Are Noun Phrases Phases? Evidence from Semitic Construct State[1][*]

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ملخص:

تعرَّف الرحيلة على أنها وحدة نحوية حوسبية يتم إرسالها إلى المستويين الصواتي والدلالي كوحدة مستقلة. تحاول هذه الورقة إثبات أن العبارة الحدية رحيلة، وتقدم أدلة ناجعة من تركيب الإضافة في اللغات السامية؛ وتحديداً من العربية والعبرية. كما يحاول الباحث إثبات أن تركيب الاضافة عبارة عن وحدة حدية اعرابية (كب) تكوِّن مجال للحركة/"التخيّطة" في المستوى الصواتي، والتفسير في المستوى الدلالي والحركة الدائرية في المستوى النحوي، كما أنها وحدة مشبعة سيميائيا. ففي المستوى الصواتي، يبرهن الباحث أن تركيب الإضافة يحقق عدة أغراض رحائلية مثل التأخير، التركيز، الإنعزال، تقديم المسند الخ. أما علىالمستوى الدلالي، فيبرهن الباحث أن تركيب الإضافة وحدة دلالية، يمكن إعادة تفسيرها بنيوياً، ويمكن تحريكها بشكل دائري تتابعي. وأما على المستوى النحوي، فيحاول الباحث إستقصاء بعض المميزات السيميائية لتركيب الإضافة منها البؤرة السيميائية، والإنتقال السميائي الخ، ويحاول إبانة أن الرأس كـ له صفات رأس أي رحيلة بشكل عام، ومن هذه الصفات أن المضاف إليه يشكِّل مجال رحائلي، وذلك بسبب حالة الجر الدائمة التي يكون عليها.

الكلمات المفتاحية: الرحيلة، الإضافة، التخيّطة، مستويا الصواتة والدلالة، تهجئة متعددة

Abstract

That Noun Phrases (or DPs) are phases is a debated issue in the current minimalist syntax. A phase is said to be a unit of syntactic computation that can be sent to the PF and LF interfaces as an independent syntactic chunk (Chomsky 2000, *et seq*). In this article, support is added to the claim that Noun Phrases are phases. In particular, I show that a Semitic construct state(CS), a kind of DP, is a KP-sized constituent which constitutes a domain for movement/linearization at PF, interpretation at LF, and cyclic movement within the narrow syntax. It is also feature-saturated. At PF, evidence is provided that a DP CS can undergo extraposition, clefting, isolation, and predicate fronting. At LF, evidence is also provided that a CS is a propositional object, can undergo reconstruction and successive cyclic movements. At the syntax level, I examine some feature-wise facts, concerning feature-saturation of a CS and feature locus, feature transmission, φ-*completeness*, etc., and more importantly how the head K (like phase heads in general) is characterized with these properties. There are also certain facts manifested by the genitive DP complements (GDCs), qualifying CSs to be phases. One such fact is that GDCs constitute 'phase Spell-Out domains,' by virtue of being (and always) assigned Gen Case by their heads, and hence they are not accessible to outside operations.

Keywords: phasehood diagnostics, Semitic construct state, linearization, PF and LF interfaces, multiple Spell-Outs

1. Introduction

The assumption that DPs are phases is a debated issue (see e.g. Matushansky 2005; Citko 2014; Bruening 2013; Abels 2012; Svenonius 2004; Gutiérrez-Bravo 2001). The debate rests on whether or not DPs comply with phasehood diagnostics applied to CPs and *v*Ps (which are assumed to be the only phases).[1] This paper investigates the phasehood status of the Semitic construct states (CSs, particularly, in Arabic and Hebrew), at three levels, namely PF, LF and syntax. At PF, it is argued that CSs like (1) below comply with extraposition, clefting (it-clefting and pseudoclefting), isolation, predicate fronting and real movement. At LF, it is demonstrated that CSs are propositional objects, and they can undergo reconstruction and successive cyclic movements (SCMs). At the syntax level, it is shown that CSs are feature-saturated constituents by examining some feature-wise (but not structure-wise) facts of CS-constructions. It is proposed that a Semitic CS is a phase KP, headed by K, and the head N and the genitive DP complements (GDCs) are its domain. In particular, I argue that while the head exits the domain of K at the Spell-Out, the GDCs constitute 'phase Spell-Out domains,' by virtue of being (always) assigned Gen Case by their heads.

(1) a. kitaab-u l-mudarris-i (Arabic)

  book-NOM the-teacher-GEN

  'The teacher's book'

 b. bayt-u ibn-i ħaars-i bawwaabat-i l-madrasat-i   (Arabic)

  house-NOM son-GEN guard-GEN gate-GEN the-school-GEN

  'A house of a son of a guard of a gate of the school'

 c. kis   xulcat manahelet mešek beyt ha-rav

  pocket.NOM shirt.GEN manager.GEN affair.GEN house.GEN the-Robbi.GEN

  ha- civ`oni   al ha-šulxan   (Hebrew)

  the-colorful.NOM on the-table.GEN

  'The pocket of the Rabbi's household manager's colorful shirt on the table' (cf. Shlonsky 2004: 1504)

 d. al-ṣaaniʕ-aa   l-qitʕat-i   l-ħadiid-i l-kabiirat-i

  the-maker-NOM.DL the-piece-GEN the-iron-GEN the-big-GEN

  'The (two) makers of the big piece (which is) made of iron'

As the examples in (1) show, a CS can be defined as a Semitic DP, expressing a relation of possessivization (or association) between a head noun and its complement. One property of CSs

is that in its minimal form a CS consists of two constituents: the head N and its GDC. There are also some other properties of CSs that can be drawn from the examples in (1), some of which qualify CSs and DPs in general to be phases. The recursiveness property in (1b-c) constitutes much computational burden placed on the language faculty, given the limitations of storing information in the short-term memory (see e.g. Chomsky 2000, *et seq*; Citko 2014; Legate 2003). (1b), for example, represents what can be called multi-embedded CSs, where there are five DPs. Three of them, namely *ibn-i, ħaars-i,* and *bawwaabat-i,* have "double functionality." That is to say, they simultaneously function as heads once and as GDCs once more. These embedded head-GDCs are assigned Gen Case by their heads. This means that they (and their specifiers) are 'frozen' in their 'in-situ positions' and so they cannot move independently of their heads (cf. Shlonsky 2004). This suggests that such head-GDCs constitute 'phase Spell-Out domains,' which are inaccessible to any outside operation, given PIC (=Phase Impenetrability Condition, see Chomsky 2000:108, 2001:13). In (1c), the CS is complex, in the sense that it is a multi-embedded CS with modifiers. (1d) indicates that not only can the head N take the definite article, but the embedded head-GDCs can also take it.

The assumption that Semitic DP CSs are phases adds support to the claim that Noun Phrases/DPs are phases. I hope that the proposal pursued here improves on the previous analyses of the phenomenon. The remaining part of the paper proceeds as follows. In section 2, I show that CSs have two DP layers. In section 3, I apply the phasehood diagnostics to CSs at three levels, namely PF, LF and syntax.Section 4 concludes the paper.

2.   CS: two DP layers

In this section, I show that the head N of a Semitic CS is a full DP, which stems from: i) the assumption of (in)definiteness spread (IS/DS) seems not to be unproblematic, and ii) there are some CSs, where not only the head N, but also the embedded head-GDCs, can take the definite article. I elaborate on (i) in section 2.1, and return to (ii) in section 2.2.

2.1.   Against (in)definiteness spread

In the previous approaches to Semitic CSs, it was assumed that the head N cannot take the definite article. This head N is rather said to acquire its (in)definiteness via (in)definiteness spread. For example, in N-to-D approach it was claimed that the head N is base-generated in a

lower position in the derivation and, then, raises to D. One motivation for this movement is presumably a phonetically null D (see e.g. Ritter 1988, 1991; Fassi Fehri 1993, 1999; Siloni 1991, 1997; Borer 1996; Ouhalla 1994; Benmamoun 2000, 2003; Kremers 2003; Shormani 2014). This D is said to be affixal with strong features:it attracts the head N to adjoin to it. Other motivations include Case checking, word order, among others (see e.g. Ritter 1988, 1991; Ouhalla 1994, 2009; Longobardi 1994, 1996; Fassi Fehri 1999; Pereltsvaig 2006).

However, IS/DS has been a matter of controversy and hot debate. The debated issue has been whether there is IS/DS at all. This is not merely confined to Semitics, but also includes some other languages like Romanian (see e.g. Longobardi 1994, 1996, 2001; Dobrovie-Sorin 2000). Scholars hold that IS/DS does not take place in CSs, while some others argue that it takes place in some CSs, but not in some others. For example, Fassi Fehri (1999) argues for the absence of this property in some CSs. He argues that there are CSs, where DS does not take place, providing empirical evidence for that. One piece of evidence, Fassi Fehri (1999)mentions, is CSs whose GDCs are clitic pronouns. Consider the Arabic example in (2a), where the CS *ʔab-i* (my father) is a CS whose GDC is the clitic possessive pronoun *–i* (my), and the head is *ʔab*(father).[2]

(2a) haaða   aʔab-i

    this   father-my

   'This is my father'

Fassi Fehri (1999) also maintains that there is no even relation between DS and genitive Case assignment (differently from others e.g. Ritter 1988, Siloni 1991; Borer 1996, noted above).

