

The Syntactic Agreement of Verbs With Plural Controller Subjects in Najdi Arabic: An HPSG Approach

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Abstract—Agreement is a rich area of debate that has continually proved to be a challenging topic for linguists. It interacts, among others, with syntax, semantics, morphology, pragmatics, and lexicology. Despite the complexity of the subject, it continues to be an essential part of research in linguistics, drawing attention to the intricate and nuanced aspects of languages. There is a wealth of literature on this topic. However, most previous studies have tended to focus on the core aspects of the phenomenon rather than the idiosyncratic ones, which, up to date, have not received proper attention from researchers in the field, especially in the field of modern linguistics. Hence, this paper aims to contribute to the growing understanding of the phenomenon by exploring an idiosyncratic topic in Najdi Arabic (NA) verb agreement, namely plural controllers. The topic will be described with a sufficient amount of data. In addition, the paper attempts to present a theoretical account of the relevant structures of plural controllers within the framework of Head-driven Phrase Structure Grammar (HPSG).

Index Terms—agreement, Najdi Arabic, semantics, analysis

I. INTRODUCTION

Agreement is a controversial linguistic phenomenon that has been a prominent topic in syntactic literature for decades, challenging theories of syntax. Although differences of opinion still exist, there appears to be some consensus that it refers to “a systematic covariance between a semantic or formal property of one element and a formal property of another” (Steele, 1978, p. 610). It exists in almost all human languages and can be seen in syntax, semantics, morphology, lexicology, and pragmatics (Corbett, 2006).

A considerable amount of literature has been published on this phenomenon (Baker, 2008; Barlow & Ferguson, 1988; Boeckx, 2007; Corbett, 2006; among many others). However, there appears to be a focus on the canonical¹ cases of subject-verb agreement, noun-noun agreement, noun-adjective² agreement, and many others rather than the intriguing instances of mismatches.³ This may have caused an inadequate understanding of the underlying mechanisms of the phenomenon, and further investigations are needed to gain a deeper understanding of its complexities. Therefore, the current paper discusses an intriguing aspect of linguistic idiosyncrasies observed in Najdi Arabic (henceforth, NA) subject-verb agreement.

NA is a variety of Arabic spoken in the central region of Saudi Arabia. It falls under the umbrella of Standard Arabic (henceforth, SA), which is a head-initial language with a well-known standardized agreement system that is substantially richer than the majority of modern Arabic dialects, including NA. Despite this, agreement in these dialects remains rather vague and a challenging subject for linguists, as each dialect appears to exhibit some extent of variation as well as being rich in idiosyncratic issues that arise due to overlapping factors, some of which have been explored in SA and other modern dialects such as word order, and animacy (Ferguson, 1989; Brustad, 2000; D’Anna, 2017; Bettaga, 2018; among many others). However, to the best of our knowledge, little attention has been paid to NA agreement system, apart from a few general references such as Ingham (1994) and some recent studies such as Bettaga (2019). In addition, no previous research has examined NA agreement system within the framework of Head-Driven Phrase Structure Grammar (henceforth, HPSG). This highlights the significance of this paper, as it attempts to provide both a sufficient description

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¹ According to Corbett (2006, p. 11), canonical cases of agreement are when the target matches the controller’s features (i.e., “redundant rather than informative”).

² Note that agreement controllers are typically noun phrases, but targets may vary considerably (Corbett, 2006).

³ The word “mismatch” here refers to any deviation from the canonical agreement pattern. In other words, the displaced information on the target does not match the controller features and values (Corbett, 2006).

and a theoretical account of NA verbs' agreement with plural controllers within the framework of HPSG. A high degree of idiosyncrasy has been observed in this area due to the interaction between semantics and syntax, resulting in various unexpected agreement patterns. Furthermore, the position of predicates (i.e., verbs) in Corbett's Agreement Hierarchy (1979) yields an interesting variation.⁴

The paper is organized as follows: Section [2] briefly introduces the theoretical framework used in the paper. Section [3] provides a descriptive and theoretical analysis of plural controller subjects' idiosyncrasies in NA verb agreement. This section [3] is divided into two subsections: the data, which presents a foundation of the analysis by providing a descriptive account illustrating the basic linguistic facts of this topic with a sufficient amount of examples, and the analysis, which 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 and lists some topics for further research.

II. THEORETICAL BACKGROUND

The theory used in this paper is Head-driven Phrase Structure Grammar (HPSG). It is a mono-stratal constraint-based version of generative grammar developed in the mid-1980s by Carl Pollard and Ivan Sag. As a mono-stratal approach, HPSG assumes that linguistic expressions have a single constituent level (i.e., no movement processes but constraints requiring specific features to have the same value). Furthermore, since HPSG is a constraint-based approach, linguistic objects (words and phrases) are analyzed based on a set of constraints that must be met to predict well-formed phrases. These constraints are applied to words and phrases through inheritance hierarchies (Abeillé & Borsley, 2021).

Types provide a complex categorization of linguistic entities. They are organized multi-hierarchically, ranging from highly general to extremely specific. This allows for a more sophisticated classification system, sorting entities into more specific categories. The most fundamental type in this theory is the type *sign* and its subtypes. As shown in Figure 1, *sign* has two subtypes: *lexical-sign* (i.e., *lexeme*, *word*) and *phrase*. Each one of these subtypes (i.e., *lexeme*, *word*, and *phrase*) includes a complex system of subtypes that allows this framework to handle both idiosyncratic and general data (Abeillé & Borsley, 2021).

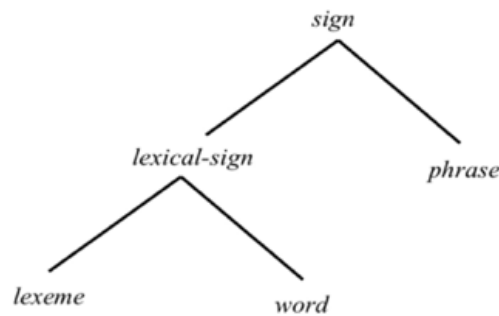


Figure 1. A Hierarchy of Types

The type *sign* is a complex object with features that encode its phonological, syntactic, and semantic aspects. These aspects are expressed in HPSG via an Attribute Value Matrices (AVMs) system, as shown in Figure 2. Hence, this system of types, features, and constraints provides a richly detailed descriptive model applicable to a wide range of languages and language constructions (Abeillé & Borsley, 2021).

