

Cognate Infinitives in Najdi Arabic: A Non-Transformational Approach

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Abstract:

One of the understudied linguistic phenomena in Arabic literature is the cognate infinitive constructions (CICs). CICs are constructions in which a verb and a postverbal noun are semantically and morphologically cognate. This paper aims to investigate this kind of construction in one of the Arabic varieties, namely Najdi Arabic (NA). To understand the nature of CICs in NA, the current paper seeks to achieve two objectives. One is to provide a description of the main syntactic and semantic properties of CICs in NA. The second objective is to analyze CICs using the framework of Head-driven Phrase Structure Grammar (HPSG). This paper reveals that the syntactic and semantic properties of CICs in NA are similar to the main syntactic and semantic properties of CICs in other Semitic languages. It also highlights that CICs are distinct from cognate object constructions (COCs) despite the widely held assumption in Arabic literature. The current study may contribute to the CIs topic in Semitic literature in general and NA literature in particular.

Keywords: cognate infinitive constructions, Najdi Arabic, Semitic languages, HPSG.

1. Introduction

Cognate infinitive constructions (CICs), as named by Díez (2021), have received considerable attention among Semitic linguists (e.g., Al-Galayni, 1993; Cowell, 1964; Díez, 2021; Hatav, 2021; Kim, 2009).

CICs consist of a verb and an NP that is morphologically and semantically cognate to the verb (Díez, 2021; Kim, 2009; Madkhali, 2017), as illustrated in (1) from Najdi Arabic (NA).

1. hawaf-uh hwaf jum ʕarif l-miʕkelah
 rebuked.3ms rebuking when knew.3ms the-matter
 ‘he rebuked him when he knew about the matter.’

With respect to the syntactic and semantic properties of CICs, previous studies have reported that CICs are constructions in which a finite verb followed by a bare verbal (i.e., *Masʕdar* in Arabic) that is semantically cognate to the verb and bear no subject, object, or modifier (Díez, 2021; Harbour, 1999; Hatav, 2021; Kim, 2009; Madkhali, 2017).

In Arabic literature, researchers have not studied CICs in much detail. The majority of the literature in Arabic (e.g., Alqurashi 2020; Madkhali, 2017) treated CICs as COCs despite the syntactic and semantic difference between these two constructions. In contrast, several syntactic, semantic, and morphological differences between CICs and COCs have been reported in the Hebrew language (Harbour, 1999; Kim, 2009). This observation highlights the need for investigating the syntactic and semantic properties of CICs in Arabic and providing a syntactic-semantic analysis that shows the peculiar properties of CICs.

Therefore, the current paper attempts to fill this gap in Arabic literature by investigating CICs and exploring their main syntactic and semantic properties in NA. The reason for choosing this variety is the fact that, as much as the researcher knows, no single study deals with the syntactic and semantic properties of CICs in NA. Consequently, it remains unclear what the nature of CICs in this variety is.

This paper also seeks to provide a syntactic-semantic analysis of CICs in NA using the framework of Head-driven Phrase Structure Grammar (HPSG) since, to the best of the researcher's knowledge, much of Semitic literature on CICs used either transformational or descriptive accounts in analyzing CICs. Thus, this paper may show whether HPSG provides a suitable analysis for CICs in NA. The current paper may also contribute to the CICs topic in Semitic literature in general and NA literature in particular.

The remaining part of this paper has been organized as follows: section [2] represents the research questions, section [3] gives an overview of the theoretical framework that is used in the current paper, section [4] describes the main syntactic and semantic properties of CICs in NA, section [5] provides an HPSG account for the syntactic and semantic properties of CICs in NA, and section [6] concludes this paper.

2. Research Questions

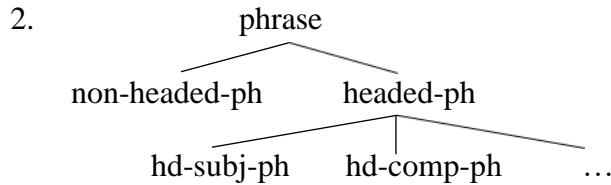
The main goal of this paper is to explore the nature of CICs in NA. More specifically, this paper attempts to answer the following questions:

1. What are the main syntactic and semantic properties of CICs in NA?
2. How can the syntactic and semantic properties of CICs in NA be accounted for using the framework of HPSG?