Another fact that can be drawn from (2a) is that in Arabic when the subject is a Dem (which is inherently definite) in verbless sentences, only indefinite DPs function as predicates. The same thing seems also to hold true of nominal Arabic CSs when they function as predicates as (2b) shows.

(2b) ʕaliyy-un   rajul-u   l-mawqif-i

    Ali-NOM   man-NOM the-situation-GEN

   'Ali is the man of the situation.'

In (2b), the CS *rajul-u l-mawqif-i* is the predicate of the sentence. The fact that only indefinite constituents can function as predicates in (2a) and (2b) provides crucial evidence that there is no IS/DS in construct states.

Another piece of evidence against IS/DS comes from quantified constructs, where the quantifier is the head and the GDC is any other definite DP. This is illustrated from Arabic in (3).

(3) kull-u   n-naas-i

    all-NOM   the-people-GEN

    'All the people'

Here, *kull-u* (all) cannot be said to be definite, simply because when it functions as a quantifier, it never takes the definite article.

In addition, Fassi Fehri (1999) maintains that DS is also absent in Arabic partitive constructions like (4) below.

(4) ʔiħdaa   l-qasaaʔid-i   mafquudat-un

    one-NOM   the-poems.F-GEN missing.F-NOM

    'One of the poems is missing.'

Fassi Fehri (1999) also maintains that certain types of deverbal CSs show no DS as shown in (5).

(5) a. kitaabat-u   l-xabar-i   sariiʕ-an   xataʔ-un

     writing-NOM the-news-GEN fast-ACC   mistake-NOM

     'Writing the news fast is a mistake.'

   b. *kitaabat-u   l-xabar-i   l-mutasriʕat-u   xataʔ-un

     writing-NOM the-news-GEN the-hasty-NOM   mistake-NOM

     '*Writing the news the hasty is a mistake.'

In (5), the head N *kitaabat-u* (writing) cannot be modified by an AP modifier. Modifying it with the AP *l-mutasriʕat-u* (the hasty) renders the CS ungrammatical. However, when the head N *kitaabat-u* is modified by an adverb *sariiʕ-an* (fast) as in (5a), it is grammatical. This indicates that there is no DS, and that the head N *kitaabat-u* is indefinite (see also Shormani 2016, to appear).

All these facts cast some doubts on the IS/DS assumption. There are those (see e.g. Danon 2001) who argue that there is no DS at least of *semantic definiteness* value from GDCs to their head Ns. There are also those (see e.g. Dobrovie-Sorin 2000; Heller 2002) who consider DS only a feature of specificity/uniqueness the possessivization is characterized with. Some other authors (see e.g. Alanbari 1997; Sichel 2002, 2003; Alshara'i 2014; Shormani 2016, to appear) argue that there is no IS/DS.

2.2. CS head-Ns with the definite article

2.2.1. Arabic

In this section, it will be shown that in some Arabic CSs the head N can take the definite article *al-*. I also provide empirical evidence that not only can the head N take this definite article, but also embedded head-GDCs of multi-embedded CSs can take it. The fact that the head N of a CS can take the definite article *al-* comes from CSs like (6).[3]

(6) al-mutqin-aa   waajib-ay-himaa (maħbuubaa-ni jidd-an)

the-well-performer-NOM.DL duty-GEN-his   respectable-NOM.DL very-ACC

'The two well-performers of their duty (are very respectable).'

In (6), the head N *mutqin-aa* takes the article *al-* and the construct is still grammatical. As it turns out, then, the grammaticality of the CSs like (6) casts some doubts on the assumption that the head N of a CS cannot take the definite article *al-*.

There is also good evidence that not only can the head N take the definite article, but also the embedded GDCs can take it as (7) shows (slightly modified from Ibn Jinni's *Alxaşaaʔiş*, I:219-220, see also Wright 1898; Alanbari 1997; Al-Aboudi 1985; Ibn Malik (III:73f); AlSywti II: 348ff; Shormani 2014, 2016, to appear).[4]

(7) a. al-munfiq-aa   l-maal-i   li-wajh-i   illaah-i

the-giver-NOM.DL the-money-GEN for-face-GEN Allah-GEN

'The two givers of the money for the sake of Allah'

   b. al-faatiħ-aa   l-baab-i   l-ħadiid-i   l-kabiir-i

the-opener-NOM.DL the-door-GEN   the-iron-GEN the-big-GEN

'The (two) openers of the big door (which is) made of iron'

   c. yuħtaram-u   l-muʕllim-uu   n-naas-i   l-ʔaxalaaq-a

is-respected the-teacher-NOM.PL the-people-GEN the-morals-ACC

'The teachers who teach people morals are respected.'

The examples in (7), particularly (7b) and (7c), provide strong empirical evidence that even embedded head-GDCs can take *al-*.[5] The embedded head-GDCs *l-baab-I* and *n-naas-i* (the door and the people, respectively) in (7b) and (7c) take the definite article *al-* (assimilated into *n-* in (7c)).[6,7]

2.2.2. Hebrew

We turn now to the possibility of the head N to take the definite article *ha-* in Hebrew. The fact that the head N of a CS can take the definite article *ha-* has been addressed in some studies. For example, Danon (2008) argues that in Hebrew, specifically Colloquial Hebrew (CH), it is very common that *ha-* is attached to the head N in CSs as in (8).

(8) ha-aremat dapim   ha-zot

 the-pile   papers   the-this

 'This pile of papers'

In addition, Siloni (2001) points out that the assumption that the head N of a CS cannot take the definite article has to be rethought and explored more, and that the existing justifications for DS/IS seem to be untenable. Given this, Siloni (2001) makes it clear that as far as CH is concerned, "there is an ongoing process relocating the article before the head of the construct" (p. 153). Differently from Danon (2008), however, she asserts that there are some contexts where attaching *ha-* to the head N is obligatory but "sensitive to the position of the construct in the sentence" providing (9a) as an example of the obligatory use of the article *ha-* (presumably assimilated along with the accusative/definite object marker *et* as *ta-*).[8]

(9) a. kvar   avarti   [ta-bdikat   rofe]

 already passed ACC+the+examination physician

 'I have passed the physician examination.'

 b. ota tmunat praxim še-hizkarta   hi xadaša

 that picture flowers that-mentioned(you) is new

 'That picture of flowers that you mentioned is new.'

 c. tmunat praxim zot hi xadaša

 picture flowers this is new

 'This picture of flowers is new.'

She also provides empirical evidence from Hebrew, where the head Ns of CSs are modified by definite determiners (i.e. Dems), though their GDCs are indefinite, as shown in (9b & c). In (9b & c), such definite CSs function as "subjects of predicational sentences" (Siloni 2001: 158).[9]

To conclude this section, however, the fact that certain CSs do not allow the head N to take either the definite article *al-/ha-* as in (10a, from Hebrew) and (10b, from Arabic), or the

indefinite article –*n* as in (10c) from Arabic, might be attributed to a property specific to this type of CS.

(10) a. (*al-)kitaab-u   l-mudarris-i

      book-NOM   the-teacher-GEN

    'The teacher's book'

  b. (*ha-)sefr   ha-mora

      book.NOM   the-teacher.GEN

    'The teacher's book'

  c. kitaab-u(*-n)   mudarris-i-n

    book-NOM-IND   teacher-GEN-IND

   'A teacher's book'

Still however, the examples in (10) give rise to a difficult question: why is it that IS/DS is the only feature that is shared between both members of the CS, but not, say, number and/or gender? (see e.g. Benmamoun 2000, 2003, who finds no answer to this question). I assume, following some traditional grammarians, that the inability of *al-/–n* to appear on the head Ns has nothing to do with the GDC being definite or indefinite. But rather, it may have to do with some other considerations (see also Al-Aboudi 1985; Ouhalla 2009).[10]

     Since the head N in some other CSs in both Arabic and Hebrew can take the definite article, it may well be argued that D is not null, on the one hand, and that D is an independent head, on the other hand. For ease of exposition, I will assume that the fact that the head N in some CSs cannot take the (in)definite article may have to do with some other considerations, not necessarily relating to IS/DS. Given these two assumptions, it is, then, possible to argue that the head N of a CS is a full DP. This suggests that a CS consists of two DP layers, namely the DP-head and the DP-GDC. Given also the standard minimalist assumption that the head is *selected* from the lexicon first, and then, it is merged with its complement (which is *selected* for the numeration in a subsequent *Select*), it follows that the DP-head will be base-generated lower than the GDC. If this analysis is on the right track, it follows that these two DPs have to be linearized by/before Spell-Out. This is, in fact, on a par with Chomsky's (2000, 2001) assumptions. Chomsky holds that when trees are generated by the syntax, they do not specify full information about linear order, and that the Spell-Out operation fully linearizes the nodes of the tree as one of

the tasks performed by it (see also Richards 2010) (I discuss this issue in detail in section 3.2.2.1 below).[11]

3. Phasehood properties of Semitic CSs

The limitations of the short-term memory of storing information lead to proposing Multiple Spell-Out and Merge-over-Move hypotheses (Uriagereka 1999, see also Ndayiragije 2005; Bruening 2013; Citko 2014), two of the hypotheses that phase theory is perhaps based on. According to Chomsky (2001, *et seq*), a phase is a unit of syntactic computation that can be sent to the interfaces, that is, PF and LF, as an independent syntactic chunk. This in turn suggests that syntactic computation (or otherwise derivation) proceeds in phases. Chomsky argues that this mechanism allows for reducing the computational burden placed on the human language faculty, which, Chomsky holds, is "an *optimal* solution to *minimal* design specifications" (Chomsky 2001: 1, emphasis mine).

