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Arabic as a Polysynthetic Language: Evidence From the Holy Qur'an

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***Abstract*—Arabic is a Semitic language that has a rich morphology and a relatively free word order. This research paper attempts to demonstrate that Arabic could also be classified as a polysynthetic language. To this end, ten morpho- syntactically structured words from the Holy Qur'an were chosen, presented according to their sequence of occurrence and analyzed in light of the Government and Binding Theory (GB). The results of the analysis of the ten examples provide a strong evidence supporting our argument that Arabic actually is a polysynthetic language. The sample of our study is a comprehensive one; it contains declarative, imperative and even question sentences. The data presented in the analysis are, as well, varied in terms of word order; a VSO, a VOS, and an SVO order which presents further evidence in support of our argument.**

***Index Terms*—Arabic, Qur'an, syntax, polysynthetic, government and binding**

I. Introduction

The distinct phenomenon of Polysynthesis has been widely researched over the years (Itkonen, 1999; Kibrik, 1999 etc.). It was presented as challenge to the grammatical system of Universal Grammar (UG) proposed by Noam Chomsky. The phenomenon, generally, seems to have no agreed upon definition. However, it refers to a case where one complex word represents a whole sentence; -composed of many morphemes, where each morpheme has independent meaning-, that is, usually, a very richly inflected verb.

Arabic is a Semitic language that has a rich morphology and a flexible- relatively free- word order. It is not uncommon to find VSO, SVO and VOS word orders within an Arabic text as proposed by Bassam, et.al (2014). Although, the classic form of Arabic has the order of a VSO structure most frequently, it seems to have changed this over the flow of time into an SVO structure (in the case of Jordanian Arabic, for example) as claimed by El-Yasin (1985). This does not, nonetheless, indicate by any means that modern dialects, such as JA, do not have polysynthetic examples consisting of a VSO structure. This being the case, Arabic language can be argued to be one of the polysynthetic languages, although, up to date, this issue has not been investigated.

Therefore, this research paper aims at [1] investigating whether Arabic actually is a polysynthetic language or not, [2] providing multiple examples from Standard -classical- Arabic, namely, the language of the Holy Qura'an, [3] analyzing these words within derivational tree diagrams in light of Government and Binding Theory (GB). Nonetheless, the investigation in this paper was limited to ten words only. Other examples can be dealt with in future research.

II. Related Studies

In this section, the researchers discuss six of the previous studies from the very rich literature on topics related to the one under investigation in this piece of research (e.g., Kibrik, 1992; Itkonen, 1999; Ershova, 2018; Kelly et al., 2014; Kell, 2014; Ebata, 2020 among others).

Kibrik (1992), who is concerned with the formation of relative constructions, claims that the markedness of all arguments on the verb is the most crucial trait of polysynthetic languages. That is by assuming that the verb is the head element, thus, marking is achieved by means of agreement, rather, pronominal affixes. Slots for these latter mentioned are likely to be understood in terms of semantic hyper-roles {agent -actor- or patient -undergoer-}. According to the researcher, "the basic theoretical notions that are usually presumed to be universal appear to be inapplicable to these languages or at least require serious redefinition". This study also argues that the verbal markers of arguments in polysynthetic languages are referential and morphologically bound pronouns; indicating, furthermore, that they are governed by the verb root, and that they relate to the co-referential full NPs, if any, as anaphors to their antecedents.

In the study of Itkonen (1999), the researcher defends the traditional concept of 'polysynthetic language' against the one proposed by the generativist Baker (1995). The researcher argues that Baker's conservative view of subject-object-

marking is a sign of *agreement*. This, typically, is not the case according to the researcher; since the verb, already, expresses person, number and (often) gender or class of both the subject and the object. The researcher indicates that "the genius of polysynthetic languages consists in the sentence-like character of the finite verb, primarily, and of the nominals, secondarily." This seems to result from the existence of lexical affixes, i.e. affixal nouns, verbs, adjectives, and adverbs; the incorporated noun is the limiting case of affixal nouns.