3. Theoretical Framework

The theory that is used to account for the main syntactic and semantic properties of CICs is HPSG. HPSG is a generative grammar theory developed by Pollard and Sag (1987, 1994). One major characteristic of HPSG is that it is a non-transformational framework, which means HPSG does not involve movement operations contrary to transformational theories (Müller, 2020).

Another characteristic of HPSG is that it is a constraint-based theory, which means signs (i.e., linguistic objects) must conform to all relevant constraints to be considered well-formed (Abeille' & Brosley, 2021). In HPSG, signs are organized hierarchically in which the object in the maximum type inherits the constraints of all its super-types besides having its constraint (Ginzburg & Sag, 2000). To explain this more, (2) shows a partial classification of phrases in HPSG in which the *head-complement-phrase* type (*hd-comp-ph*) is a sub-type of *headed-phrase* (*hd-ph*), which is a subtype of the type *phrase*. Thus, *hd-comp-ph* inherits the constraints of its super-types *phrase*, shown in (5), and *hd-ph*, shown in (4), besides its constraint, shown in (3).



3. *hd-comp-ph* constraint (Abeille' & Brosley, 2021, pp. 22)

$$hd-comp-ph \Rightarrow \left[\begin{array}{l} HD-DTR \boxed{1} \left[\begin{array}{l} word \\ COMPS \langle \boxed{2}, \dots, \boxed{n} \rangle \end{array} \right] \\ DTRS \quad \langle \boxed{1}, [SS \boxed{2}], \dots, [SS \boxed{n}] \rangle \end{array} \right]$$

4. *headed-ph* constraint (Abeille' & Brosley, 2021, pp. 22)

$$headed-ph \Rightarrow \left[\begin{array}{l} HEAD \boxed{1} \\ HEAD-DTR [HEAD \boxed{1}] \end{array} \right]$$

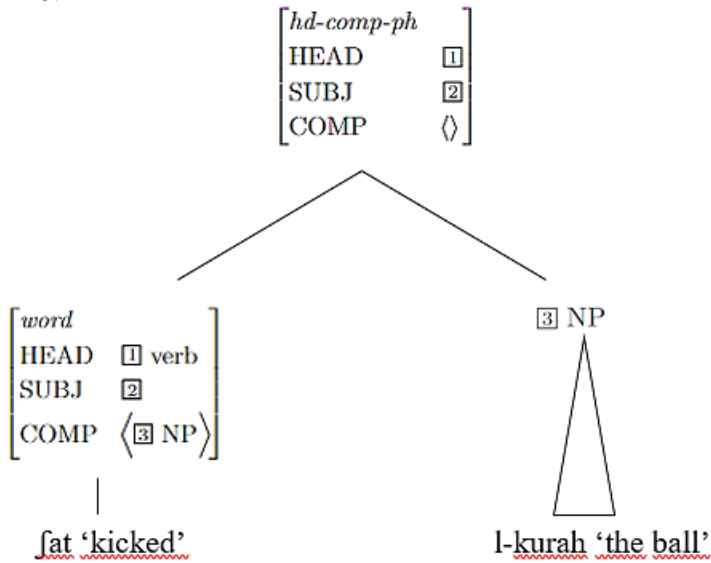
5. *phrase* constraint (Abeille' & Brosley, 2021, pp. 14)

$$phrase \Rightarrow [COMPS \langle \rangle]$$

In (3), the *hd-comp-ph* constraint shows that the head-daughter (HEAD-DTR) is a word that has at least one complement. The *headed-ph* constraint in (4) states that the HEAD value of the HEAD-DTR must be identical to the HEAD value of the headed phrase. The constraint on *phrase* type in (5) indicates that the complement value of a phrase must be an empty list (i.e., phrases cannot have complements). Applying these constraints to the VP *fat l-kurah* 'kicked the ball' gives us the structure shown briefly in (6).

Before discussing the VP structure in (6), it should be noted that the identical boxed numbers in this structure, known as structure-sharing in HPSG, indicate that the values that share the same tag are identical.

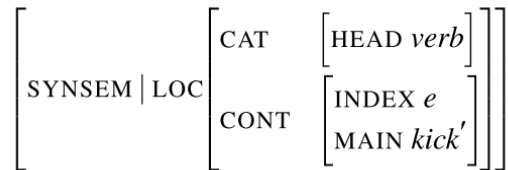
6.