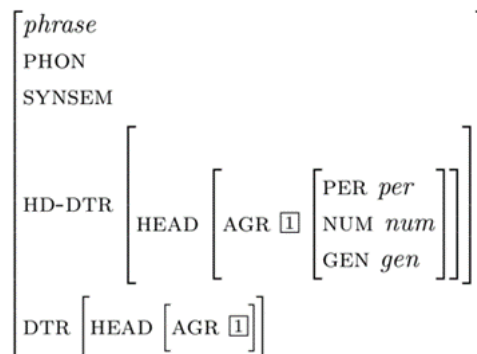


Figure 2. General Structure of AVM

In HPSG, agreement occurs when two distinct linguistic objects in a sentence have compatible feature values. This compatibility is achieved through "unification," where the two distinct objects must share the same feature value. Wechsler and Zlatić (2003) propose there are two types of agreement features: INDEX and CONCORD. The INDEX

⁴ "Attributive >predicate> relative pronoun > personal pronoun" Corbett (1979, p. 204).

feature is part of CONTENT, while the CONCORD feature is part of HEAD. Furthermore, they argue that the former is an NP-external agreement feature, while the latter is an NP-internal agreement feature. However, in this paper, we will follow Sag et al.'s (2003) view of agreement, assuming that a verb and its subject have an AGR feature, which is part of the HEAD feature. This feature is passed up from words to phrases, including the values (PER)SON, (NUM)BER, and (GEN)DER (*phi* features). Therefore, the verb and its subject must share the same AGR feature, which is expressed, among other things, in HPSG by the boxed numerals (i.e., an integer used as a tag like [1] and [2]) as shown in Figure 3. These boxed numerals indicate that two or more values sharing the same numeral are identical.

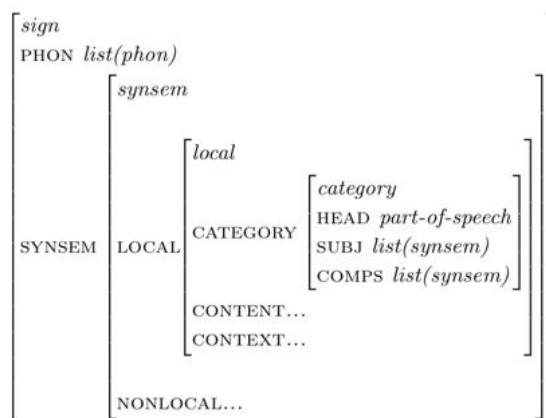


Figure 3. Attribute-Value Matrices

III. VERB AGREEMENT WITH PLURAL CONTROLLER SUBJECTS IN NA

A. The Data

This section examines the factors that may influence the choice of agreement patterns in NA verb agreement with plural controller subjects. It will rely on constructed data provided by the researchers, who are native speakers of NA, as well as observations of other native speakers.⁵ In addition, native NA speakers will be consulted informally to ensure that the data represent well-formed, naturally occurring utterances of NA.

It is worth noting that, in this paper, we will adopt two terms of agreement patterns established by Ferguson (1989, p. 9): “deflected” agreement, which refers to a plural controller triggering a feminine singular target, and “strict” agreement, which refers to the situation where some of the controller’s features are copied in the target.

According to Brustad (2000), the choice of agreement patterns with plural controllers is determined by the controller’s individuation level, which he views as a continuum influenced by several factors, such as animacy and agency. Similarly, Ferguson (1989) argues that deflected agreement is to some extent constrained by [\pm human], whereby plural human controllers trigger strict agreement and plural non-human controllers, specifically broken plurals, trigger deflected agreement (i.e., this is so because sound plurals tend to behave more regularly). Belnap (1993), in his analysis of Cairene Arabic, referred to the combination of these two factors (i.e., the animacy level and the morphological form) as the controller type. NA plural controllers may behave similarly, as demonstrated in the following examples.

- (1) a. *daxal-an* *al-bana:t* *al-mat^fbax*
 enter-F.PL the-girl.F.PL the-kitchen
 b. !*daxal-au* *al-bana:t* *al-mat^fbax*
 enter-M.PL the-girl.F.PL the-kitchen
 c. **daxal-at* *al-bana:t* *al-mat^fbax*
 enter-F.SG the-girl.F.PL the-kitchen
 ‘The girls entered the kitchen.’

The human sound plural controller *al-bana:t* ‘girls’ in (1) may trigger feminine plural verb agreement (i.e., strict agreement) as in (1.a) and to a lesser degree “reduced” agreement⁷ (i.e., masculine plural) as in (1.b), but not deflected agreement as in (1.c). On the other hand, the non-human (i.e., animate) broken plural controller *al-bṣa:ri:n* ‘camels’ may trigger deflected agreement (i.e., group reading) as in (2.a) as well as feminine plural (i.e., distributive reading) as in (2.b), and to a lesser degree masculine plural (i.e., although it carries a masculine plural feature), but not masculine singular (i.e., this could be due to the voice factor). The difference in agreement patterns triggered by the nouns *al-bana:t* ‘girls’

⁵ It is worth noting that the data in this paper will be based on the Najdi dialect spoken in Qassim. However, as noted by Bettega, “As far as agreement patterns are concerned, Najdi Arabic as a whole is relatively homogeneous” (2019b, p. 134).

⁶ It is worth noting that the exclamation mark is used here and throughout the paper to signify the possibility of using the agreement pattern for some speakers. In contrast, others may not accept it as a valid agreement pattern.

⁷ In NA, plural feminine controllers with human referents usually trigger strict feminine agreement. However, due to some sociolinguistic factors, they may also trigger “reduced” agreement (i.e., M.PL). Corbett (2006, p. 204) defines it as an agreement “...in which not all of the normal distinctions are made”.

and *al-bṣa:ri:n* ‘camels’ is likely because they are semantically and morphologically distinct and carry different features, especially regarding their animacy level.