There are four salient assumptions underlying the conceptualization of phase theory, viz. *strong phases, PIC, Phonological Condition (PC)* and *Procrastinating Spell-Out*. Strong phases are those that have an EPP position, or otherwise, an escape hatch targeted by movement (see Chomsky 2001). In this line of reasoning, *v*P and CP are strong phases. At PF, both *v*P and CP are targets for movement for phonological requirements. At LF, both are also expected to be propositional objects. In other words, there are verbal phrases with full argument structure and CP with force indicators. This also indicates that TP or "weak" structures such as passive or unaccusatives are not phases, simply because they lack external arguments (see also Chomsky 2008).

As for PIC, it is actually an accessibility condition the purpose of which is to minimize "search space" in a probe-goal matching relation. The working mechanism of PIC is illustrated in (11) (cf. Chomsky 2000: 108, 2001: 13).

(11) [ZP   ….Z…[HP …H…   α [H   YP]]]

In (11), ZP is an outside maximal projection, HP is a phase, whose head is H, and α is its edge, and YP is H's domain. Having this in mind, the working mechanism of PIC is as follows: the complement domain of H, that is, YP is inaccessible to outside operations by ZP. It is only the head H and its edge α (α can either be Spec or some elements adjoined to HP). In this way, the research space between a probe, P and a goal G is minimized. Chomsky also stresses that H and

its edge are accessible only up to the next strong phase, given the PIC. In (11), the features of HP are "accessible to operations within the smallest strong ZP phase but not beyond." According to PIC, H and its edge α in (11) "belong to ZP for the purposes of Spell out, under the PIC. YP is spelled out at the level of HP. H and α are spelled out if they remain in situ" (Chomsky 2001: 13).

The third assumption concerns PC. As noted above, PC is a condition necessitated by phonology. This condition is schematized in (12).

(12) [ZP   ….P…[HP …H….   XP [Spec[H   ….   YP]]]

In (12), XP prevents *Agree*/*Match* of a probe P and a goal G in Spec, under Minimal Link Condition (MLC) only if XP has phonological content. However, PC cannot be thought as an optimal solution in itself. It is rather relevant for *Internal Merge* (or otherwise movement); that is, when the matching relation between P and Spec in (12) involves *Move*, but not *Agree*.

The fourth assumption concerns procrastinating Spell-Out. How procrastinating Spell-Out works is illustrated in (13).

(13) [CP   ….P…[vP …v….   XP [Spec[v ….   YP]]]

In the configuration (12), Spell-Out applies only at the next higher strong phase, viz. ZP. If we assume that HP and ZP in (12) are vP and CP in (13), respectively, then it is only at CP that the phonological content of XP, or otherwise the phonological edge of Spec, is determined.

The above assumptions are, in principle, meant for accounting for how and why "search space" is minimized, and how syntactic chunks are spelled out independently, hence optimally processing "minimal computations." This leads to reducing the computational complexity placed on the language faculty. Taking the computational complexity to simply mean that the number of maximal projections in the search space must be limited (see also Chomsky 2001, *et seq*; Legate 2003; Matushansky 2005; Citko 2014), it seems that CSs and DPs in general are phases. This is due to the fact that a DP/CS can have an unlimited number of iterated (or embedded) DPs/CSs as in (14, from Arabic), which means that at some point, they must exhaust the available memory resources (Matushansky 2005).

(14) kitaab-u mudarris-i ħaasuub-i   kulliyat-i   t-tarbiat-i

    book-NOM teacher-GEN computer-GEN college-GEN the-education-GEN

  'The College of Education's computer's teacher's book'

However, if a CS is a phase, it should manifest independence at LF and PF interfaces, and comply with the diagnostics which "test for such independence" (Matushansky 2005: 159). In this section, I apply the phasehood diagnostics (usually applied to CPs and vPs),[12] leaving aside the controversy involved in relation to these two constituents) to Semitic DP CSs, briefly touching on their theoretical bases and motivation. In particular, I will show that a Semitic CS constitutes a domain for linearization at PF, interpretation at LF, and cyclic movement within the narrow syntax.

3.1. PF-based diagnostics

At the level of PF interface, Legate (1998) proposes a number of diagnostics like extraposition, clefting (it-clefting and pseudoclefting), isolation, predicate fronting and real movement.

3.1.1. Extraposition

Extraposition has been applied to CPs and vPs as a phasehood test. Although extraposition seems to work well for CPs, it does not in relation to vPs.[13] While the former can undergo extraposition, the latter cannot. The reason why vPs (and VPs) cannot undergo extraposition is simply because they cannot be "found in the subject position" (Matushansky 2005: 161). However, let us apply extraposition test to CSs; consider the bolded and italicized items in (15) from Arabic, and see whether they comply with it.[14]

(15) a. ***tafkiir-u   t -taalib-i***   ʔadhaša-ni

thinking-NOM   the-student-GEN   surprised-me.

'The student's thinking surprised me.

  b. ʔadhaša-ni   ***tafkiir-u   t-taalib-i***

surprised-me thinking-NOM   the-student-GEN

'The student's thinking surprised me.'

  c. [$_{TP}$ [t$_i$] [$_T$ ʔadhaša-ni …[tafkiir-u ɬ-taalib-i]$_i$]]

In (15), the CS *tafkiir-u ɬ-taalib-i* (the student's thinking) functions as the subject of the verb *ʔadhaša*, and the pronominal clitic-*ni* is the object as in (15a). It then undergoes an extraposition process as in (15b). The extraposition operation is shown in (15c) (see also Mohammad 1990,

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2000; Fassi Fehri 1993). It seems that CSs "pass" this test, which clearly indicates that CSs comply with extraposition test more than *v*Ps do.

3.1.2. Clefting

Clefting, as a phasehood test, distinguishes *v*Ps from CPs; the latter can undergo clefting process whereas the former cannot. I show here that clefting in both types, that is, it-clefting and pseudoclefting, could target CSs. Consider the Arabic example in (16) exemplifying it-clefting which targets a CS.

(16) *ʔinna-hu* kitaab-u ƫ-taalib-i *llaði* raʔay-tu

 that-it book-NOM the-student-GEN that saw-I

 'It is the student's book that I saw.'

In (16), *kitaab-a ƫ-taalib-i* (the student's book) is clefted. The clefting process in (16) lies in the use of the pronominal clitic–*hu* (it) attached to the C *ʔinna* (that) and the use of the relative pronoun *llaði* (that). Clefting can also be made use of without attaching the pronominal clitic–*hu* to *ʔinna* as in (17) below. But in this case, the independent pronoun *huwa* (it/he) must be used before the relative *llaði* (that).

(17) *ʔinna* kitaab-a ƫ-taalib-i *huwa llaði* raʔay-tu

 that book-ACC the-student-GEN it that saw-I

 'It is the student's book that I saw.'

It also seems that CSs can be used in pseudoclefting as in (15, from Arabic), where the CS *kitaab-u al-taalib-i* undergoes pseudoclefting operation.

(18) maa lam ʔ-ara-hu huwa kitaab-u ƫ-taalib-i

 what not I-see-it it book-NOM the-student-GEN

 'What I did not see is the student's book.'

As it turns out, like in extraposition, examples in (16-18) indicate that CSs can be targeted by clefting in its two types.

3.1.3. Isolation

Legate (1998) refers to isolation, as a test for phasehood, as "Mad Magazine" sentences.[15]Matushansky (2005) also argues that isolation tests for a structure to be a phase,in that for a structure to be a phase, it must be spelled out as an independent syntactic chunk. Given

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this, a structure consisting of more than one phase must be spelled out as independent syntactic chucks, each in a time. This means that derivation/computation of a structure proceeds in phases (see also Chomsky 2001, *et seq*). If a CS in its minimal form constitutes a 'minimal nondivergent constituent,' it must be a phase. I will apply isolation test to CSs, and see whether they comply with it; consider the Arabic examples in (19).

(19)a. hal raʔay-ta   kitaab-a   t-taalib-i ?

     Q   saw-you   book-ACC   the-student-GEN

     'Have you seen the student's book?

  b. kitaab-a   t-taalib-i ?

   book-ACC   the-student-GEN

  'The student's book?'

As is clear in (19b), the CS *kitaab-at-taalib-i* is isolated and used as a meaningful (isolated) constituent (i.e. a question, in Matushansky's sense). Put differently, the CS in (16b) complies with the isolation requirement, giving it a phase "identity" as a nondivergent constituent.[16]

3.1.4. Predicate Fronting

Central to predicate fronting test is whether a constituent can function as a predicate. And if so, is it possible to be fronted? Let us see whether CSs comply with this diagnostic, consider (20).

(20) haaðaa ***kitaab-i***

   this   book-my

  'This is my book.'