Turning now to the VP *fat l-kurah* ‘kicked the ball’ in (6), the head daughter is the verb *fat* ‘kicked’ which has the NP *l-kurah* ‘the ball’ as its complement, as indicated by the tag [3]. The HEAD value of the head daughter is identical to the HEAD value of the mother, as seen by the shared value [1]. In addition, the constraint on *phrase* type is met in (6) because the VP (i.e., the mother) takes no complements.

To account for the semantic properties of CICs, the framework of Lexical Resource Semantics (LRS) (Ritcher & Sailer, 2003) is used. According to Ritcher and Sailer (2003) and Sailer (2010), LRS provides features that can be used to capture the semantic contribution of the signs. The first feature is the MAIN feature whose value is the main lexical semantic contribution of the sign. The second feature is the feature INDEX which shows the referential semantic index of the sign. To explain this more, (7) shows a partial description of the lexical verb *fat* ‘kicked’.

7. The lexical entry of the verb *fat* ‘kicked’.



The lexical entry in (7) indicates that the main lexical semantic contribution of the verb *fat* ‘kicked’ is the constant *kick'*, and the INDEX value of this verb is the event variable *e*.

Having introduced the theoretical frameworks that are used in this paper, the next section describes the main syntactic and semantic properties of CICs in NA.

4. The Main Syntactic and Semantic Properties of CICs in NA: Description

Before proceeding to discuss the syntactic and semantic properties of CICs in NA, it must be pointed out that each instance of cognate infinitive (CI) in NA is morphologically cognate to the verb. This is shown by (8) in which the verb *rekaðʔ* ‘ran.3ms’ and the CI *rakðʔ* ‘running’ share the same root (*r, k, ðʔ*).

8. *rekaðʔ* *Khalid* *rakðʔ*
 ran.3ms Khalid running
 ‘Khalid ran’

Morphological cognateness is one of the major characteristics of CICs in NA. Thus, it is the only property that is mentioned in this paper concerning the morphological properties of CICs since a full discussion of these properties lies beyond the scope of this study.

Turning now to the syntactic properties of CICs in NA, the first thing to be mentioned is that CIs must occur as a bare NP (i.e., unmodified). In (8), the CI *rakðʔ* ‘running’ occurs without being modified by any modifier. Otherwise, the construction will represent a different construction from CIC, namely COC in which the cognate object (CO) is usually modified, as in (9).

9. *rekaðʔ* *Khalid* *rakðʔ* *sereʃ*
 ran.3fs Khalid running fast
 Literally: ‘Khalid ran fast running’

Another syntactic property of CIs in NA is that CIs are always indefinite NP. This explains the ungrammaticality of sentence (10) where the CI *r-rakðʔ* ‘the running’ is definite. This property can also be used as evidence to differentiate CICs from COCs because COs in NA can occur as definite NPs. This is shown by (11) in which the CO *sʔarχah* ‘scream’ is attached to the definite clitic *sʔ* ‘the’.

10. **rekaðʔ* *Khalid* *r-rakeðʔ*
 ran.3ms Khalid the-running
 ‘*Khalid ran the running.’

11. *Sarah* *he* *alli* *sʔraχa-t* *sʔ-sʔarχah* *alli* *semeʔ-na-h*
 Sarah she that screamed.3fs the-scream that heard.1p-it
 ‘It was Sarah who screamed the scream that we heard.’

A further important property of CIs in NA is that they are not constrained to occur with specific classes of verbs. For example, they can be found with intransitive, transitive, and ditransitive verbs. This is shown by examples (12-14), respectively.

12. *χale-t l-maʔ ʕala l-yaz ʔelaen sʔar jayli yali*
 left-1s the-water on the-oven until became boil-3ms boiling
 Literally: 'I left the water in the oven until it boiled.'

13. *ðʔarab l-walad ʔuxu-h ðarb*
 hit-3ms the-boy brother-POSS.3ms hitting
 'The boy hit his brother.'

14. *aʕtʔa l-walad ʔuxu-h s-sijarah ʕatʔa*
 gave.3ms the-boy brother-POSS.3ms the-car bestowal
 'The boy gave his brother the car.'

Concerning the CIs' status in terms of the argument/adjunct dichotomy, it is widely assumed in the literature that CIs are adjuncts. For example, Madkhali (2017) pointed out that CIs are adjuncts because they can be found with a wide range of verb classes, as illustrated in (12-14). She also argued that CIs are optional and are not core elements to complete the event. The optionality of CIs can be seen in (15), which shows that eliminating the CI that appears in (13) will not affect the grammaticality of the sentence.