- (2) a. *ʔakal-at* *al-bṣa:ri:n* *ar-rbi:f*
ate-F.SG the-camel.M.PL the-plant
b. *ʔakal-an* *al-bṣa:ri:n* *ar-rbi:f*
ate-F.PL the-camel.M.PL the-plant
c. *ʔakal-au* *al-bṣa:ri:n* *ar-rbi:f*
ate-M.PL the-camel.M.PL the-plant
d. **ʔakal* *al-bṣa:ri:n* *ar-rbi:f*
ate-M.SG the-camel.M.PL the-plant
‘The camels ate the plants.’

This implies that what Ferguson views as [\pm human] is related to Corbett’s Animacy Hierarchy (2000).⁸ The higher the subjects are on this hierarchy, the greater the likelihood of strict agreement (i.e., matching the controller’s feature), which is also related to agency since non-human nouns are less likely to be treated as agents, and therefore, they are more likely to trigger deflected agreement (i.e., mismatch) rather than strict agreement. This is because non-human nouns are perceived as less capable of independent action than human nouns (Brustad, 2000). Hence, non-human plural controllers might be viewed as a collective unit rather than a group of multiple individuals (Bettega, 2017). These findings support the idea that broken plural controllers with non-human referents are more likely to trigger deflected agreements than those with human referents (Belnap, 1993; Bettega, 2017; Ferguson, 1989; among many others).

The difference between the two interpretations, group and distributive, in (2.a) and (2.b) is determined by the individuation level of the controller in the speaker’s mind (i.e., the context). The broken plural controller in (2.a) represents a group of camels eating together. In contrast, the controller in (2.b) represents several known individuated camels eating separately (i.e., one by one). Hence, the triggered agreement pattern with each interpretation reflects this diversity in meaning (Zabbal, 2002). This supports Kramaer and Winchester’s (2018) perspective on using feminine singular agreement with non-human plural nouns. They argue that deflected agreement results in a “herd” interpretation, where the group members are not distinguished from each other but are perceived as a homogeneous unit. This can also be observed with other broken plural controllers, such as *ḏ^rru:f* ‘circumstance’ and *ʔajja:m* ‘days,’ as demonstrated in (3).

- (3) a. *marr-at* *ḏ^rru:f / ʔajja:m* *s^ʔaʕb-ah*
went-F.SG circumstance.M.PL / day.M.PL hard-F.SG
b. *marr-an* *ḏ^rru:f / ʔajja:m* *s^ʔaʕb-ah*
went-F.PL circumstance.M.PL / day.M.PL hard-F.SG
‘Difficult circumstances/days have passed.’

The speaker in (3.a) refers to a general concept of ‘circumstances/days’ not tied to specific situations or periods (i.e., group reading). Therefore, it triggers deflected agreement. On the other hand, the speaker in (3.b) precisely refers to specific situations or days that have been experienced or witnessed (i.e., distributive reading). Therefore, it triggers strict agreement. Unexpectedly, these plural controllers may also take masculine singular verb agreement in verb-subject (VS) order, as demonstrated in (4). This could be attributed to the noun’s abstract nature (i.e., passive voice).

- (4) a. *marr* *ḏ^rru:f / ʔajja:m* *s^ʔaʕb-ah*
went.M.SG circumstance.M.PL / day.M.PL hard-F.SG
b. **ḏ^rru:f / ʔajja:m* *s^ʔaʕb-ah* *marr*
circumstance.M.PL / day.M.PL hard-F.SG went.M.SG
‘Difficult circumstances have passed.’

Interestingly, the inanimate broken plural noun *kara:si* ‘chairs’ can trigger different types of agreement patterns in a sentence. It may trigger feminine plural agreement (5.a), feminine singular agreement (i.e., deflected) (5.b), masculine plural agreement (i.e., strict) (5.c), and to some extent even masculine singular agreement (i.e., only in VS word order) (5.d). This shows that, unlike human plural controllers, non-human plural nouns have no explicit agreement behavior, as various semantic, syntactic, pragmatic, and contextual factors can influence the agreement between the non-human plural subject and the verb.

- (5) a. *al-ba:rḥ* *min* *guwwat* *al-haw?* *t-ḥrak-an* *al-kara:si*
yesterday from power the- air move-F.PL the- chair.M.PL
b. *al-ba:rḥ* *min* *guwwat* *al-haw?* *t-ḥrak-at* *al-kara:si*
yesterday from power the- air move-F.SG the- chair.M.PL
c. *al-ba:rḥ* *min* *guwwat* *al-haw?* *t-ḥrak-au* *al-kara:si*
yesterday from power the- air move-M.PL the- chair.M.PL
d. *!al-ba:rḥ* *min* *guwwat* *al-haw?* *t-ḥrak* *al-kara:si*
yesterday from power the- air move-M.SG the- chair.M.PL
‘Yesterday, the chairs moved from the powerful air.’

Given this, non-human (i.e., animate and inanimate) sound plural controllers in NA seem to trigger deflected agreement in addition to the strict one (i.e., plural controllers default pattern). This contrasts Cairene and Palestinian Arabic, where

⁸ “speaker > addressee > 3rd person > kin > human > animate > inanimate” Corbett’s (2000, p. 56).

sound plural nouns have been observed to trigger plural agreement in most cases (Belnap, 1993; Yassin, 2021). To elaborate more, let us examine the following examples.

- (6) a. *ma:t-at al-ħiwa:n-a:t*
die-F.SG the-animal-F.PL
b. *ma:t-an al-ħiwa:n-a:t*
die-F.PL the-animal-F.PL
'The animals died.'
- (7) a. *ha:dʒar-at al-fra:f-a:t*
migrate-F.SG the-butterfly-F.PL
b. *ha:dʒar-an al-fra:f-a:t*
migrate-F.PL the-butterfly-F.PL
'The butterflies immigrated.'

The two animate sound plural controllers in (6.a) and (7.a) triggered deflected agreement as they refer to an unindividuated generic group of animals or butterflies (i.e., herd interpretation). However, strict agreement seems preferred when the same controllers are individuated with a higher degree of specificity. Examples (8) and (9) illustrate this phenomenon.