The study of Bassam et al. (2014) provides a complementary analysis of simple Arabic sentence structures in light of Chomsky's government and binding theory (GB). It indicates that Arabic is a language of rich morphology and a relatively flexible word order. Words of Arabic are derived from roots and patterns, which, in turn, are the basis of its morphology. The study, as well, illustrates that an Arabic word can be composed of: 1. A stem consisting of a base root. 2. A pattern which defines its semantic and syntactic role. Moreover, 3. Affixes and 4. Clitics are often attached to words. That is, where affixes include inflectional markers for tense, gender, and number. Clitics, on the other hand, include prepositions, conjunctions, determiners, and possessive pronouns. Arabic, as argued in this study, is a pro-drop language; the subject can be omitted. Assuming that the basic word order in Arabic within the framework of GB is SVO, the study provides a proposal for VOS order. The proposal is that such order -structure- results from the subject adjunction to the end of VP. And, then, to satisfy the EPP principle, it assumes [Spec, IP] to be occupied by PRO.

Kelly et al. (2014) claimed that the acquisition of polysynthetic languages is motivated by the desire to increase intelligence among people. Polysynthesis is defined in their study as "a morphological construction [which] requires the joining of words and morphemes in a sentence to form a long word with many morphemes" (p.1). The study looks at how children react when they are forced to speak only a polysynthetic language like Koyukon for an hour or two a day every week. The children enjoy speaking it because they feel that it makes them smarter than everyone else. The acquisition of polysynthetic languages can also be motivated by social factors. It has been found that a person speaking a language like Koyukon (a polysynthetic language) is considered more intelligent than someone who only speaks a non-polysynthetic language. In addition to that, the researchers reported that the people who speak Koyukon are preferred by young children. The researchers also found that children learned to understand and speak Koyukon after three months of learning English. Knowing the fact that it is natural for a child to learn a language like English, Kelly and her colleagues believed that their findings were not caused by the effect of being forced to talk only Koyukon.

However, there is some criticism on Kelly and her colleagues' research as well as other studies conducted before them. This criticism mainly focuses on the issue of whether or not this study is valid enough to justify its conclusions. Moreover, this study can be criticized for having a small sample and that the researchers did not factor in other elements that could influence the acquisition of polysynthetic languages. This can limit their ability to generalize the results of the research. This criticism, however, should not be taken as a reason to reject this study. The fact that Kelly and her colleagues managed to conduct this research with a small sample shows that they are serious about what they are doing. Moreover, their experiment was conducted properly as well.

Kell (2014) claimed that pedagogy is the science and practice of teaching and learning, while curriculum refers to the intellectual and cultural content that is taught in a school. One of their assumptions, which they make clear toward the end of their argument, was that the dominant system excludes Indigenous pedagogy. However, students in BC Indigenous Languages (BCIL) classes have access to this different kind of teaching. In considering how to give students access to this type of curriculum and pedagogy in native languages with limited resources, Kell noted that polysynthetic language structures offer one possible solution because they allow educators to present content in multiple ways. Additionally, Kell argued that the teaching and learning of polysynthetic languages are pedagogically valuable in their own right. However, it is not clear how polysynthetic language structures can be presented when students don't know them. Kelly's article addresses this question by examining the role of polysynthetic structures in pedagogy and curriculum, with a focus on the presentation of these structures. It also explores some methods educators have used to teach polysynthetic structure as a part of curriculum. Kell (2014) concluded that a polysynthetic language curriculum is legitimate, and can become part of a students' or teachers' life, but this requires a willingness to change the way teachers conceive of language learning. Moreover, this change is more than just removing the dominant paradigm from language teaching and learning. In fact, it's important to address questions about what this means for students' learning in their home community, as well as organizing pedagogical resources to maximize student progress. It's also essential to understand how teachers and students make meaning of curriculum.