That the Arabic CS *kitaab-i* in (20) functions as a predicate is indicated by its use in the nominal sentence. In other words, the pronominal clitic CS (one where the GDC is a pronominal clitic) *kitaab-i* (my book) functions as a predicate and the Dem *haaðaa* functions as its subject/argument. In this case, the CS is a one-place predicate. It can also be fronted as in (21) below.

(21) ***kitaab-i***   (huwa)   haaðaa [t]

   book-my   (it)   this

  'This is my book.'

The same fronting operation can also be applied to the Arabic nominal CS *kitaab-u t-taalib-i* (the student's book) in (22a), which also functions as a predicate.

(22) a. haaðaa ***kitaab-u   t-taalib-i***

     this   book-NOM the-book-GEN

     'This is the student's book.'

    b. ***kitaab-u t-taalib-i***   (huwa) haaðaa [t]

     book-NOM the-student   (it)   this

     'This is the student's book.'

The predicate fronting the CS *kitaab-u t-taalib-i* has undergone in (22b) indicates that not only can CSs comply with this test, but they even surpass CPs. This is due to the fact that CPs cannot function as predicates, though they can be fronted (cf. Matushansky 2005:163).

3.1.5. Real movement

Real movement is necessitated presumably by the EPP or word order/linearization requirement. In this sense, real movement is either an A-movement or A'-movement. In this section, I address the EPP requirement. I return to word order/linearization in Semitic CSs in section 3.2.2.1 for it is much related to our proposal. As for A-movement, it can be exemplified by subject-raising with verbs like *seem*, and A'-movement with wh-movement. Matushansky (2005:163) points out that the domain of a phase cannot be extracted, because it is 'frozen' by its head, but the head can, conforming presumably to Comp-to-Spec constraint on movement. Structures like (23) indicate that Arabic CSs comply with this test.

(23) a. [kitaab-u   t-taalib-i]$_I$ yabd-u (ʔanna-hu) [[t$_i$] jadiid-un]

     book-NOM the-student-GEN seems (that-it)   good-NOM

     'The student's book seems good.'

(23a) is an example of raising structures, where the CS undergoes an A-movement, that is, raising (see also Mohammad 1990, 2000; Fassi Fehri 1993; Shormani 2015). That is, the CS [kitaab-u t-taalib-i] undergoes a raising-movement from the subject position of the verbless sentence (as indicated by [t] coindexed with it) to the subject position of the raising-verb *yabdu*.

Furthermore, a CS can also undergo an A'-movement as (23b) shows.

(23) b. [Ɂayy-a   kitaab-in]ᵢ raɁay-ta   [tᵢ]?

     which-ᴀᴄᴄ book-ɢᴇɴ saw-you

     'Which book have you seen?'

The CS *Ɂayy-a kitaab-in* (which book) undergoes a wh-movement to Spec-CP as a requirement of wh-question formation in Arabic. In Matushansky's (2005) sense, CSs "seem to have more PF-independence than *v*Ps or CPs" (p. 164).

    To conclude this section, it seems that Semitic DP CSs comply with PF phasehood diagnostics, and sometimes they even surpass CPs and *v*Ps. Note that in this section CSs are used as DP-arguments. The fact that a CS can undergo extraposition, clefting (it-clefting and pseudoclefting), isolation, predicate fronting and real movement highlights the PF (i.e. phonological) properties of CSs and qualify them to be phases.

3.2. LF-based diagnostics

    Several authors (see e.g. Abels 2012; Ndayiragije 2005; Chomsky 2001, *et seq*; Matushansky 2005; Bruening 2013; Citko 2014; Legate 1998, 2003) argue that LF phasehood tests or diagnostics consist in that phases are propositional objects, can undergo reconstruction and successive cyclic movements, which target edges of phases. Section 3.2.1 tackles proposition and section 3.2.2 examines reconstruction. I return to successive cyclic movements in Section 4 below.

3.2.1. Proposition

    It has been argued that one property of phases is that they are propositional objects. *v*Ps, for example, are "verbal phrases with full argument structure and CP with force indicators" (Ndayiragije 2005: 265). Although it has been claimed that proposition is a property of phases, I am even not sure if this property holds true. In other words, if we take into account the technical "view of what a proposition is, i.e. a string containing a subject, a predicate and a tense," it seems that TP alone fulfills all these requirements (Ndayiragije 2005: 266). It also follows that CPs and *v*Ps are not phases. If, however, we take proposition to mean a thematic structure, CPs and *v*Ps (and also TPs) fulfill this requirement (see also Ndayiragije 2005, for an extensive discussion on these properties of CPs, *v*Ps, and TPs). In what follows, it is argued that CSs have a full thematic structure, and from a compositional semantics point of view CSs are propositional objects.

A well-known fact of construct state is the theta relationship manifested between the head and its GDC, covering the spectrum of thematic roles typically assigned by the head N to its GDC (Siloni 2001: 129f). The θ-relation between the head and its GDC is manifested by the θ-role(s) each can bear in a particular CS. All in all, the head can bear a θ-role of *Associate, Affected* or *Possessee,* and the GDC that of *Theme, Agent* or *Possessor,* as exemplified in (24a-c, from Arabic).

(24) a. baab-u   sayyaarat-in

     door-NOM   car-GEN

      'A car's door'

   b. taşwiir-u   ʕaliyy-in

     drawing-NOM Ali-GEN

     'Ali's drawing'

   c. kitaab-u   t-taalib-i

     book-NOM   the-student-GEN

     'The student's book'

In (24a-c), the GDCs *sayyaarat-in, ʕaliyy-in* and *t-taalib-i* (car, Ali and the student, respectively) bear the θ-roles of *Theme, Agent* and *Possessor*, respectively. As for the head, in (24a) the head *baab* (door) bears the θ-role of *Associate*. In (24b), *tawşiir-u* (drawing) bears the θ-role of *Affected*, and *kitaab-u* (book) that of *Possessee*.[17]

    From a semantic function perspective, it is argued that each of the CS constituents is of the semantic type <e>. It is also argued that the whole CS is of the semantic type <e,e>, that is, it denotes a semantic function from individual to individual, regardless of the intrinsic feature(s) each constituent has such as [±proper], [±common], etc. Consider the Arabic CS in (25).

(25) al-munfiq-u   l-maal-i

    the-giver-NOM   the-money-GEN

    'The giver of the money'

I assume that since the head N can take the definite article, the head *al-munfiq-u* (the giver) in (25) is of the semantic type <e>. And since the GDC *l-maal-i* (money) also carries the definite article, it has the semantic type <e>, and so, the whole construct will have the semantic type <e,e> (see also Dobrovie-Sorin 2000: 108f, for similar conceptions for Hebrew CSs; her

assumptions are based on non-IS/DS). This also seems to hold true of Arabic CSs, where both the head and its GDC are indefinite as in (26).

(26) a. bayt-u   mudarris-in

   house-NOM teacher-GEN

   'Lit: house teacher'

   b. bayt-u mudarris-in: f(x), where f= house-of and x = [teacher] (cf. Dobrovie-Sorin 2000)

In (26b), the semantic function: f(x) denotes a function from individual to individual. In other words, (26b) means that there is a *bayt* (house) which belongs to *mudarris* (teacher)*,* where the relation between the head and the GDC emphasized is that of possessivization (see also Ouwayda 2010, for different account).[18]

   In case of multi-embedded CSs, Arabic quantificational CSs like (27a) can be used, whose meaning can be expressed in the first order logic formula in (27b).

(27) a. kull-u   bayt-i   mudarris-in

   every-NOM house-GEN teacher-GEN

   'Every teacher's house'

   b. ∀x bayt (x, mudarris)

(27b) means that for every *bayt* (house), such that this *bayt* belongs to *mudarris* (teacher)*,* where the relation of possessivization between the head and the GDC is again emphasized.[19]

   As it turns out, then, examples in (24) suggest that CSs have a *complete* thematic structure, where each constituent in the construct is assigned a θ-role of some sort (see also Siloni 1997, 2001; Fassi Fehri 1993). In (25-27), the examples show that the semantic function *from individual to individual* in the construct indicates that CSs are propositional, regardless of the intrinsic feature each has, and the argumental function the whole CS has in the larger clause, say, TP, for example.

3.2.2. Reconstruction

   Another LF-diagnostic of phasehood is that phases are possible to be reconstructed. In an approach á la Legate (2003), *v*Ps and CPs are phases, because their edges (escape hatches) are landing sites for movement of some sort. CP, for example, is said to have an escape hatch targeted by wh-movement. This escape hatch is sometimes referred to as a left-periphery, which

is occupied by a moved constituent (see e.g. Rizzi 1997). As for English DPs, consider (28, adapted from Matushansky 2005: 165).

(28) a. * Who$_i$ have you taken the picture of t$_i$?

    b. * Who$_i$ have you taken Michelangelo's picture of t$_i$?

Matushansky (2005:166f) argues that the ungrammaticality of (28) lies in that extraction out of an island is blocked by an overt D^0 as in (28a), or by a filled Spec-DP as in (28b). She concludes that possessive DPs in English, specifically 'of,' constructions, do not have escape hatches.

However, there are some other works (see e.g. Gavruseva 2000; Campbell 1991; Longobardi 2001; Kremers 2003) which ascertain that DPs have such escape hatches. Consider the Arabic CS in (29).