- (8) a. *ma:t-an al-ħiwa:n-a:t al-lj ib-mazraʕat-na:*
die-F.PL the-animal-F.PL that in-farm-our
b. *ma:t-at al-ħiwa:n-a:t al-lj ib-mazraʕat-na:*
die-F.SG the-animal-F.PL that in-farm-our
'The animals in our farm died.'
- (9) a. *ha:dʒar-an al-fra:f-a:t al-lj rabaj-na:-ħin*
migrate-F.PL the-butterfly-F.PL that raise-we-F.PL
b. *!ha:dʒar-at al-fra:f-a:t al-lj rabaj-na:-ħin*
migrate-F.SG the-butterfly-F.PL that raise-we-F.PL
'The butterflies that we have raised immigrated.'

The additional information about the same controllers helps the speaker to view them as an individuated group rather than a collective entity. Although strict agreement seems preferred, feminine singular agreement may still be triggered by non-human plural controllers with a higher degree of specificity, as shown in (8.b) and (9.b). The inanimate sound plural *at^f-t^fjjā:r-a:t* 'airplanes' shows a similar behavior as exemplified in (10) and (11).

- (10) a. *t^fa:r-at at^f-t^fjjā:r-a:t*
fly-F.SG the-airplane.F.PL
b. *t^fa:r-an at^f-t^fjjā:r-a:t*
fly-F.PL the-airplane.F.PL
'The airplanes flew.'
- (11) a. *t^fa:r-an at^f-t^fjjā:r-a:t ak-kba:r*
fly-F.PL the-airplane.F.PL the-big.PL
b. *!t^fa:r-at at^f-t^fjjā:r-a:t ak-kba:r*
fly-F.SG the-airplane.F.PL the-big.PL
'The big airplanes flew.'

The controller *at^f-t^fjjā:r-a:t* 'airplanes' in (10) refers to airplanes in general. Thus, it may take deflected agreement. However, the adjective *ak-kba:r* 'big' in (11.a) and (11.b) adds more information about the controller (i.e., specificity and qualification), which correlates with the controller's individuation level. Hence, strict agreement seems to be preferred when referring to a specific known group of entities. These observations indicate that when a sound plural controller refers to a group of non-human entities, it does not trigger the same agreement as it would for a group of humans. This is clearly demonstrated in examples (1), (6), (8), and (10). Therefore, the speaker's mental representation of the controller's animacy, specificity, and generality levels significantly determines the range of agreement patterns. These factors may also override the influence of the controller's morphological form (i.e., broken or sound).

However, Cantarino (1974) argues that plural human controllers may also trigger singular agreement (e.g., deflected) if they refer to a "collection" or "aggregate" of persons. Similar conclusions have been found in Libyan Fezzaṅi and Tunisian Arabic (D'Anna, 2017; Ritt-Benmimoun, 2016). This is also apparent in NA. Consider the following examples in (12-17).

- (12) a. *ma-s^fa:r-at an-na:s t-s^fber miθil ʔual*
not-be-F.SG the-people F.SG-patient like before
b. *ma-s^fa:r-au an-na:s j-s^fber-un miθil ʔual*
not-be-M.PL the-people M-patient-M.PL like before
c. *an-na:s ma-s^fa:r-at t-s^fber miθil ʔual*
the-people not-be-F.SG F.SG-patient like before
'People are not patient as they used to be.'
- (13) *dʒa-u an-na:s ?*

come-M.PL the-people
 ‘Did the people come?’

The controller *an-na:s* ‘people’ in example (12) refers to a generic, unspecified collection of people performing a habitual act; hence, it may trigger a deflected agreement in addition to the strict one. However, in (13), it refers to a specific individuated group of people (i.e., in the speaker’s mind). Therefore, it may trigger strict agreement only. The controller *al-ʕa:lām* ‘world,’ which refers to a collection of people, behaves similarly as demonstrated in (14) and (15).

(14) a. *al-ʕa:lām* *tiiʕuwar-at*
 the-world evolve-F.SG

b. *al-ʕa:lām* *tiiʕuwar-au*
 the-world evolve-M.PL
 ‘People have evolved.’

(15) a. *kill al-ʕa:lām raḥ-au l-al-mahradza:n ʔill? hinna*
 all the-world went-M.PL to-the-festival except us

b. *!kill al-ʕa:lām raḥ-at l-al-mahradza:n ʔill? hinna*
 all the-world went-F.SG to-the-festival except us
 ‘Everyone went to the festival except us.’

In (14), the speaker refers to people as a collection evolving together. Therefore, it may take deflected agreement. However, the speaker in (15) uses *Kill* ‘all’ to refer to every distinct person in the specific collection (i.e., those people who went to the festival). This goes against Ritt-Benmimoun (2017), who argues that *Kill* ‘all’ enhances collective meaning. Interestingly, in some NA Bedouin dialects, the broken plural human controller *ar-rʒa:l* ‘men’ may take deflected agreement (i.e., group reading), indicating unity and solidarity as in (16).

(16) a. *iḥḏʕar-at / iḥḏʕar-au ar-rʒa:l*
 attend-F.SG / attend-M.PL the-man.M.PL

b. *ar-rʒa:l iḥḏʕar-at / iḥḏʕar-au*
 the-man.M.PL attend-F.SG / attend-M.PL
 ‘The men have attended.’

Similarly, the feminine human plural controller *al-ḥari:m* ‘the women’ may trigger deflected agreement as demonstrated in (17).

(17) a. *tedʒmaʕ-at / tedʒmaʕ-an al-ḥari:m ḥawl-i*
 gather-F.SG / gather-F.PL the-women around-me

b. *al-ḥari:m tedʒmaʕ-at / tedʒmaʕ-an ḥawl-i*
 the-women gather-F.SG / gather-F.PL around-me
 ‘the women gathered around me.’

This suggests that deflected agreement is not just a grammatical feature but also a means of semantic and pragmatic expression. It has been observed in the previous examples that word order in NA has little or no impact on the triggered agreement pattern. Both plural and singular agreement might be triggered in subject-verb (SV) and VS word order. Nevertheless, this rule has a few exceptions, such as example (4).

Another type of plural controller is collectives. These nouns have a singular morphological form but can refer to singular or plural meanings. In this sense, they are weakly referential and can denote sum or atoms (Mathieu, 2014). Thus, this type of controller might take plural or singular verb agreement. In other words, the verb may agree with the morphological form of the collective noun (i.e., singular, referring to a collective entity) or with its meaning (i.e., plural, referring to the individuals that make up the collective noun).