The study of Ershova (2018) provides that Circassian verb morphology is polysynthetic and verb syntax is based on morphology. This observation suggests that at the morpho-syntax interface, simple functional words are being constructed from simple morphemes in a head-fixing, prefixing manner. Hence, the Circassian language has a high complexity in terms of morphology-syntax interface. The researcher investigated that in West Circassian, the object is placed in a multi-verb utterance after the first verb. In the opinion of the researcher, this is possible because of a complex morpho-syntax interface in Circassian. Ershova (2018) provides that the object is placed after the first verb because it is more important than other verbs (in term of its position). In addition to that, the researcher demonstrates this by going to school and giving to students certain vocabularies that are specific to that activity. The researcher concluded the study with the morphology-syntax interface of West Circassian and argues that polysynthesis and polymorphemic words with complicated morphosyntactic structures are constructed from simple morphemes in a head-

fixing, prefixing manner. This type of construction makes the West Circassian language has a high complexity in terms of morphology-syntax interface.

Ebata's (2020) study examined the morphologies of two Northeastern Eurasian languages, Sakha and Tyvan, from a morphological typological perspective. He argued that the two languages are non-polysynthetic, despite having rich morphology. Additionally, this study argued that the two languages, despite being non-polysynthetic and morphologically simple, are not isolating, indicating that it is not necessary for a language to be polysynthetic in order to be morphologically complex. Sakha verbs can have up to ten suffixes attached to them while Tyvan verbs can have up to eight suffixes attached to them. The researcher concluded that locative suffixes in Sakha and Tyvan are not polysynthetic. Locative suffixes in the two languages can only occur once on a stem, they are attached to the stem at the end of the word, and they alter the meaning of the stem (e.g. in "nun" [house]) and not its form, which means that locative suffixes cannot be treated as affixes.

III. Objectives and Methodology

In this paper, the researchers are going to investigate ten words from the Holy Qura'an which are organized according to their occurrences to argue that Arabic could be classified as a polysynthetic language. The researchers choose GB as theoretical frame work in analyzing and tree diagraming the polysynthetic structures under investigation. Words, their transliteration and translation are provided in the following table.

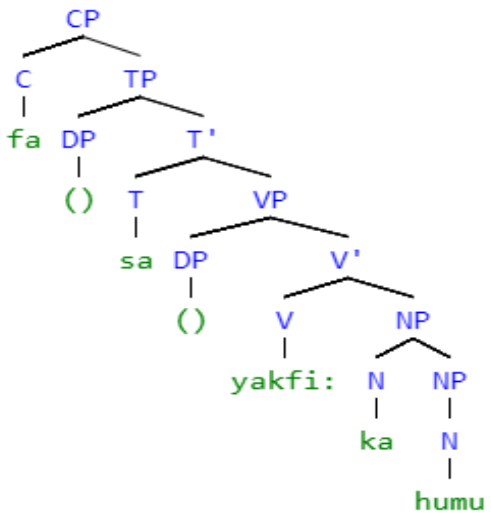
(Table of the Words Analyzed Within the Study)

Arabic word	Transliteration	Translation
فَسَيَكفِيكَهُمُ	fasayakfi:kahumu	Then {Allah} will be sufficient for you against them.
فَأَمسِكُوهُنَّ	fa?amsiku:hunna	Then; {You} retain them!
طَلَّقتُمُوهُنَّ	Tallaqtumu:hunna	{You} divorce them.
كَرِهتُموهُنَّ	karihtumu:hunna	{You} dislike them.
وَاجتَبَينَاهُم	waijtabayna:hum	And {we} chose them.
سَنَستَدرِجُهُم	sanastadrijuhum	{We} will progressively lead them {to destruction}.
أَنُلزِمُكُمُوها	?anulzimukumu:ha	Should {we} force it upon you?
سَأَلتُمُوهُ	sa?altumu:hu	{You} asked of him -Allah-.
فَأَسقَينَاكُمُوهُ	fa?asqayna:kumu:hu	{We} - Then {have} given you drink from it.
زَوَّجناكَهَا	zawwajna:kaha:	{We} - married her, we, to you.