(29) a. bayt-u   l-mudarris-i

       house-NOM   the-teacher-NOM

    'The teacher's house'

    b. al-mudarris-u$_i$ bayt-u-hu$_i$ (jamiil-un)

       the-teacher-NOM house-NOM-his (beautiful-NOM)

     'The teacher's house (is beautiful).'

    c. l-mudarris-u$_i$ xaalat-u-hu$_i$ ʔuxt-u   ʔum-i-hi$_i$ (mariiḍat-un)

       the-teacher-NOM aunt-NOM-his sister-NOM mother-GEN-his (sick-NOM)

     'The teacher's aunt's mother's sister (is sick).'

In (29b), for example, the GDC *l-mudarris-u* (teacher) moves from its base-generating position to the escape hatch of the *whole* CS; there is one single movement the GDC under consideration has undergone. However, in (29c), it has undergone two movements. This is shown by the resumptive pronoun, *-hu/hi* coindexed with it. Unlike the English example in (28), the grammaticality of (29b & c) strictly suggests that Semitic CSs have escape hatches, and that it is an available site for reconstruction. Examples like (28) lead Matushansky (2005) to conclude that DPs are not phases (see also Abels 2012; Bruening 2013). The difference between (28) and (26a & b) lies in the fact that in the latter there is an instance of resumption in that the moved element, namely *l-mudarris-u* (teacher), is resumed by the clitic pronoun –*hu/hi*. The resumption is required because of the fact that CSs are islands, movement/extraction out of which is not allowed. Put differently, when resumption takes place in (29a & b), island violation is repaired

(for more on this, see e.g. Benmamoun 1998; Shlonsky 1991, and for more on islands and resumption, see e.g. Demirdache 1991; Boeckx 2003; Shormani 2015).

3.2.2.1. KP, linearization and escape hatches

In this section, I return to the issue that real movement is also necessitated by word order/linearization. Given the assumption, alluded to in section 3.1.5, that linear order of constituents is not specified by/in trees in base-generation process, it is expected that linearization is performed by Spell-Out operation (Chomsky 2000, 2001; Richards 2010). In CSs similar (but not identical) to (30), the movement the head N undergoes from its base-generated position to the surface position has led Ritter (1991) to propose her well-known approach, that is, N-to-D, to the analysis of Semitic CSs (see also Fassi Fehri 1993, 1999; Ouhalla 1994; Benmamoun 2000, 2003). This movement may also be the motivating force of proposing N-to-Spec approach advocated by (e.g. Vicente 2007, Matushansky 2006; Shormani 2014).

(30) al-muʕallim-aa$_i$ n-naas-i   [t$_i$]

the-teacher-NOM.DL   the-people-GEN

'The (two) teachers of the people'

I assume, following Kayne (1994), Walter (2005), and Richards (2010), that the two DP layers have to be linearized before undergoing transfer to PF and LF interfaces. Leaving aside other requirements, to simply think of the obligatory movement the head N in (30) undergoes is perhaps to think of head-first parameter in languages like Arabic and Hebrew (i.e. Arabic and Hebrew are head-first languages, see e.g. Fassi Fehri 1993, 1999; Cinque 1996; 2003).

However, given the fact that these two DPs are of the same type, and since they are in the same Spell-Out domain, as we will see shortly, they cannot be linearized. This is due to the fact that such a linearization violates (31), a linearization algorithm known as *Distinctness Condition* (DC) (see Richards 2010:5).

(31) DC

If a linearization statement <*a, a*> is generated, the derivation crashes.

According to (31), the two DPs in CSs are not linearizable, simply because they form the pair <*a, a*>. In other words, the linearization statement in (31) prevents the CS constituents, that is, the head DP and its GDC to linearize, because they are adjacent and of the same type (see also Kayne 1994).

One way out of this, as suggested by Richards (2010), is to consider the head of the CS to be an NP, that is, deleting the D projection. Put differently, if we assume that the head of a CS is an NP, then, this head can be spelled out without violating (31), because the two DP constituents will be of the form <NP, DP> which is linearizable. However, there is at least one objection to this mechanism, that is, the assumption that the head N can take the definite article as in (30) makes deleting the head D impossible. This is due to the fact that D is not null, which rules out this possibility.

Another mechanism suggested by Richards (2010) is to assign the two DPs different indices, or allowing the linearization statement to refer to the contents of the two DPs (<DP(al-muʕallim-aa), DP(n-naas-i)>), or to their positions (<DP in specifier of XP, DP complement of X>). However, all these ways do not satisfy (31) due to the fact that they all end in <DP, DP> which is again uninterpretable. The reason, as Richards points out, is that they appear as self-contradictory to the linearization algorithm.

Another mechanism suggested by Richards is considering Case to be a property that distinguishes the DP-head from its DP-GDC. He proposes that, unlike Irish, where "Case may not function as a means of linearization" (Richards 2010:73), Arabic (and Hebrew as well see below)"does distinguish nominative and accusative case, perhaps we can take this as evidence that in Classical Arabic [(and Arabic in general)] K is a phase head" (Walter 2005: 12, Richards 2010: 211).

Although Hebrew does not have Case markers to distinguish nominative from accusative Case, for example, the fact that the accusative/objective marker (OM) *et* precedes (definite) objects as in (32) indicates that Case can be used as a distinguishing property in Hebrew, the same way it is in Arabic.

(32) raʔati   et   ha-mora

    saw-I   OM   the-teacher

    'I saw the teacher.'

As far as CSs are concerned, Gen Case assigned by the head to its GDC may well be argued to be a distinguishing property. Consider the Arabic examples in (33).

(33) a. qatl-u   l-ʔinsaan-i   laayajuuz-u

    killing-NOM   the-human-GEN   not   allowed

    'Killing the humans is not allowed.'

b. raʔay-tu kitaab-a t-taalib-i

saw-I   book-ACC the-student-GEN

'I saw the student's book.'

c. marar-tu bi-ʔustaað-i   n-naħw-i

passed-I by-teacher-GEN the-syntax-GEN

'I passed bythe teacher of syntax.'

In (33), the DP-GDCs in (30a-c), namely *l-ʔinsaan-i, t-taalib-i* and *n-naħw-i* are (and always) assigned Gen Case, regardless of the Case assigned to the DP-heads. This lends us strong support to hypothesize that Gen Case is a distinguishing property that distinguishes the GDC from its DP-head (cf. Shormani 2016).

In her proposal of null D analysis to CSs, Ritter (1991) argues that D in CSs is different from D in simple DPs, holding that since D in the former is spelled out as null, the head D_{Gen} can be associated with assigning Gen Case to the GDC. As for the latter, Ritter argues, since D is spelled out as *ha-/al-*, this D cannot be associated with assigning Gen Case (see also Fassi Fehri 1993, 1999; Borer 1996; Danon 2001, *et seq*, among other related works). Given this, and given also the facts discussed in section 2 that the head N can take the definite article, D in CSs cannot be associated with Gen Case assignment. If this is true, it follows that there should be a functional projection associated with Gen Case assignment. It is assumed that this projection is KP, an extended projection dominating the CS's two DPs.

Given also the assumption that GDCs are 'phase Spell-Out domains' by virtue of being assigned Gen Case by their heads (cf. Shlonsky 2004), I assume, following (Richards 2010; Walter 2005), that a CS is a phase KP headed by K whose Spec is an *escape hatch,* and the two DPs are K's domain. For linearization to take place and for DC to be satisfied, I propose *Extract Mechanism* (EM) in (34a) for CS in its minimal form.

(34a) EM

Extract every DP-head to every assembled KP's escape hatch.

(34a) states that when a CS-KP phase is assembled, the DP-head has to exit the domain of K, and raise to K's escape hatch. This is roughly schematized in (34b) below.

(34b)
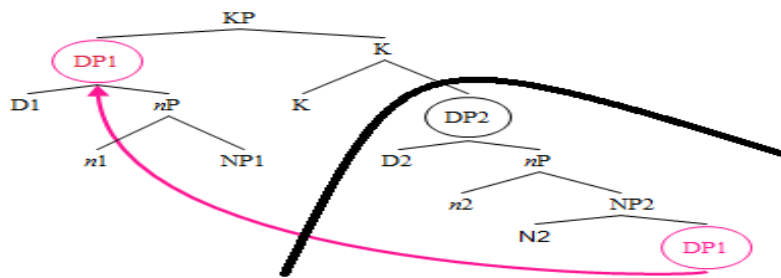
As is clear in (34b), the DP1 (i.e. the head) exitsthe K's domain and raises to K's escape hatch (i.e. Spec-KP). K then forms a phase boundary shielding DP2 and prevents it to linearize with a higher instance of D (Richards 2010: 71ff). Given the parallelism between the clausal and nominal domains assumed by several authors (see e.g. Loebel 1994; Mohammad 1988; Bittner & Hale 1996; Richards 2010; Carstens 2000, 2001; Walter 2005; Alexiadouet al. 2007; Benmamoun 2003; Travis & Lamontagne 1992; Bruening 2009), I assume that KP parallels CP, DP parallels TP and VP parallels NP. *n*P is also taken as a thematic-oriented functional projection headed by the light *n* (which parallels *v*P) as an outer projection of the NP, where *n* "selects and θ-marks a possessor or agent argument" (Carstens 2001: 154).