According to Dali (2020), collective nouns such as ‘ants’ in Tunisian Arabic only allow for masculine singular agreement. Furthermore, Dror (2016) argues that collectives with non-human referents usually trigger singular agreement. However, non-human collective controllers in NA may trigger masculine singular, feminine singular, or feminine plural. At least two agreement patterns will be acceptable, but one might be less acceptable or somewhat odd. This has been tested on the following collective nouns.

(18) a. *ma:t an-namal*
 die.M.SG the-ants

b. *ma:t-an an-namal*
 die-F.PL the-ants

c. *!ma:t-at an-namal*
 die-F.SG the-ants
 ‘The ants died.’

As demonstrated in (18), the collective controller *an-namal* ‘ants’ may trigger masculine singular as in (18.a), feminine plural agreement as in (18.b), and to some extent feminine singular as in (18.c). Interestingly, the collective controller *al-bigar* ‘cows’ in (19) takes a slightly different range of agreement patterns depending on the target. That is, the verb *ma:t* ‘died’ triggers feminine singular agreement as in (19.a), feminine plural agreement as in (19.b), but not masculine singular as in (19.c). However, with the verb *dʕiʕif* ‘became weak,’ it triggers the same range of agreement patterns along with the masculine singular.

- (19) a. *ma:t-at / dʕiʕif-at* *al-bigar*
 die-F.SG / became weak-F.SG the-cows
 b. *ma:t-an / dʕiʕif-an* *al-bigar*
 die-F.PL / became weak-F.PL the-cows
 c. *!ma:t / dʕiʕif* *al-bigar*
 die.M.SG / became weak.M.SG the-cows
 ‘The cows died/ became weak.’

Similarly, the collective controller *an-naxal* ‘palms’ may trigger feminine singular agreement as in (20.a), feminine plural agreement as in (20.b), and masculine singular as in (20.c).

- (20) a. *atʕlaʕ-at* *an-naxal*
 came out-F.SG the-palm trees
 b. *atʕlaʕ-an* *an-naxal*
 came out-F.PL the-palm trees
 c. *atʕlaʕ* *an-naxal*
 came out.M.SG the-palm trees
 ‘The palm trees bore fruit.’

Interestingly, when no other relevant factors are intervening (i.e., the context is neutral), being adjacent or not with the controller may prompt a variation in the agreement patterns in the same sentence.⁹ Consider the following example in (21) where the morphologically singular noun of individuals *an-na:s* ‘people’ triggers deflected and strict agreement in the same sentence.

- (21) *an-na:s t-ruħ au: t-idzj ibbhidu? mub jarkð^c-u:n kinnuh la:ħg-hum ?ahad*
 the-people F.SG-go and F.SG-come calmly not run-M.PL as if follow-them one
 ‘People go and come back quietly, not running around as if someone was chasing them.’

As demonstrated in (21), deflected agreement is triggered in the first part of the sentence *t-ruħ u t-idzj*: ‘go and come’ to refer to people in general, whereas, in the second part of the sentence, strict agreement is triggered to refer to a specific group of people (i.e., specified by the modifying expression that follows the verb). This variation could be due to what Brustad (2000, p. 24) refers to as “qualification, a modifying expression that adds more information about the group of people.” Hence, these expressions provide the speaker with precise knowledge about the group of people and, thus, create a context by which the speaker has a better understanding of the noun’s referent. This allows the group to be treated as a group of individuals rather than a collective entity. Another factor that may cause this alternation is the semantic memory against the syntactic-lexical memory. That is, it is much easier for the speaker to remember the meaning (i.e., semantic memory) of a sentence than its form (i.e., syntactic-lexical memory), both in long-term memory and in short-term memory (Levin, 1999). Accordingly, nouns become more specific and textually prominent the more they are spoken about and, hence, more individuated. This indicates that it is not only the morphological form that determines agreement, but presumably, it is a range of overlapping morphological, syntactic, semantic, pragmatic, and sociolinguistic factors.

Based on the observations made so far, it can be concluded that the speaker’s choice of agreement patterns in NA is closely related to the referent’s semantic content. The more individuated a controller is in the speaker’s mind, the more likely it is to attract strict agreement. In contrast, the more collective a controller is, the more likely it is to attract deflected agreement. Therefore, the range of agreement patterns triggered by a plural controller in NA is influenced by what Brustad (2000) has described as an individuation continuum. This continuum is influenced by a bundle of syntactic, semantic, pragmatic, and sociolinguistic features that move the noun to a higher or lower individuation level, influencing the choice of agreement pattern, as demonstrated in Table 1.¹⁰ Furthermore, the range of agreement patterns may also be affected by the controller’s morphological nature (i.e., broken plural, sound plural, or collective). Thus, the speaker’s choice of agreement pattern is not determined by one factor in isolation but rather by how all these factors interact in a particular context.

⁹ Some researchers refer to this factor as “distance” measured by the number of phonological words between target and controller (Bettaga, 2017; Ritt-Benmimoun, 2017).

¹⁰ It is important to note that this is not a fixed pattern and that variation exists.

TABLE 1
VERB AGREEMENT WITH PLURAL CONTROLLER SUBJECTS

Controller	Agreement Pattern							
	Individuated Noun (+agent/animate, definite, specific, prominent, qualified, quantified 2-10)				Un-individuated Noun (- agent/animate, definite, specific, prominent, qualified, +collective)			
	M.SG	M.PL	F.SG	F.PL	M.SG	M.PL	F.SG	F.PL
Masculine plural human nouns		✓				✓	✓	
Feminine plural human nouns		!		✓			✓	✓
Feminine plural non-human nouns	✓		✓	✓	✓		✓	✓
Masculine plural non-human nouns	✓	!	✓	✓	✓	!	✓	✓

Table 1 demonstrates that masculine plural human nouns trigger masculine plural or deflected agreement based on their level of individuation in the speaker's mind. An individuated masculine plural human controller will take strict agreement only, while the corresponding unindividuated one may take deflected agreement along with the strict one. Feminine plural human nouns behave similarly, except they may trigger masculine plural along with the strict one. However, non-human masculine and feminine plural nouns seem to show not much of a difference regarding the noun's individuation level, as they may trigger feminine singular, feminine plural, and even masculine singular regardless of the noun individuation level (i.e., it is a matter of preferences, not acceptability).