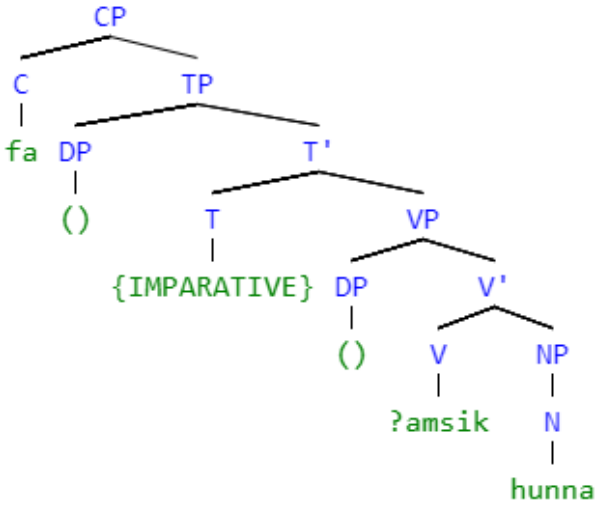
IV. Results

Through the process of analyzing the data provided in III in light of Chomsky's GB theory, the derivation of each is as illustrated throughout this section. It is clearly indicative that Arabic, as supported by examples from the language of Holy Qura'an, is a polysynthetic language. That is, it has a very richly inflected verb root as provided, representing a grammatical and meaningful sentence structure within one word.

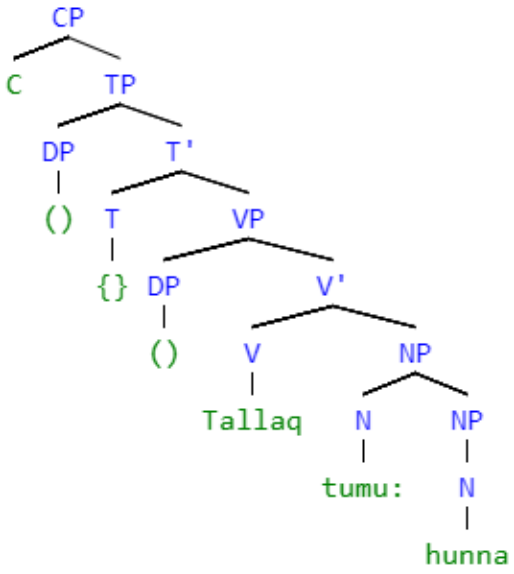
The first sentence-word is **fasayakfi:kahumu**, consisting of the complementizer **fa**, the future tense affix **sa**, the third person masculine singular tense marker **ya;** as the future marker **sa** can only be prefixed to a verb in the present form, the verb root **kfi:**, the indirect object **ka**, and the direct object **hum**. It is derived from the cyclic merging process; first the merging of the indirect and direct objects, respectively, to the verb root. Then, the constituent formed is merged with a null pronoun forming the verb phrase VP. The maximal projection of VP is then merged with the tense marking affix, and lastly, with the complementizer.



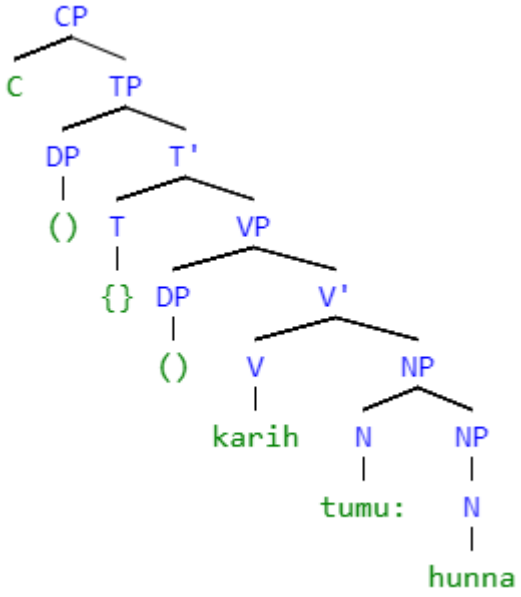
The second sentence-word, **fa?amsiku:hunna**, is an imperative one. This is formed through a similar process to the previous one. The NP consisting of the object is merged with the verb root forming an intermediate projection V', then with a null pronoun indicative of {you} the addressee, forming a maximal projection VP. This, in turn, is merged with the T head, to acquire the imperative feature, then to another null pronoun forming TP. Lastly, the full TP is merged with the complementizer **fa**. To form the correct spell-out of this sentence-word according to Arabic syntax, the clitic morpheme **u:** is added in-between the verb root, on the phonological form level {PF}, and the object as a trace of the omitted indirect object.



