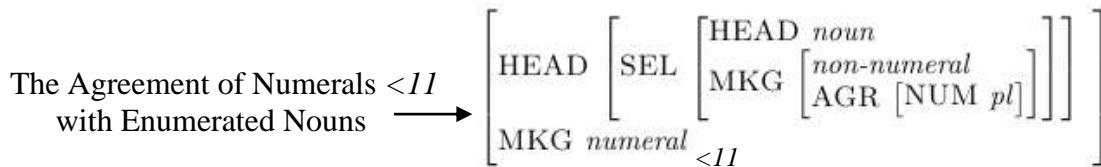


Figure 7. Numerals <11 Agreement with Enumerated Nouns

Recall that this constraint demonstrates the agreement between the numeral and the enumerated noun, representing the ‘internal’ agreement within the NP subject. Additionally, there is an ‘external’ agreement between the verb and the whole NP, which is headed by the enumerated noun subject. In HPSG, the latter agreement can be referred to as the agreement of the verb with the whole NP subject or the head of this NP (i.e., the enumerated noun subject) since phrases inherit agreement features and other pieces of information from their heads and this is why it is named Head-driven Phrase Structure Grammar. Figure (8) below illustrates a possible analysis of sentence (31.a) showing these two types of agreement.

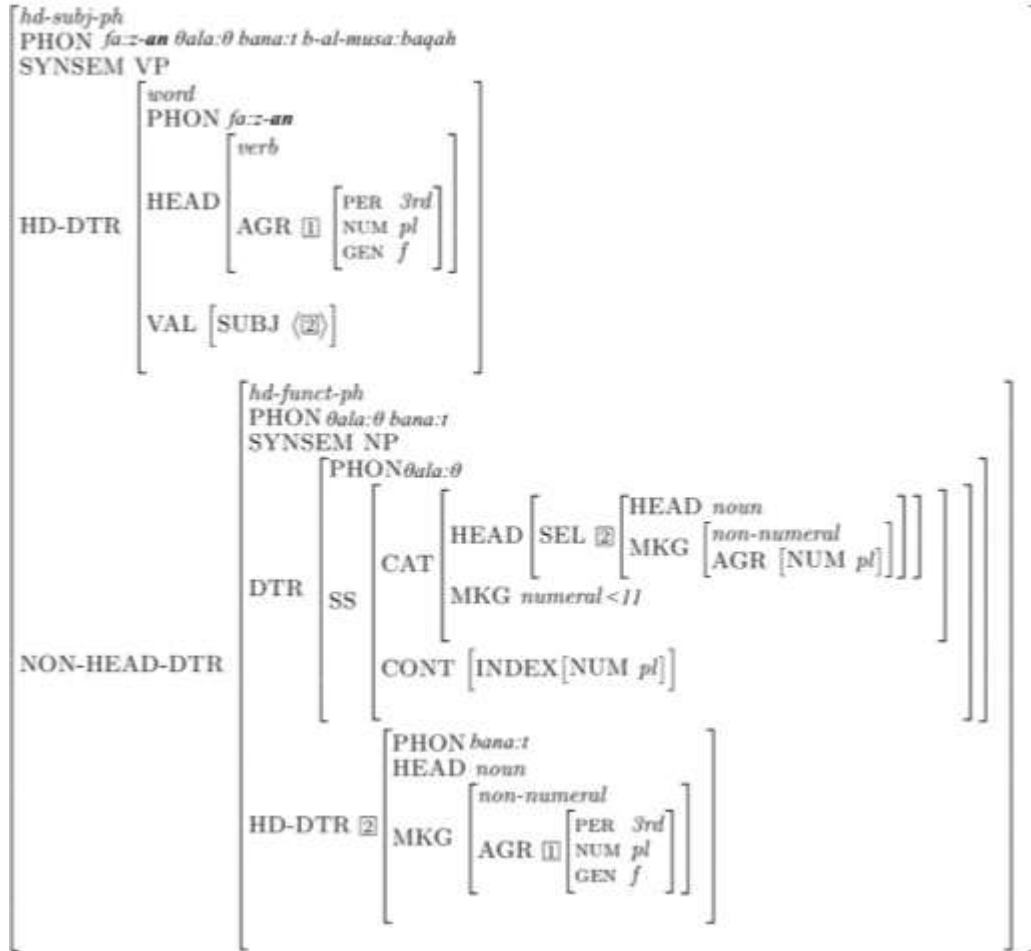


Figure 8. Analysis of a Sentence Example of Strict Verb Agreement with an NP Headed by an Enumerated Subject with a numeral <11

Figure (8) shows the structure of a sentence headed by the intransitive verb *fa:z-an* ‘won’. In HPSG, such sentences are considered of the type *hd-subj-ph* whether the subject precedes or follows the head verb (Alawadh & Althawab, 2023). What concerns us more is that the structure shows a strict agreement between the verb *fa:z-an* ‘won’ and the enumerated noun *bana:t* ‘girls’ (i.e., they carry matching AGR feature values as indicated by the tag [1], which means that they have identical agreement values). Furthermore, the numerical value of the intervening numeral *θala:θ* ‘three’ (i.e., <11) requires a plural enumerated noun. This is illustrated in its information by the SEL feature, which encodes

the information of the selected noun, and the numeral INDEX|NUM feature, which in turn indicates that the numeral *θala:θ* ‘three’ is individuated (i.e., semantically plural).

On the other hand, the unexpected agreement pattern in (31.b) can be accounted for in HPSG as shown in Figure (9).