B. The Analysis

Given the observations discussed in the previous subsection and summarized in Table 1, we can classify the agreement of plural controllers into two types: human and non-human nouns. Human nouns can be further divided into two subtypes: individuated nouns (i.e., strict agreement only) and un-individuated nouns (i.e., strict and deflected agreement). This can be represented hierarchically, as shown in Figure 4.

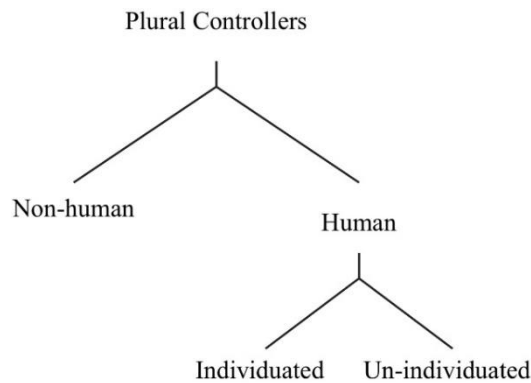


Figure 4. A Hierarchy of Plural Controllers

Furthermore, as discussed in section (2), agreement is accounted for in HPSG by employing the AGR feature, whose value includes PERSON, NUMBER, and GENDER features (Sag et al., 2003). To illustrate, let us examine the sentence in (1.b) repeated here in (22), which exemplifies an individuated plural human noun agreement pattern.

(22) *daxal-an al-bana:t al-mat'bx*
 enter-F.PL the-girl.F.PL the-kitchen
 'The girls entered the kitchen.'

The VSO sentence in (22) is headed by the verb *daxal-an* 'enter,' which precedes both its subject and complement. Such sentences could be analyzed in HPSG by assuming that they are of the type *hd-subj-comp-ph* (Althawab, 2022). This is initially taken from the analysis of English auxiliary-initial sentences in Pollard and Sag (1994) and Ginzburg and Sag (2000). The sentence here demonstrates a strict agreement between the head *daxal-an* 'enter' and the plural subject *al-bana:t* 'girls,' as they share the same *phi*-features values. This is represented in Figure 5 by the matching numeral of the AGR feature, indicating identical values within a feature structure.

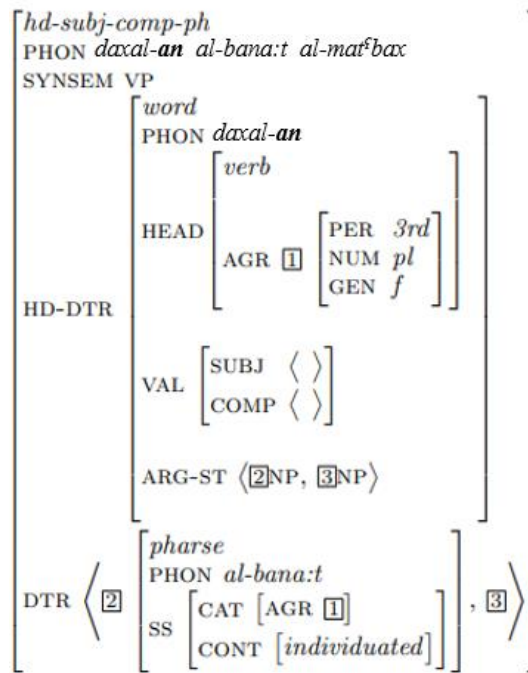


Figure 5. Type One of Human Plural Nouns Strict Agreement

On the other hand, the sentence in (16), repeated in (23), exemplifies the second type of plural human controllers that may trigger both strict and deflected agreement.

- (23) a. *iħδ^əar-at ar-rdʒa:l*
 attend-F.SG the-man.M.PL
 b. *iħδ^əar-au ar-rdʒa:l*
 attend-M.PL the-man.M.PL
 ‘The men have attended.’

This phenomenon can be accounted for in HPSG by the matching or mismatching AGR feature, as illustrated in Figures 6 and 7.

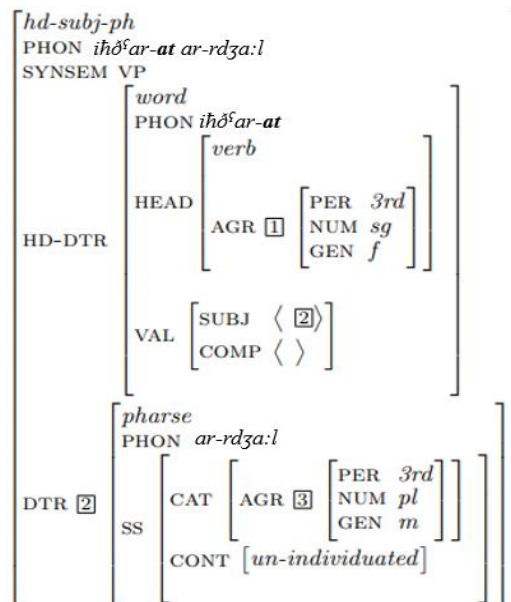


Figure 6. Human Plural Nouns Deflected Agreement

The AVM in Figure 6 represents the sentence in (23.a), which involves a plural human controller that is un-individuated (i.e., it represents an unspecified group of men) and therefore triggers deflected agreement, resulting in a feminine singular agreement. This particular agreement mismatch can be accounted for within the HPSG framework through the difference between the AGR feature in the head and the plural controller, particularly in NUM and GEN features. On the other hand, the AVM in Figure 7, which represents the sentence in (23.b), shows that there is a matching AGR feature (i.e., strict

agreement) between the human plural controller subject *ar-rdʒa:l* ‘the men’ and the verb *ihðʃar-**au*** ‘attend.’ Note that the terms “individuated” or “unindividuated,” adopted from Brustad (2000, pp. 22-25), are used in the AVMs to describe the semantic status of the controller.