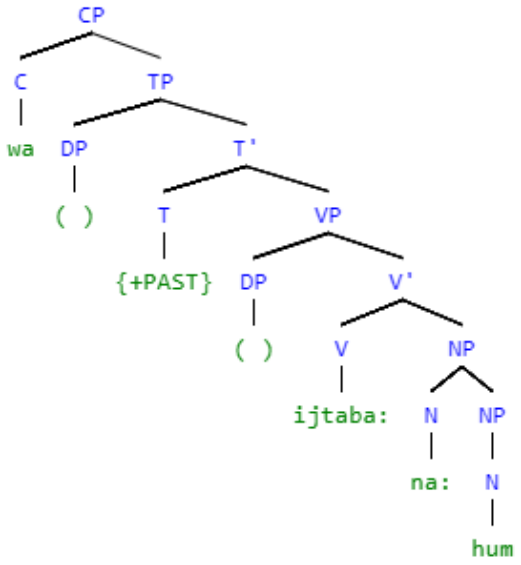
Moving on to the third piece of our data, **Tallaqtumu:hunna**, as well, is formed by merging the object positioned NP **hunna** with the subject indicative NP **tum,** attaching them both to the verb root **Tallaq**. Similarly, the clitic morpheme **u:** is added on the PF level in order to form the correct spell out.



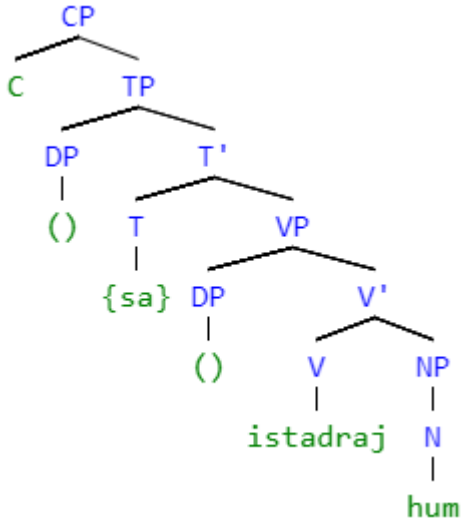
The fourth one is **karihtumu:hunna**. The merging process moving upward begins by attaching the object-like-functioning NP to the subject-like-functioning N head, later on, merging the larger formed NP with the verb root **karih**. The formed intermediate projection of V' is, then, merged with a null pronoun forming VP. In this example as well, there is the clitic morpheme **u:** which is inserted on the PF level, corresponding into the correct spell out form of this sentence-word.



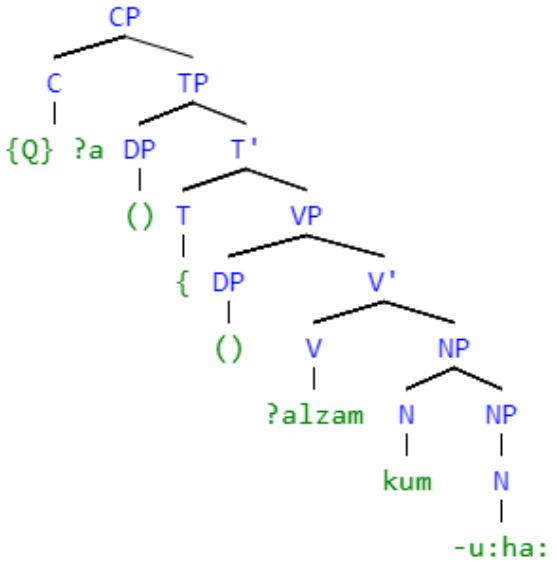
Fifth on the list is **waijtabayna:hum**. Within this sentence-word the object indicative morpheme **hum** is merged with the subject indicative N head **na:** forming the first maximal projection NP, which in turn, is the complement of the verb. The complement, then, is merged with the verb root **ijtaba:** forming V', which then is merged with the null DP forming the maximal projection VP. The T head, carrying the past tense feature, merges with the previously formed maximal projection VP to form another intermediate projection T'. The latter, after that, is merged with another null DP forming the maximal projection TP. Lastly, this TP is merged with the conjunction **wa** finalizing the full form of this sentence-word as it is spelled out in the Holy Qura'an.