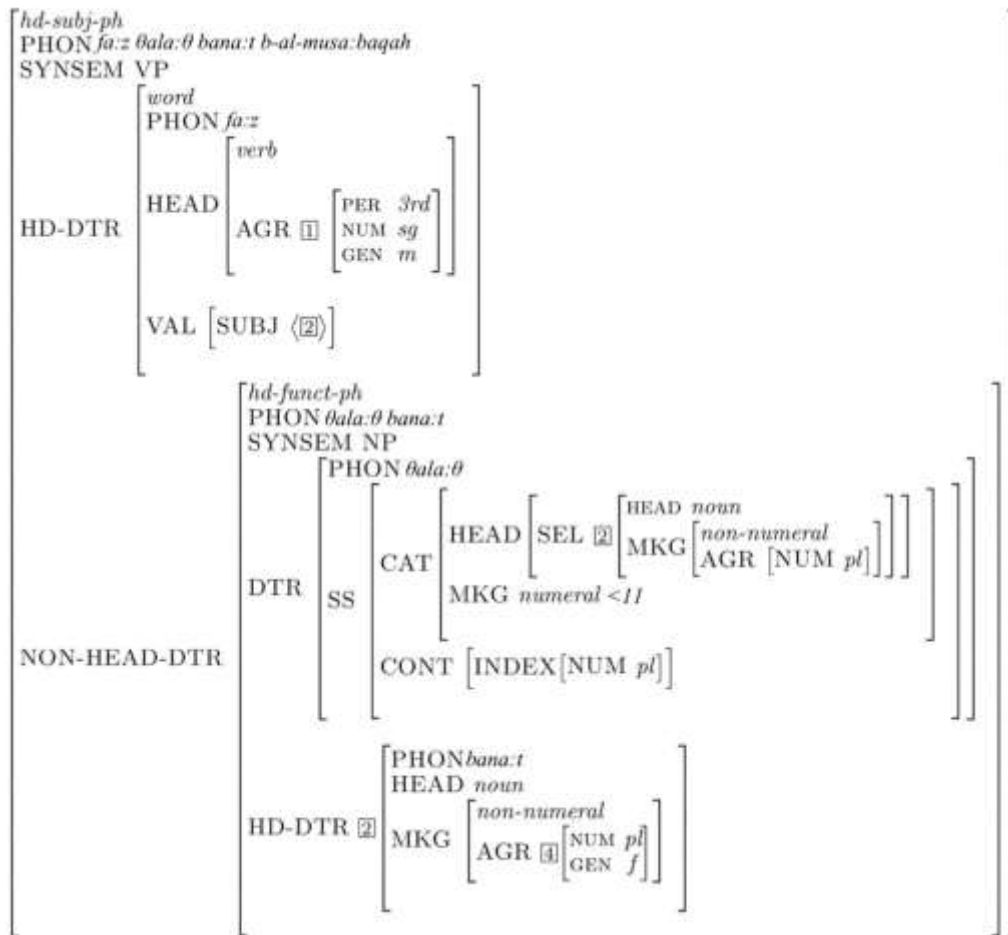


Figure 9. Analysis of a Sentence Example of Masculine Singular Verb Agreement with a Feminine Plural NP Headed by an Enumerated Subject with a numeral <11

As can be seen in Figure (9), there is an agreement mismatch between the verb *fa:z* ‘won.M.SG’ and the enumerated controller subject *bana:t* ‘girls’. This mismatch results in equivocal agreement (i.e., masculine singular), which refers to the situation where the target (i.e., the verb *fa:z* here) precedes the controller and takes masculine singular regardless of the controller features (i.e., the target is less specified than the controller in gender and number) Fregson (1989). This observed pattern could be due to the intervening

numeral between the verb *fa:z* ‘won’ and the head subject *bana:t* ‘girls’, which blocks the access to the enumerated noun features.

Conversely, as Figure (10) demonstrates, the second constraint proposed here states that the enumerated noun NUM value will be singular if the numeral MKG value is ≥ 11 .

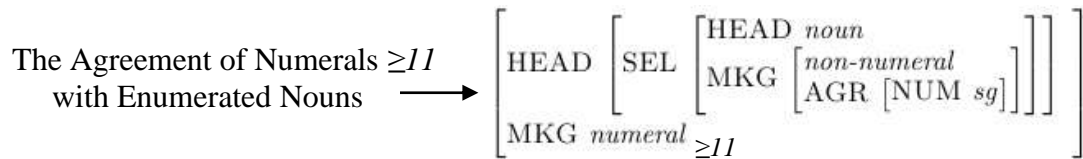


Figure 10. Numerals ≥ 11 Agreement with Enumerated Nouns

This is clearly demonstrated in example (17), repeated here in (32), and can be accounted for in HPSG in Figures (11) and (12), which represent noun-numeral agreement with a numerical value higher than ten and verb agreement with this enumerated noun.

- (32) a. *fa:z-at* *θala:θ-tʰaʕaf* *bint* *b-al-musa:baqah*
 win-F.SG three-ten.M.SG girl.F.SG in-the-match
 b. *fa:z* *θala:θ-tʰaʕaf* *bint* *b-al-musa:baqah*
 win.M.SG three-ten.M.SG girl.F.SG in-the-match
 ‘Thirteen girls won the match.’