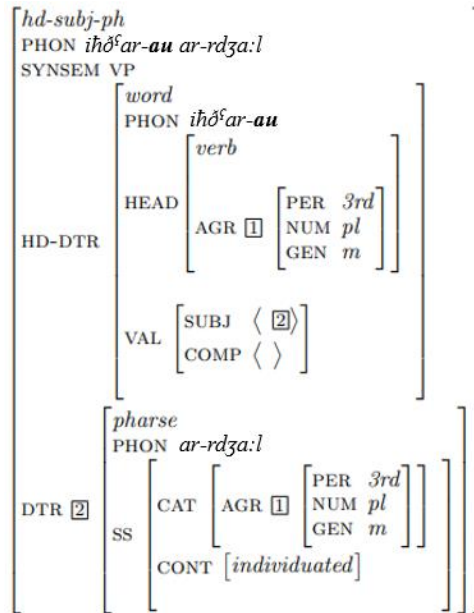


Figure 7. Type Tow of Human Plural Nouns Strict Agreement

Given this, we can propose two constraints on NA human plural controllers based on the content value (i.e., the controller type). The first constraint states that strict agreement is the triggered agreement pattern with individuated human plural nouns. This is demonstrated in Figure 8 by the matching AGR feature between the head (i.e., verb) and the daughter (i.e., subject).

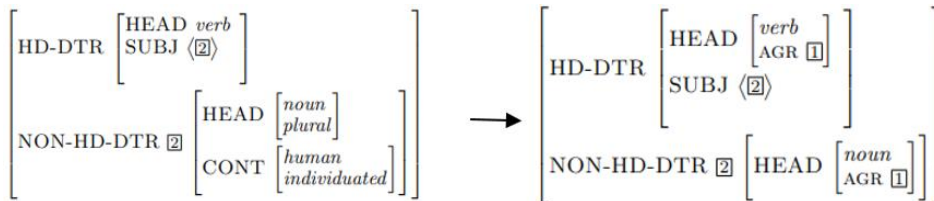


Figure 8. The Agreement of Verbs With Human Subjects of the Type Individuated Plural Nouns

On the other hand, the second proposed constraint states that there are two possible agreement patterns with un-individuated human plural nouns: strict and deflected, as shown in Figure 9. The deflected agreement is represented by the mismatched numerical value of the AGR feature on the head and its daughter.

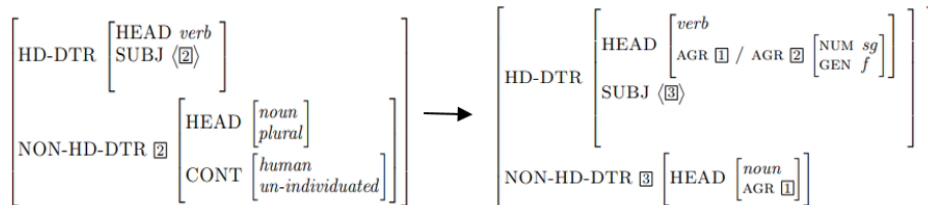


Figure 9. The Agreement of Verbs With Human Subjects of the Type Un-Individuated Plural Nouns

Recall that all types of plural human controllers in NA take either individuated or un-individuated as a content value, so these two constraints can be applied to an unlimited number of sentences, such as the sentences below.

- (24) *dʒa-u* *an-na:s ?*
 come-M.PL the-people
 ‘Did the people come?’
- (25) a. *al-ʃa:l* *titʃuwar-at*
 the-world evolve-F.SG
- b. *al-ʃa:l* *titʃuwar-**au***
 the-world evolve-M.PL
 ‘People have evolved.’

- (26) a. *ma-s^ʕa:r-at an-na:s t-s^ʕber miθil ʔual*
 not-be-F.SG the-people F.SG-patient like before
- b. *ma-s^ʕa:r-au an-na:s j-s^ʕber-un miθil ʔual*
 not-be-M.PL the-people M-patient-M.PL like before
- c. *an-na:s ma-s^ʕa:r-at t-s^ʕber miθil ʔual*
 the-people not-be-F.SG F.SG-patient like before
 ‘People are not patient as they used to be.’

On the other hand, non-human nouns such as *al-bʕa:ri:n* ‘camels’ in (27) and *an-naxal* in (28) show an interesting agreement pattern in addition to the deflected one, as it is more acceptable for them to trigger feminine plural agreement rather than masculine plural although they carry a masculine gender feature. This phenomenon may be attributed to the impact of animacy and agency, as explained in the previous section.

- (27) a. *ʔakal-at al-bʕa:ri:n ar-rbi:ʕ*
 ate-F.SG the-camel.M.PL the-plant
- b. *ʔakal-an al-bʕa:ri:n ar-rbi:ʕ*
 ate-F.PL the-camel.M.PL the-plant
- c. *ʔakal-au al-bʕa:ri:n ar-rbi:ʕ*
 ate-M.PL the-camel.M.PL the-plant
 ‘The camels ate the plants.’

The feminine plural agreement triggered in (27.b) can be accounted for in HPSG by specifying the controller animacy level (i.e., human or non-human), which justifies the mismatch values in the gender feature, as demonstrated in Figure 10.

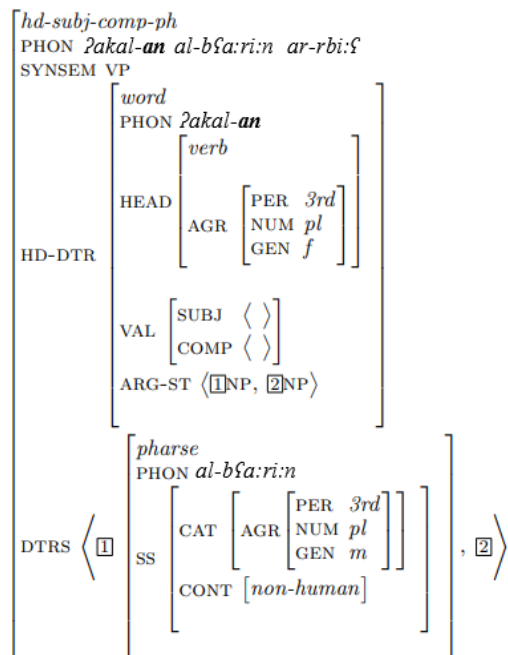


Figure 10. Masculine Non-Human Plural Nouns Agreement

In addition, it has been observed that non-human plural controller subjects may trigger masculine singular agreement as in (28.c).