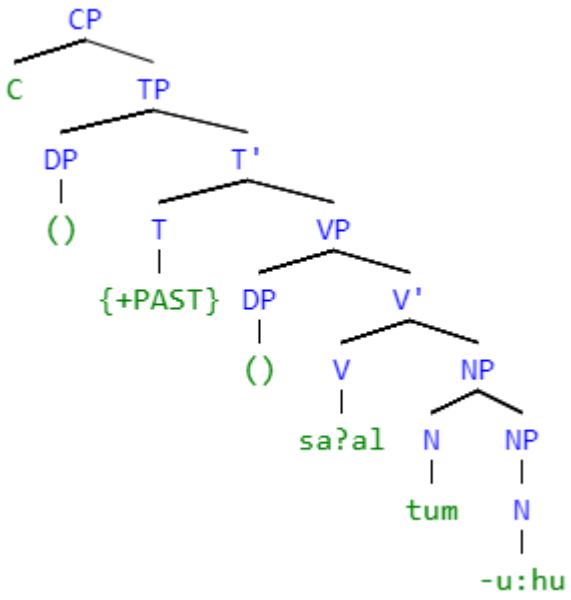
Sixth is the future indicative polysynthetic word: **sanastadrijuhum.** Within this word, the object morpheme **hum** is attached directly to the verb root **istadraj** forming an intermediate projection V'. The full VP, consisting of V' and the empty DP, merges with the future tense marking morpheme **sa**. The TP is headed by an empty DP to satisfy the principle of extended projection **EPP**.



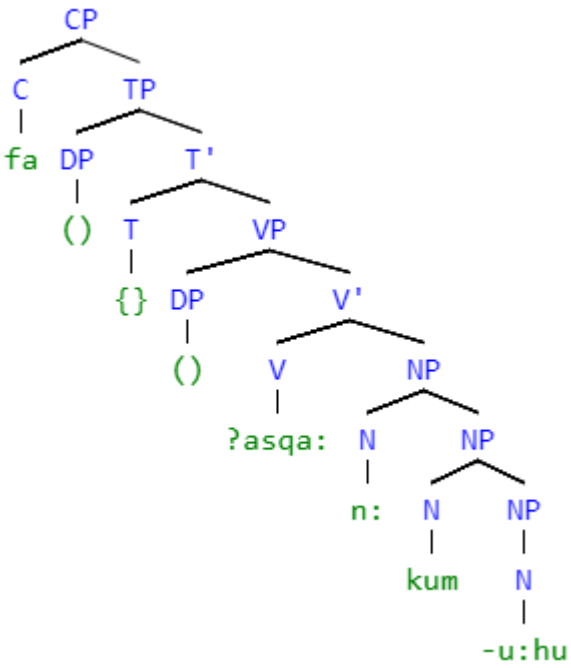
Seventh on the list is the question word: **?anulzimukumu:ha**. The CP of this is derived from merging the question marker -the morpheme- **{?a}**, is the head C, with the TP. Where TP is derived from the merging process of a null DP with an intermediate projection T', which in turn, is derived from merging the head T with the VP. The complement of the verb root **?alzam**, is derived from merging the indirect and the direct object, **kum-ha**. The clitic morpheme **u:** is inserted, into this word, as well as, the clitic morpheme **nu**, indicating the subject. The DP, which occupies the position of SPEC-VP, indicates an omitted pronoun {**he**}, which in the context of the verse in the Holy Qura'an refers to **ALLAH**.