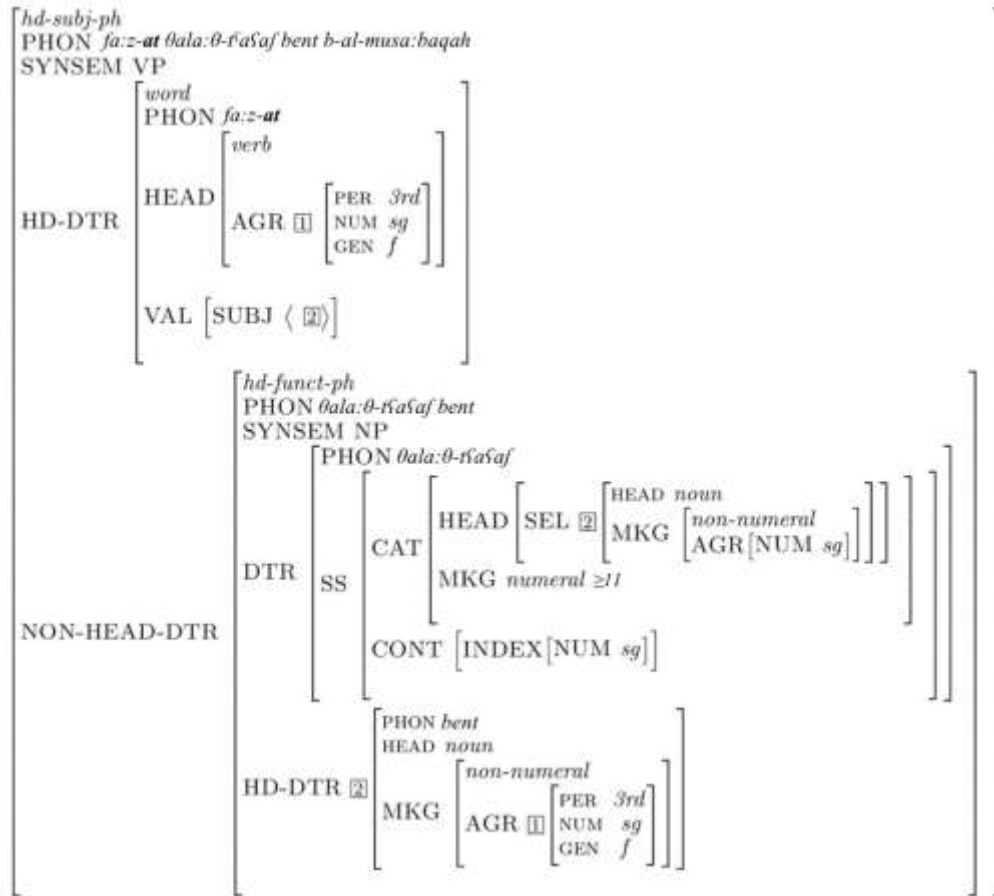


Figure 11. Analysis of a Sentence Example of Feminine Singular Verb Agreement with an NP Headed by an Enumerated Subject with a numeral ≥ 11

Figure (11) shows a full agreement between the verb *fa:z-at* ‘won’ and the enumerated noun *bint* ‘girl.’ Note that the INDEX|NUM value is singular, meaning that the numeral *θala:θ-tʰaʃaf* ‘thirteen’ is an unindividuated numeral referring to a unified, generic group.