- (28) a. *at^ʕlaʕ-at an-naxal*
 came out-F.SG the-palm trees
- b. *at^ʕlaʕ-an an-naxal*
 came out-F.PL the-palm trees
- c. *at^ʕlaʕ an-naxal*
 came out.M.SG the-palm trees
 ‘The palm trees bore fruit.’

The AVM below in Figure 11 is a possible analysis of this type of agreement pattern.

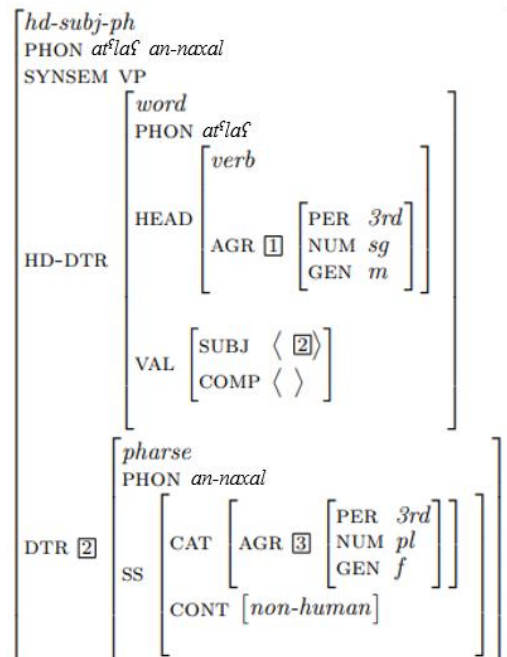


Figure 11. Collective Non-Human Plural Nouns Agreement

As shown in Figure 11, there is a mismatch in the NUM and GEN value of the non-human plural controller *an-naxal* ‘the palm’ and the verb *atʕlaf* ‘came out.’ This mismatch results in equivocal agreement (i.e., masculine singular). It has been noticed that the nonhuman broken plural controller *al-kara:si*, ‘chairs,’ follows a similar agreement pattern as demonstrated in (29.d).

- (29) a. *al-ba:rħ min guwwat al-haw? taħrak-an al-kara:si*
 yesterday from power the-air move-F.PL the- chair.M.PL
- b. *al-ba:rħ min guwwat al-haw? taħrak-at al-kara:si*
 yesterday from power the-air move-F.SG the- chair.M.PL
- c. *al-ba:rħ min guwwat al-haw? taħrak-au al-kara:si*
 yesterday from power the-air move-M.PL the- chair.M.PL
- d.! *al-ba:rħ min guwwat al-haw? taħrak al-kara:si*
 yesterday from power the- air move-M.SG the- chair.M.PL

‘Yesterday, the chairs moved from the powerful air.’

The triggered agreement pattern in (29.c) can be accounted for in HPSG, as shown in Figure 12.¹¹

¹¹ Note that the sentences in (28), which are headed by an intransitive verb, are considered of the type *hd-subj-ph* regardless of the subject position (i.e., whether the word order is SV or VS) (Alawadh & Althawab, 2023).

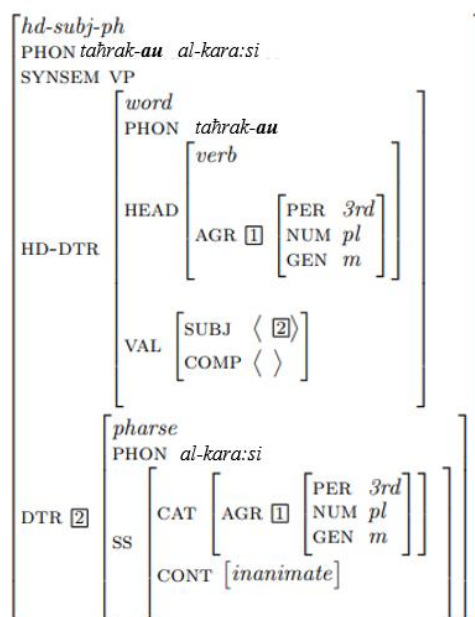


Figure 12. Broken Non-Human Plural Nouns Strict Agreement

It is worth noting that even though the subject *al-kara:si* ‘chairs’ and the verb *ahrak-au* ‘move’ in Figure 12 share the same AGR features, they do not follow the expected agreement pattern (i.e., feminine plural) observed with non-human nouns.

Therefore, we can say that the analysis in this chapter builds on our discussion in the previous subsection, demonstrating that the level of individuation of the controller significantly affects and constrains subject-verb agreement in plural human constructions. However, non-human plural nouns have no clear agreement behavior, but they show some agreement frequency. Thus, they have no constraints to control their agreement pattern.

IV. CONCLUSION

The paper has investigated idiosyncratic agreement patterns in NA verb agreement with plural controller subjects by providing both descriptive and theoretical accounts within the framework of HPSG. A detailed analysis of this topic has provided a deeper understanding of the dialect’s structure and grammar. Furthermore, it has shown that agreement is not just a matter of a couple of rules, but a complex phenomenon influenced by various factors.

The analysis reveals that the controller’s individuation level substantially impacts the choice of agreement pattern, especially with human plural subjects. According to the patterns detected for this dialect, human plural controllers with higher individuation levels trigger strict agreement, whereas those with lower individuation levels trigger deflected agreement. Furthermore, non-human plural controllers (i.e., animate or inanimate) have no clear agreement behavior (i.e., based on the available data, it appears that agreement with non-human plural nouns is primarily related to agreement patterns preferences rather than overall acceptability) as they may trigger feminine plural, feminine singular, masculine plural, and masculine singular.

These unexpected agreement patterns indicated that the underlying nature or mechanism of agreement is not so straightforward to be understood from just one or two instances of agreement. Hence, it is possible that different targets would yield different results, as this paper has only focused on one type of target (i.e., verbs). Therefore, a comprehensive study of a large corpus of spontaneous speech should be conducted to examine possible variations in agreement patterns with different targets, such as adjectives, as observed in example (4) repeated here in (30).

(30) *marr* *ð^hru:f / ʔjja:m* *s^haʕb-ah*
 went.M.SG circumstance.M.PL / day.M.PL hard-F.SG
 ‘Difficult circumstances have passed.’

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