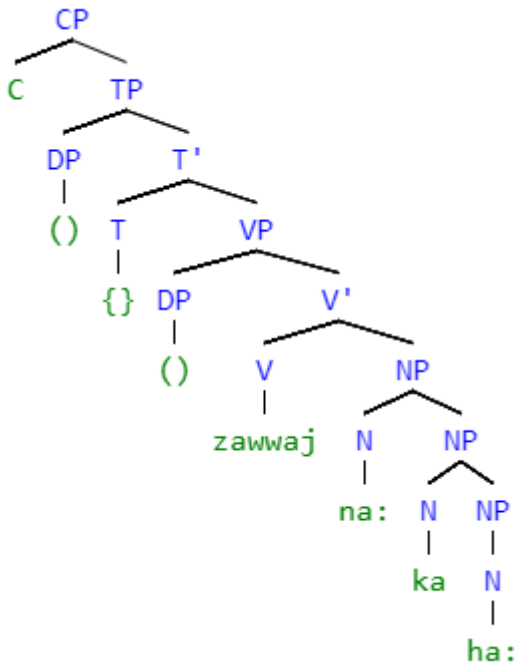
Eighth is another sentence-word in the past tense; **sa?altumu:hu.** First, the object-positioned morpheme **hu**, which refers to **ALLAH**, merges with the subject-positioned morpheme **tum**. Then, these two complemental morphemes are attached to the verb root **sa?ala**, forming the intermediate projection V'. Empty DP is merged with V' to form the full VP. Acquiring the past tense feature in T, marks out the tense of the whole sentence-word. In here, too, the clitic morpheme **u:** is inserted on PF level.



The ninth example from the Holy Qura'an is **fa?asqayna:kumu:hu**, where the direct object **hu**, indirect object **tum**, as well as, the subjective morpheme **na:**, are all attached to the verb root **?asqa:**, in an ascending manner -last mentioned is attached first-. The past tense feature is acquired from T head.



The tenth, and last, sentence-word investigated in this paper is the past tense indicating **zawwajna:kaha:**. The subject morpheme **na:**, the indirect object morpheme **ka**, and the direct object morpheme **ha:**, are all attached to the verb root **zawwaj**, respectively. The intermediate projection V' is merged with a null DP forming the maximal projection represented as VP. The tense is acquired after merging the full VP with the T head, forming T'.



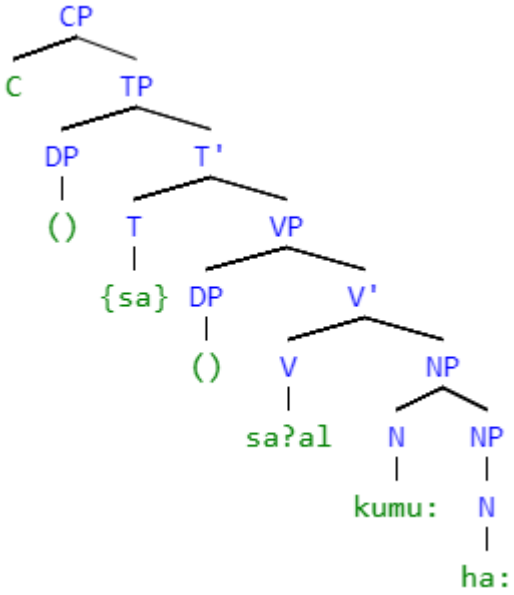
The results of the analysis of the ten previous examples provide strong evidence supporting our argument that Arabic actually is a polysynthetic language. The sample of our study is a comprehensive one that is as it contains declarative, imperative and even question sentences. The data diversity is, as well, indicated by the word order; where we have had a VSO, VO, and a SVO order. All these were formed by attaching inflectional morphemes -some functioning as the subject, others as the direct or indirect object- into the verb root.