15. *ðʔarab l-walad ʔuxu-h*
 hit-3ms the-boy brother-POSS.3ms
 'The boy hit his brother.'

Regarding the semantic properties of CIs in NA, CIs are semantically cognate to the verb, which means that the verb and the CI share the same semantic contribution. In fact, the CI represents the same event as the event denoted by the verb. For example, the CI *ðʔarb* 'hitting' in (13) refers to the same event as the verb *ðʔarab* 'hit.3ms'.

Taken together, the main syntactic and semantic properties of CICs in NA can be summarized as follows:

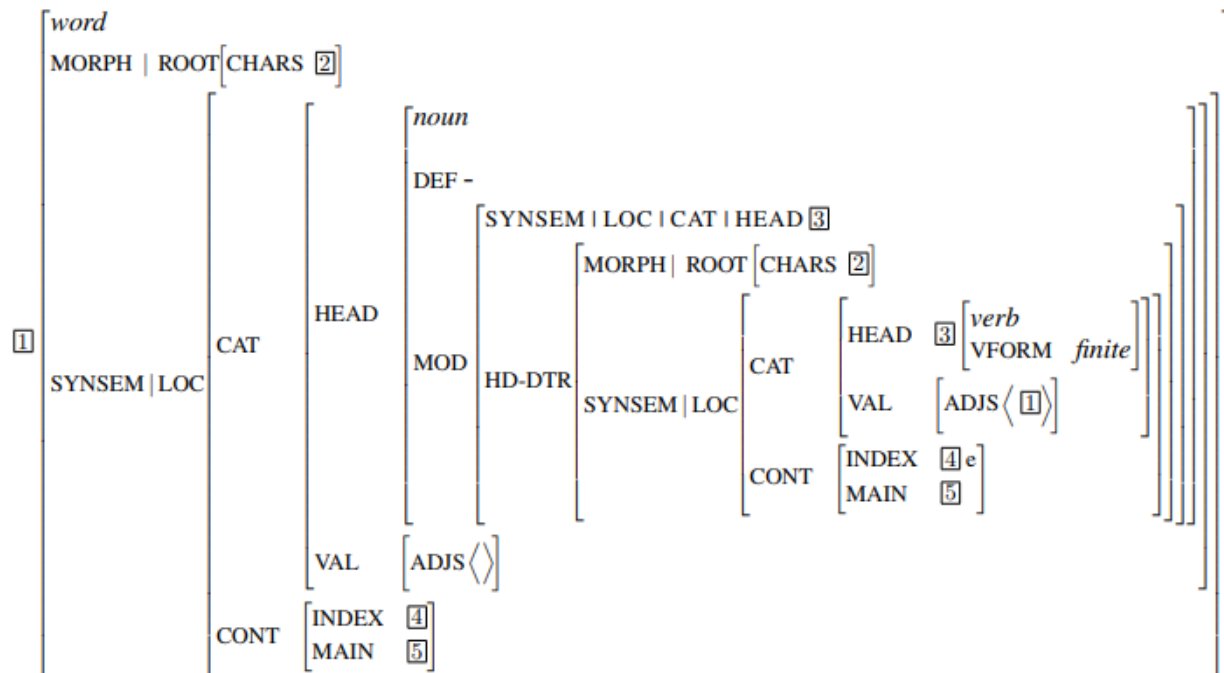
- CI is an adjunct that selects a VP whose head is a finite verb.
- It is morphologically cognate to the verb.
- It is semantically cognate to the verb.
- It refers to the same event as the verb.
- It is indefinite.
- It is an unmodified verbal noun.
- It can occur with a wide range of verb classes.

These properties seem to be similar to the syntactic and semantic properties of CIs that have been reported in Semitic literature (Harbour,1999; Hatav, 2021; Kim, 2009). Having described the main syntactic and semantic properties of CICs in NA, the following section attempts to account for these properties using the framework of HPSG.

5. The Main Syntactic and Semantic Properties of CICs in NA: Analysis

This section seeks to provide a syntactic-semantic analysis of CICs in NA using the framework of HPSG. In (16), a lexical description of CIs in NA has been provided.

16. A lexical description of CIs in NA



The first feature that should be observed is the MOD feature, which shows that the CI selects a VP whose head is a finite verb with specific properties. The first property is the morphological cognateness between the verb and the CI. This property is shown by the matching values of CHARS features, adapted from Bhuyan and Ahmed (2008). To explain more, the CHARS value of the CI is structure-shared with the CHARS value of the main verb (i.e., both features have the tag [2] as their value). Another property of the VP in CICs is that the head of the VP must be semantically cognate to the CI. Following Sailer (2010), the MAIN values of the CI and the verb are identical. Hence, both the CI and the verb have the same semantic contribution. In addition, The INDEX value of the verb, which is the event variable e , is identical to the CI's INDEX value. Thus, they denote the same event.