As it turns out, then, KPs/CSs even in their minimal form have escape hatches. However, it seems that (34) may not be available in multi-embedded CSs (where two or more embedded CSs are involved). To overcome this challenge, let us assume that in multi-embedded CSs, every embedded CS is a phase KP embedded within a larger one, which in turn is embedded within a larger one, and so on. I propose *Multiple Extract Mechanism* (MEM) in multi-embedded CSs formulated in (35) for linearization to take place, and the DC in (31) to be satisfied.

(35) MEM

Extract every completed KP to every assembled KP's escape hatch.[20]

(35) simply states that in multi-embedded CSs, when a higher KP (i.e. CS) is assembled, the lower completed KP has to be extracted out of the domain of this (higher) head K for linearization to take place and for the domain of this (higher) KP to transfer, thus spelled out, taking into account the possibility of 'iterating extract.'[21] The notion 'iterating extract' explicitly implies that there are SCMs involved to the edges of CSs. This property gives CSs the status of phases as we will see in the next section.

3.3.   Syntax

One consequence of the proposal pursued here is that if KP/CS is a phase, it is, then, expected that a CS is feature-saturated, or otherwise, the head K is ɸ-*complete*, in line with phase heads in general (see Chomsky 2001, 2005, 2007, 2008). I also take syntactic properties of CSs to be feature-wise, but not structure-wise. I examine the CS feature-wise facts, and how they result from phasehood status of CS. Central to phase theory is how the internal structure and features are handled. Chomsky (2001, *et seq*) proposes that phase heads are ɸ-*complete*, in the sense that their internal arguments are feature-saturated (see also Matushansky 2005; Legate 2003; Citko 2014, among other related works). Furthermore, Chomsky proposes the feature valuation mechanism to solve a problem with interpretability of features as an LF operation. Basically, interpretability of features is a semantic notion, that is, a feature is interpretable if it has semantic content, but how this feature behaves and what function it does in the KP-internal structure belongs to syntax. Our concern in this section is thus to seek answers to questions like: What are the features of K as a phase head?, How does K project?, What are the features of other heads, viz. D and N, that exist within KP, and How exactly is Gen Case assigned/checked/valued in CSs?

Since K is a phase head, as assumed above, there should be some other features K should have as characteristic to phase heads in general. Given this, I hypothesize that K in CSs has the set of features presented in (36).

(36) {[uɸ; GEN;uD]}.

As for ɸ-features, I assume that K is ɸ-*complete*. I also take K to be the locus of ɸ-features/*Agree* features by analogy with the CP phase (cf. Chomsky 2005: 18, 2008: 143). If this is true, it follows that K presumably transmits *Agree* features to D, as "transmission of the *Agree* feature should be a property of phase-heads in general, not just of C" or *v** (Chomsky 2008: 148). Put differently, D should inherit *Agree* features from K (in the syntax)in the same way T inherits *Agree* features from C.[22]If D inherits ɸ-features from K, it follows that D has ɸ-features, in addition to [DEF] feature. These features are unvalued (and uninterpretable) on D, but valued (and interpretable) on N.[23] Finally, the feature [uD] of K signals the c-selectional property of K, that is, it selects a DP as its complement.

Furthermore, given the assumption that a phase head is a Case-licensing-head (see e.g. Bruening 2013; Citko 2014; Richards 2010; Matushansky 2005; Legate 2003; Chomsky 2001,

2008), it follows that K licenses a Gen Case. A direct stipulation is that K has the feature [GEN]. K thus enters the derivation with [GEN] feature unvalued (and uninterpretable). But the GDC enters the derivation with [GEN] feature valued (and interpretable). An *Agree* relation is established between K and the GDC, the result of which is valuing K's [GEN] feature.[24] Once features are valued, they get deleted in the syntax in order for the derivation to converge.

A relevant question that might be addressed here is: why is it that the head D is not the phase head? One way to answer this question goes as follows. The assumption that D is not ɸ-*complete*, hence it enters the derivation "unspecified" for ɸ-features, has been noted by several authors (see e.g. Carstens 2000, 2001; Ritter 1991; Danon 2011). Ritter (1991) was perhaps the first to note such a property, holding that there are some languages in which number and gender features do not originate from the same head (see also Danon 2011). In these languages, number, for instance, is not marked by morphological markers on the noun, but rather by independent words. Given this, Ritter proposes her Num(ber)P projection, solely for number feature within the DP projection. In her N-to-D approach, the head N, while moving to D, passes by the head Num where it acquires this number feature.

To illustrate, Hawaiin`i and Walloon could be taken as illustrative examples of languages, where number is marked by separate words. Consider the Hawaiin'i example in (37a, from Dryer 2005: 138) and the Walloon example in (37b, from Bernstein 2001: 556).

(37) a. ʻelua aˋu mauiˋa

two my.PL   fish

'My two fish'

b. dès   vètès ouh

some green doors

'Some green doors'

In (37a), the Hawaiian'i numeral *ʻelua* separately marks the DL/PL number feature and the head N *mauiˋa* is not marked for number feature by means of morphological markers. The same thing can be said about the Walloon *dès* in (37b). As for the assumption that D does not have gender nor person feature, see (e.g. Danon 2006, 2011; Carstens 2001, and the related references cited therein).

As for Case, following Abney (1987), Carstens (2000, 2001) argues against the assumption that D is associated with Case feature. Carstens, therefore, proposes KP as an

extended projection of DP for genitive noun phrases in Bantu and Afro-Asiatic languages like Swahili. Carstens argues that DP-analysis to concord in 'of' constructions imposes several problems for *Agree* relation. This is due to the fact that 'of' agrees with the head noun, rather than with its apparent complement. He thus argues for KP, specifically for this particular structure, holding that in 'of' constructions "[s]ubject and theme arguments …are KPs" (Carstens 2000: 331).

The assumption that D enters the derivation "featureless," and that it is K which is ɸ-*complete* is straightforwardly accounted for in the analysis advanced here. In the syntax, however, D inherits these *Agree* features from K. This makes it possible to argue that D is not ɸ-*complete* "on its own," and hence cannot count as a phase head. Given this, I have now enough space to explain that in (30) the KP-CS is not of the sequence <D2, *n*2, N2, <DP1>> before Spell-Out (simply because D is not a phase head). And so, DP1 cannot be spelled out 'once it is completed, or, alternatively, once the higher D is merged in,' on the one hand. On the other hand, if we assume that it were spelled out as such, then, the CS in (30), for instance, would get spelled out as *al-naas-i al-muʕallim-aa*, that is, with the *inverse* word order <GDC, DP-head>, which is ungrammatical. Another objection to this Spell-Out is that DP1 cannot be spelled out in this point of derivation, because its Case feature is still unvalued in the (narrow) syntax.[25]

Let us now concrete our discussion by considering the multi-embedded CS in (38), whose derivation is presented in (39) from Arabic and see how the proposed analysis accounts for these CSs (cf. Shormani 2016).

(38) kitaab-u   mudarris-i   ħasuub-i   kulliyat-i   t-tarbiat-i

    book-NOM   teacher-GEN   computer-GEN   college-GEN   the-education-GEN

    'The college of education's computer's teacher's book'

(39)
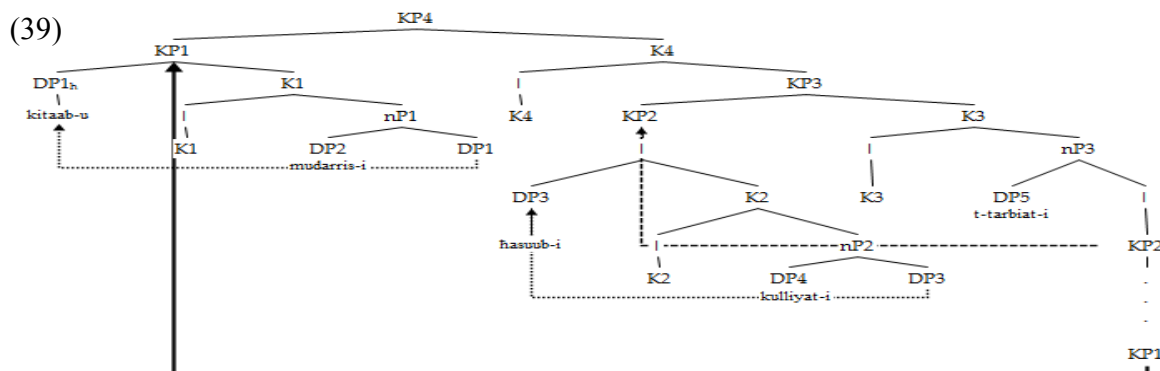
In (39), the multi-embedded CS consists of four heads, namely *kitaab-u, mudarris-i, ħasuub-i,* and *kulliyat-i* (book, teacher, computer and college, respectively), four GDCs, namely *mudarris-i, ħasuub-i, kulliyat-i* and *t-tarbiat-i* (teacher, computer, college and the education, respectively), and four phases, that is, KP1, KP2, KP3 and KP4. As is clear in (39), there are several movements undergone by different constituents: DPs and KPs, but within the same CS. These movements seem also to be cyclic in nature.