V. Discussion

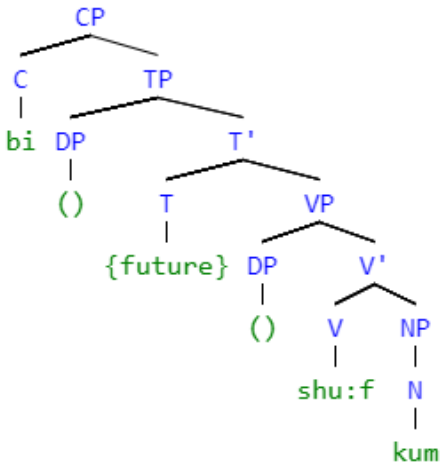
The results of the present study indicated in the previous section, clearly, are in line with the results provided in the previous literature. That is, Arabic, as other polysynthetic languages, does have a richly inflected verb. As illustrated above, the verb is the essence base of each sentence-word from the sample presented in III, and is, to what all arguments are attached -marked-; which is the most crucial trait of polysynthetic languages according to Kibrik (1992). In addition to all that, these are not the only examples in Arabic; there are many other examples found in the Holy Qura'an, as we observed this matter closely. Furthermore, Modern Standard Arabic {MSA}, as well as some dialects, does have similar sentence-word structures.

The results, also, are in agreement with Bassam, et al. (2014)'s study. As our results show that Arabic is a pro-drop language, and that it does have a relatively flexible word order, where we were able to find various ordering of the sentence elements. VO ordering was found in imperative, as in **fa?amsiku:hunna**, where the subject -addressee- is deleted {null}. VSO ordering is found in declarative sentences that are marked in the past tense, such as; **Tallaqtumu:hunna, karihtumu:hunna, waijtabayna:hum**, **sa?altumu:hu**, **fa?asqayna:kumu:hu** and **zawwajna:kaha:.** Although, the subject of all these is null in the underlying representation of each one, it still left a trace in the form of a clitic morpheme inserted at the PF level. Finally, SVO order was only found in the future marked declarative sentence and the question sentence, **sanastadrijuhum** and **?anulzimukumu:ha:,** respectively.

Next in our list is the word **sanas?alukumu:ha:** with a literal meaning of the statement: "we will ask you (about) it". This word is taken not from the Holy Qura'an but from Standard Arabic (SA). Concisely, the word begins with the future indicative marker **sa**, followed by the first-person plural pronoun **na**, which is inserted in the output while production of the word. Then comes the verb **sa?al**, the indirect object **kumu**:, and, lastly, the direct object **ha:**. The following tree diagram is illustrative:



Colloquial Arabic is not different from SA when it comes to using polysynthetic words. The word ***binshu:fkum***, which translates to the declarative sentence "will we see you (later)", consists of the verb root **shu:f**, preceded by the future tense marker **bi** and the first-person plural **n** -which is not apparent in the underlying form, rather is inserted in the output-, and then followed by the object morpheme ***kum*.**



To this end, examples from Qura'anic language, Standard Arabic, and Colloquial Arabic have been analyzed in depth and discussed so far. All words emphasize the richness of sentence-like verbs from Arabic. That is clarified as all the given examples are polysynthetic words that are identified by the head element which is the verb, having multiple affixes that are realized -or understood- by their semantic hyper-roles; mainly, agents /actor/, patient /under-goer/.

VI. Conclusion

The present study has provided clear evidence that supports and argues for the claim that Arabic, beyond reasonable doubt, shall be considered a polysynthetic language as well. This is in line with the previous literature: Bassam et al. (2014), Ghadessy and Haddad (2005), and Kibrik's studies. We would like also to claim that polyntheticity, though salient in Qur'anic language, is a morphosyntactic structural feature that is commonly used in standard and colloquial Arabic as well. However, further investigation of this issue needs to be conducted in support of this argument using examples from SA and other Arabic dialects.

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