The information in (16) also states that the CI must be indefinite, as shown by the (-) value of the Boolean feature DEF(INITE). This property excludes COs from having the same description in (16) since some COs can be definite. The remaining property, namely the condition that CIs cannot be modified, can be achieved using Sato and Tam's (2008) account for adjuncts. Contrary to the traditional assumption that only adjuncts select for the head that they modify, Sato and Tam (2008) argued that some heads can select for their adjuncts as well. Hence, besides the MOD value, which specifies the head that is selected by the adjunct, Sato and Tam (2008) introduced the valence feature ADJ(UNCT)S into the head. This feature encodes the

selectional property of the head over its modifier. By employing this feature, it can be stated that the ADJS value of CIs is always an empty list. Thus, they always stand unmodified. Having an empty list as a value for the feature ADJS excludes again the COs from having the same lexical description as CIs because COs can be modified.

Now, applying the information in (16) to sentence (12), repeated here as (17) for convenience, will give the structure shown in (20).

17. δ^2arab $l-walad$?uxu-h δ^2arb
 hit-3ms the-boy brother-POSS.3ms hit
 ‘The boy hit his brother,’

First, the *Head-Subject-Complement* Schema, as shown in (18), is used. According to this constraint, the head δ^2arab ‘hit’ has the subject $l-walad$ ‘the boy’ and the complement ?uxu-h ‘his brother’ as sisters, as seen in (20).

18. Head-Subject-Complement Schema (Brosley, 2010)

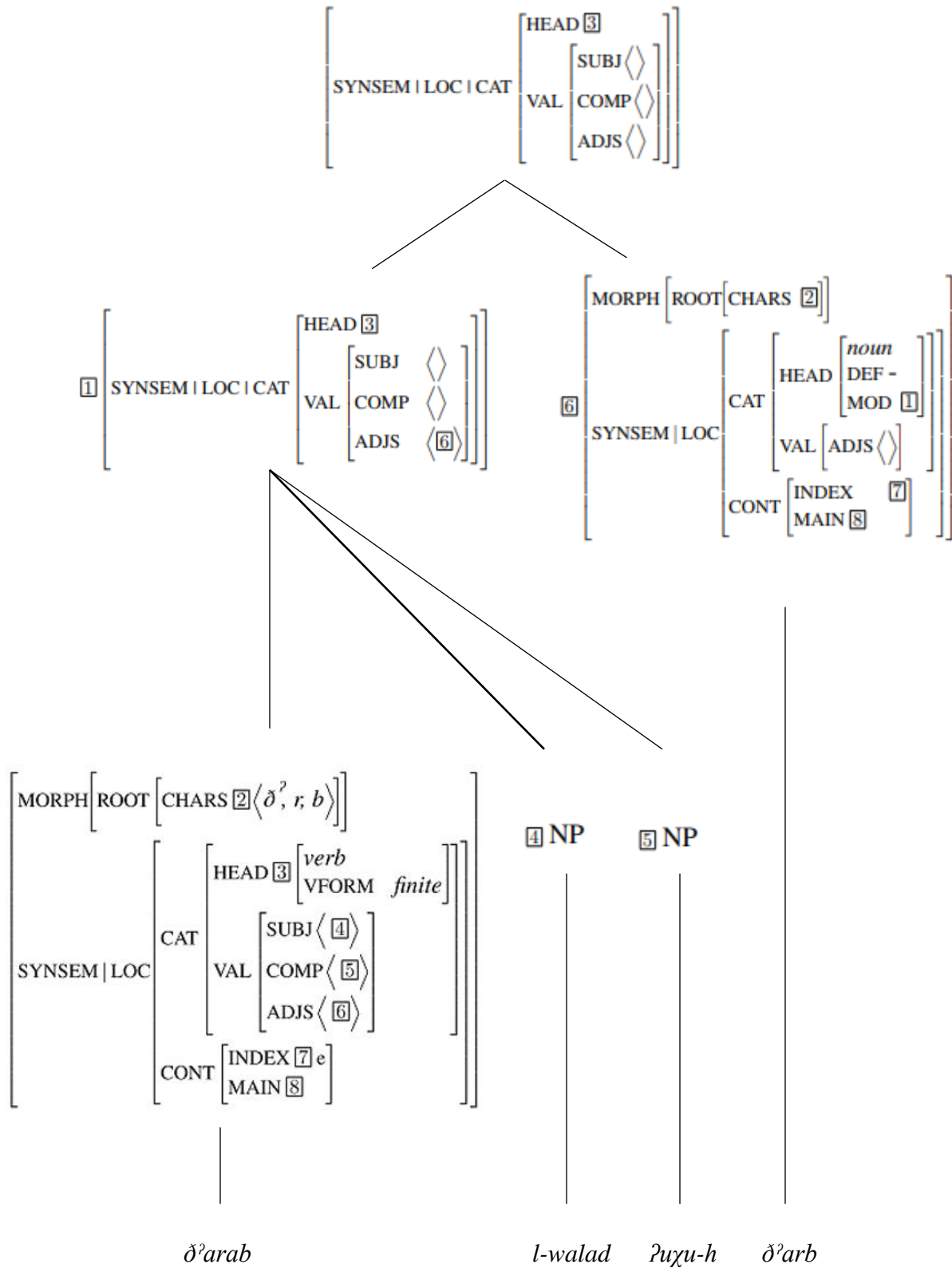
$$\text{HD-SUBJ-COMP-PH} \Rightarrow \left[\begin{array}{l} \text{HD-DTR } [1] \left[\begin{array}{l} \text{word} \\ \text{SUBJ } \langle [2] \rangle \\ \text{COMP } \langle [3], \dots, [n] \rangle \end{array} \right] \\ \text{DTRS } [[1], [\text{SS } [2]], [\text{SS } [3]], [\text{SS } [n]]] \end{array} \right]$$