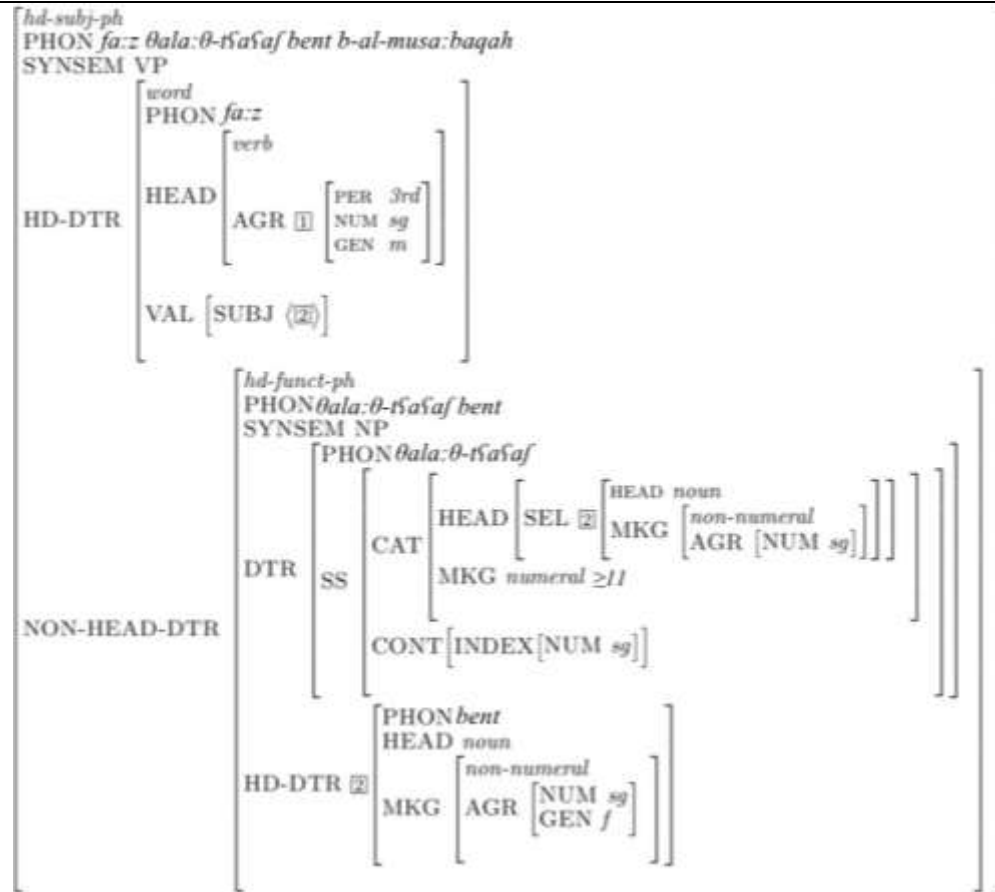


Figure 12 Analysis of a Sentence Example of Masculine Singular Verb Agreement with an NP Headed by an Enumerated Subject with a numeral ≥ 11

On the other hand, in Figure (12), we can observe that the NUM feature of the verb *fa:z* 'won.M.SG' matches the NUM feature of the enumerated noun *bint* 'girl'. However, their GEN values do not match.

Furthermore, in the examples given in Figures (11) and (12), the numeral *θala:θ-tʰaʃaf* 'thirteen' requires the enumerated noun to be in its singular form. This suggests a correlation between numerical value and agreement preferences in NA with pronominal numerals. That is, higher numerals in NA tend to require singular agreement, while lower numerals are more likely to allow semantically justified agreement (i.e., plural).

CONCLUSION

Based on the previous data, we can conclude that enumerated controllers in NA exhibit idiosyncratic agreement behavior. The lower the numerical value of the enumerated noun, the more it is perceived as a group of individuated members. In contrast, higher enumerated nouns are perceived as groups of one unit. Therefore, the numerical value of the enumerated noun can significantly influence its perceived meaning, interpretation, and agreement. This indicates that the numerical value of the numeral and its syntactic features, along with the individuation continuum, could be seen as powerful tools for determining the verb's different agreement patterns with enumerated controllers.

Interestingly, it has been observed that dual controllers tend to trigger plural agreement in NA due to the lack of dual-verb agreement and the high degree of individuation evident in these nouns. Furthermore, when numbers are used, nouns are more likely to be seen as individuated entities and not part of a collective, especially when the numbers range from two to ten. These numbers are relatively small, emphasizing the individuality of the entities being referred to.

It is important to note that using singular agreement patterns, as observed in the presented data, can be an effective communication strategy when facing difficulties or mismatches. This argument is in line with the one made by Barlow and Ferguson (1988), who suggest that speakers tend to use the default marker when they have difficulty recovering the controller's features. In this regard, agreement can provide us with valuable insights into the speaker's perception of the lexical items controller, enabling us to better understand their thought process. This also supports Brustad's (2000, p. 54) claims that "lexical items do not control agreement," and it is the speaker who "determines the semantic or pragmatic content" and chooses the agreement pattern. It is highly recommended that in-depth research be conducted to explore and analyze the idiosyncratic agreement patterns within a particular context and with different agreement targets, such as adjectives. Such studies should also focus on identifying the various factors that influence these patterns in order to gain a better understanding of the underlying mechanisms involved.

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