Given (34), a phase KP, when assembled, the head DP exits the domain of K, and targets Spec-KP. Generally, every head K constitutes a phase boundary, 'shielding' the DP K "dominates from linearization with a higher instance of D," (Richards 2010: 72), and thus satisfying the DC in (31). When that is done, the GDC gets frozen, and hence satisfying the PIC. Given our assumption that in multi-embedded CSs, an embedded DP functions as both a head and a GDC, when the whole phase is completed, an embedded KP undergoes an extraction operation to the escape hatch of a higher phase, thus satisfying MEM in (35). Given this, let us see how (39) accounts for (38).

In (39), there are four phases, namely KP1, KP2, KP3 and KP4, each of which represents one Spell-Out. For ease of exposition, several details in (39) are excluded. When KP1 is assembled, the head DP1 undergoes an extraction process to Spec-KP1. When KP1 is completed, the whole of it exits the domain of K2, and targets Spec-KP4 (i.e. KP4's escape hatch). The same thing can be said about KP2. In other words, when KP2 is assembled, its head, that is, DP3 undergoes an extraction process to Spec-KP2. But when KP2 is completed, it exits the domain of K3, and targets Spec-KP3. After all the embedded CSs (i.e. KP1, KP2, KP3) are spelled out, the whole CS (i.e. KP4) is sent to the PF and LF interfaces for processing, where it is assigned its phonological and semantic form, and finally spelled out. Note that DP5 does not undergo extraction, simply because it is the domain of KP3, and KP3 itself does not also undergo extraction, simply because it is the domain of KP4, that is, the end of the cyclicity.

Furthermore, in (39), there are multiple Spell-Outs. That is to say, when a CP-phase is assembled, its DP-head undergoes an extraction operation to its Spec (i.e. escape hatch), and hence its domain gets spelled out. When this CP-phase is completed, it gets spelled out, thus another Spell-Out. When it exits the domain of a higher phase, this domain gets spelled out, another Spell-Out once more. When this higher phase is completed, it gets spelled out, yet another Spell-Out, and so on. All in all, when a phase is completed, it gets transferred to the PF

and LF interfaces for processing, and Spell-Out operations. In turn, every domain, that is undergone an extraction from, also gets spelled out. The same thing happens the more embedded CSs are involved, given the possibility of 'iterating' these embedded head-GDCs (or KPs). Interestingly, in (39) there are already five Spell-Outs: three DP-domains, namely DP2, DP4 and DP5, and two KP-domains, namely KP2 and KP3. Note that DP3 is spelled out within KP2 (i.e. as part of it). Note also that there are two "waiting" Spell-Outs, namely that of KP1 and KP4. KP1 is not yet spelled out, because there is a DP, namely DP1 in its Spec which is still accessible to outside operations (say, *Agree* with T/v), thus conforming to PIC. KP4, which is the whole CS, is still not spelled out, too. KP4's Spell-Out is, in fact, conditioned by the Spell-Out of KP1 (in its Spec), again, conforming to PIC.

There are also multiple SCMs. When a CS-KP is assembled, its DP-head undergoes syntactic movement to its Spec. When this CS-KP is completed, it raises to the Spec of a higher CS-KP. The same successive cyclic movement operations apply the more higher KPs are involved, and so on. In short, CSs like (39) provides us with *strong empirical evidence for SCMs, on the one hand, and multiple Spell-Outs, on the other*, two of the most substantial properties of phases (cf. Shormani 2016, see also Chomsky 2001, *et seq*).

4.   Conclusion

In this article, I have provided empirical evidence that DP CSs comply with all LF-based, PF-based and syntax phasehood diagnostics. And sometimes CSs even surpass *v*Ps and CPs in meeting a particular diagnostic, which adds strong support to the claim that Noun Phrases are phases. These diagnostics have successfully been applied to CSs, though sometimes applying a particular diagnostic to *v*Ps and CPs is not uncontroversial. For example, based on some evidence, Ndayiragije (2005) concludes that proposition and extraction are not strong enough to decide for sure what is and what is not a strong phase. He argues that there are languages (like Fongbe, see also Ndayiragije 2000), where TPs can be extracted. In some contexts, even English CPs are not extractable. There are also those (e.g. Butler 2005) who even argue that based on such tests there are some contexts like (40), where *v*Ps are not phases, but rather VPs and TPs are.

(40) Who bought what?

Butler argues that though (40) is a phase, it seems it is nonpropositional. It might be nonpropositional due to being a double question, or it might be nonpropositional since it exhibits vacuous quantification, due to the fact that neither of the wh-operators binds a variable (see also Chomsky 2008, for different views).

There are also some implications that could be drawn from the analysis proposed here. One such implication concerns the strong support the article adds to the current assumption that DPs are phases (see e.g. Bruening 2013; Matushansky 2005). However, it may well be argued that DPs are KPs (cf. Alexiadou et al 2007; Loebel 1994; Mohammad 1988; Bittner & Hale 1996; Carstens 2001; Richards 2010; Walter 2005). In other words, since D may be ϕ-*incomplete*, under 'feature transmission' from K, as assumed in the proposal developed here, KP could be thought as an extended projection of noun phrases cross-linguistically. Given our conclusion that KP is a phase, it, then, follows that DPs are phases.

Another implication concerns the extension of phase approach to nonstandard Arabic CSs. For example, it could be applied to the analysis of nonstandard CSs and Free States or FGs. The latter structures consist minimally of two constituents, namely a DP-head and a PP-complement. Taking our stipulation that Case is a distinguishing property of states, be they construct or free, it could be argued that the head of the latter undergoes a linearization operation, whereby the head DP exists the domain of K to its Spec. However, if we take into consideration some proposals in the literature (see e.g. Abels 2012; Bruening 2013; Richards 2010) that PPs are phases, the same (though not identical) mechanism applies, specifically if PPs have escape hatches. In this case, it could be claimed that the head DP undergoes an internal merge to Spec-PP.[26]

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[*]The following abbreviations are used throughout this article. ACC = Accusative, CP = complementizer phrase, Dem = demonstrative. DL= dual, EPP = Extended Projection Principle, F = feminine, GEN = Genitive, K = Case, M = masculine, NOM= Nominative, PL= plural, S = Singular, TP =tense phrase. Those abbreviations and acronyms that are not mentioned here are indicated in the first use. In this article, I focus mainly on analyzing nominal Construct States in Arabic and Hebrew. The varieties involved of both languages are Standard Arabic and Modern Hebrew; whenever another variety is involved, it will be indicated in context.

[1]The debate lies in that there are many questions as to whether DPs are phases that remain unanswered up to date. These questions include subjecting DPs to the phase diagnostics, usually applied to CPs and vPs, the categorial status of these projections, among others. Such issues, in fact, need more exploration as "there are no clear answers to many questions including these" (Noam Chomsky, p.c.).

[2] It should be noted that Dems like *haaðaa* in Arabic can function as modifiers only under some conditions, the most important of which is that the noun following it must have *al-* as in (ia), and not simply definite, say, inherently definite, as in (ib), for instance.

(i) a. haaðaa   l-walad-u
       this   the-boy-NOM
'This boy'
    b. haaðaa   muḥammad-un
       this   Mohammed-NON
      'This is Mohammed.'

Since the condition of having *al-* is not maintained in (ib), that is, the noun *mohammadun* following *haaðaa* does not (and in fact cannot) have *al-* attached to it, it functions as a predicate (though it is definite, i.e. inherently definite). Another point that can be noted here is that while *ʔab* in (2a) can function as a head of a CS whose GDC is the possessive pronoun *–i* (my), *mohammadun* cannot; the former being a common noun, andthe latter is a proper one.

[3]Note also that the GDC of the deverbal head N *al-mutqin-aa* in (6) can be assigned an Acc Case, but then the deverbal head N must have the dual suffix *-ni*. One condition to consider such deverbals to be heads of CSs is that the final dual suffix cannot be retained.

[4] Traditional Arabic grammarians argue for the possibility of *al-* to be attached to the head N in CSs. For instance, Ibn Malik (III:73f) mentions five contexts, where *al-* can be attached to the CS. It should also be noted here that CSs like (6 & 7) are referred to in traditional Arabic grammar as *Idaafa ɣair haqiiqiyah* (untrue construct state). Being untrue construct state, Arab grammarians like Sibawaih argue that in such CSs the head N can take the definite article *al-*. But for simplicity of presentation, I set aside the difference between true and untrue CSs (for a comprehensive discussion on such issues, see Al-Aboudi 1985; Wright 1989).

[5]Additional support for this claim comes from Yemeni Arabic (YA). Consider (i) which is very productive in the language.

(i) al-ṣaħn   l-kabiir   l-zijaaj
   the-dish the-big   the-glass
   'The big dish made of glass'

In (i), both the head N and the GDC, *al-ṣahn* and *l-zijaaj*, respectively, take the definite article *al-*. The fact that the AP modifier *l-kabiir* occurs between the head N and its GDC in examples like (i) also provides strong support for the fact that the head N and the GDC can be separated from each other. Along these lines, Ouhalla (2009:329) argues against Siloni's (2001) claim that a CS is a prosodic word. He has reported on some facts from Spanish Arabic, as illustrated in examples like (i), where not only the definite article *al-* is attached to the head N, but also the AP modifier can intervene between the head N and its GDC.