Then, the modified version of the Head-Adjunct Schema, which is based on Sato and Tam's (2008) account as illustrated in (19), is used. This constraint licenses the VP $\delta^2arab l-walad \text{?uxu-h}$ ‘the boy hit his brother’ to be attached to the CI δ^2arb ‘hitting’.

19. Head-Adjunct Schema.

$$\text{HD-ADJS-PH} \Rightarrow \left[\begin{array}{l} \text{HD-DTR } [1] \left[\text{SYNSEM} \mid \text{LOC} \mid \text{CAT} \mid \text{VAL} \left[\text{ADJS } \langle [2] \rangle \right] \right] \\ \text{NON-HD-DTRS } \langle [2] \left[\text{SYNSEM} \mid \text{LOC} \mid \text{CAT} \left[\text{HEAD} \mid \text{MOD } [1] \right] \right] \rangle \end{array} \right]$$

20.



It can be noted that this analysis accounts for the main syntactic and semantic properties of CICs in NA, as summarized in section [4]. The analysis in (20) shows that the CI δ^{arab} 'hitting' modifies a VP whose head is the finite verb δ^{arab} 'hit.3ms'. It specifies that the CI and the verb are morphologically cognate in that the verb and the CI share the root (δ^{r} , r , b), as seen by the tag [2]. The analysis also catches the semantic cognateness between the verb and the CI, as shown by the identical values of the MAIN features of the CI and the verb (i.e., [8]). It shows that the verb δ^{arab} 'hit.3ms' and the CI δ^{arab} 'hitting' refer to the same event, as indicated by the matching of the INDEX value of the CI and the INDEX value of the verb. It requires the CI to be always indefinite by having the value (-) for the Boolean feature DEF. By the constraint that the ADJS value of the CI is an empty list, the CI stands as an unmodified NP. Therefore, it could be argued that HPSG provides a useful tool for analyzing cognate constructions, such as CIC.

6. Conclusion

This paper investigates the syntactic and semantic properties of CICs in NA. It provides a theory-neutral description of CICs in NA. Then, it attempts to offer a syntactic-semantic analysis of CICs using the framework of HPSG. The findings suggest that the syntactic and semantic properties of CICs in NA are similar to those reported in Semitic literature. This study also highlights that CICs are distinct from COCs despite the widely held assumption in Arabic literature. In addition, the current paper argues that HPSG offers a useful tool for analyzing cognate constructions. Therefore, in future studies, it might be possible to use HPSG to investigate other cognate constructions, such as COs. This study contributes to the current linguistic research in that it studies one of the understudied linguistic phenomena in the field. It also contributes to the CIs topic in Semitic literature in general and NA literature in particular.

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