(i) al-kās   al-ṣaɣiira   al-fiḍḍa
   the-cup.M   the-small.M   the-silver.F
   'The small silver cup'

[6] Further examples supporting (7) include CSs like (i):

(i) al-ʕaalim-u   š-šarq-i   ʔawṣat-i
   the-scientist-NOM   the-east-GEN   middle.GEN
   'The scientist of the Middle East'

In (i), both the head N and its GDC take the definite article *al-*.However, (i) differs from examples in (7) in that the head N *al-ʕaalim*(the scientist) is singular.

[7] As for Hebrew, Engelhardt (2000: 71) argues that definiteness spread does not take place in CSs in some contexts where definites are not allowed as in (i):

(i) a. ruti mevala et zmana   be-/*ba-ktiva
      ruti spends OM time   in-/*in.Def-writing
      'Ruti spends her time writing.'
   b. ruti mevala et zmana   be-ktivat ha-sefer
      Ruti   spends OM time.3F.SG in-writing the-book
      'Ruti spends her time writing the book.'

Engelhardt argues that the sentence in (ia) the complement of the preposition *be-* 'in' in such sentences must be indefinite: the PP where *ba-ktiva* (in the writing) is definite renders the sentence ungrammatical. The same thing can be said about the CS *ktivat ha-sefer* in (ib).

[8] In the examples in (9), translation is not provided in the source these examples have been taken from. The translation is my own and it has been approved by (Gabi Danon, p.c.).

[9] The assumption that the head of a construct state can take the definite article is also supported by adjectival CSs (=ACSs). ACSs are construct states whose head and GDC are adjectives. Consider (i), from Arabic.

(i) a. r-rajul-u   l-kaamil-u   l-ʔawsaaf-i
      the-man-NOM   the-perfect-NOM   the-features-GEN
      'The perfect-featured man'
   b. al-maraʔat-u   l-jamiilat-u   l-wajh-i
   the-woman.NOM   the-beautiful.NOM   the-face-GEN
   'The woman with the beautiful face'

In (i), the head of the construct and the GDC take the definite article *al-* (see also Siloni 2002, for Hebrew ACSs, and Kremers 2009, for Arabic ACSs).

[10] See, for instance, Ibn Jinni (322-392, in his book *al-xasaaʔis* 'The Properties', who assumes that the inability of the head N to take *al-/–n* is due to a factor underlying the formation of the construct itself. This factor may be the association of the GDC with the head N. For modern Arab linguists, who support this assumption (see e.g. Wright 1989; Alanbari 1997; Alshara'i 2014).

[11] Additional examples supporting our claim that D is an independent head include (ia), from Arabic, and (ib & c) from Hebrew.

(i) a. al-laa-ʔinsaanyyat-u   (ṣifat-un   maðmuumat-un)
      the-not-humanity-NOM   (quality-NOM   disliked-NOM)
      'The inhumanity (is a disliked quality).'
   b. Ze kvar [ha-pakid   ha-**legamrey**   mebulbal ha-revi'i] Se-dibarti   ito   hayom
      this already the-clerk the-**completely** confused the-forth that-talked.I   with-him today
      'This is already the forth completely confused clerk I've talked to today.'
   c. [ha-mis'ada   ha-**lo**   kSera ha-yexida be-bnei brak] nizgera ha-Savu'a.
      the-restaurant the-**neg**   kosher the-sole   in-bnei brak closed   this-week
      'The only non-kosher restaurant in Bnei Brak closed this week.'

In (ia), the negative particle *laa-* 'not' intervenes between *al-* and the head N *ʔinsaanyyat-u*, which is very productive in the language. In (ib & c), Sichel (2002: 303) argues that in Hebrew CSs, *ha-* is an independent element, building her conclusion on two facts: i) an AP functioning attributively can intervene between *ha-* and the head N, as in (ib), and ii) a negative particle can intervene between *ha-* and the head N as in (ic).

[12] I will take *v*P to stand for *v**P (i.e. a phase), and wherever it is not a phase, it will be indicated.

[13] I refer to *v*P and CP throughout these sections, showing how these constituents seem (in)compatible with phasehood diagnostics by way of comparison with CSs. However, a detailed account of such (in)compatibility is beyond the scope of this

paper. For more on such (in)compatibility, I refer the reader to work by (e.g. Abels 2012; Butler 2005; Citko 2014; Ndayiragije 2005).

[14] Note that the example in (15a) is taken to be a sort of topic-comment structure, in which the topic *tafkiir-u   t-taalib-i* is a DP and the predicate is a verb. After transposition, the sentence becomes a sort of VOS structure, but not VSO one (see also Shormani 2015).

[15] Legate (1998) refers to verb phrases used in isolation as "Mad Magazine." These sentences involve *v*P structures used in isolation such as *Me teach English*? (see also Legate 1998:6f).

[16] There is, however, a problem identified by Matushansky (2005) with respect to this test, that is, there are some constituents like TP (though not a phase), which can be isolated. Though CSs 'pass' this test, TP can be isolated; this casts some doubts on the compatibility of 'isolation' as a test for phases.

[17] Interestingly, there is a matching relation between the θ-role of the head N and that of its GDC. For example, the θ-role of *Theme* meets *Associate*, *Agent* meets *Affected* and *Possessor* meets *Possessee*.

[18] Ouwayda (2010) argues that there are two types of CSs: individual and modificational. The former refer to those CSs which have FG equivalents as in (i), and the latter to those which have no FG counterparts as in (ii).

(i) a. kitaab-u   t-taalib-i
       book-NOM   the-student-GEN
       'The student's book'
   b. kitaab-un li-t-taalib-i
       book-NOM   for-the-student-GEN
       'A book belonging to the student'
(ii) a. baab-u   s-sayyaarat-i
        door-NOM   the-car-GEM
        'The car's door'
    b. *baab-un li-s-sayyaarat-i
        door-NOM   for-the-car-GEN

Note that the FG in (iib) is ungrammatical only if the GDC, that is, s-*sayyaarat-i* bears the θ-role of possessor. However, I abstract away from Ouwayda (2010) whose assumptions were based mainly on IS/DS. According to her, the head of the individual CS as in (i) is a relational noun (of type <e,<e,t>>). But her analysis is based on the IS/DS assumptions, which is not in line with the analysis developed here, so I ignore it.

[19] Another diagnostic identified by Radford (2009) is fragmentation, a property of spoken language. Radford makes use of fragmentation as a test for proposition, and applies it to *v*Ps. He argues that if *v*Ps as phases have full proposition, they are expected to serve as fragments, consider (ia-c).

(i) a. What has the man done?
    b. *Written a book*.
    c.*Has written a book

The string *written a book* is a *v*P phase whose head is *v*, viz.*written*, and whose domain, undergoes a transfer to the PF and LF interfaces for processing, hence spelled out as *written a book*, which serves as a fragment. The inability of (ic) to function as a fragment indicates that it does not have full proposition. From a phase perspective, however, the ungrammaticality of the string *Has written a book*, could be accounted for in terms of the fact that T *has written a book* is an intermediate projection, hence not aphase. Consider also (ii) exemplifying and illustrating that a CS can also undergo fragmentation process, where the CS *ta?riix-a l-waḥdat-i* 'the unity's history' in (iib) serves as a fragment.

(ii) a. maaðaa šaraḥa   l-mudarris-u?
        what   explained   the-teacher-NOM
        'What did the teacher explain?'
    b. taarix-a   l-waḥdat-i
       history-ACC   the-unity-GEN
       'The unity's history'

[20] A phase *a* is assembled when its domain is sent to interfaces, and when it is completed, the whole of it is sent to interfaces for processing, and thus spelled out.

[21] Following Moro (2000), Richards (2010: 88) applies DC to phases. He proposes moving a constituent to exit the Spell-Out domain to avoid violating the DC in linearizing two nodes of the same type.

[22] Given our assumption that the head of a CS can take the definite article, it is expected that D does not have Case feature. Nor does it inherit this feature from K. This is due perhaps to the complementary distribution between [+ Def] and [+ Gen] proposed by Ritter 1991, as noted above).

[23] The fact that D in Semitic inherits ɸ-features from K ensues from: i) modification as (i) shows, and ii) predication as (ii) shows.

(i) al-munfiq-aa   l-maal-i   l-kariim-aani
    the-giver-NOM.DL   the-money-GEN   the-generous-NOM.3M.DL
    'The (two) generous givers of the money'
(ii) bayt-u   l-mudarris-i   kabiir-un
     house-NOM.3MS   the-teacher-GEN   big-NOM.3MS
     'The teacher's house is big.'

As is clear from the gloss in (i), the AP modifier *l-kariim-aani* agrees with the head N in all φ-features. The same thing can be said about the predicate *kabiir-un* in (ii). This is also supported by agreement (concord) in languages like French and German, where D exhibits φ-agreement with the head N (though person is not clear). Consider the French example in (ia) and the German one in (ib, cf. Danon 2011).

(i) a. la   belle   femme
    the.FS beautiful-3FS woman.3FS
    'The beautiful woman'
  b. Der   grüner   bus
    the.3MS.NOM green.3MS.NOM bus.3MS.NOM
    'The green bus'

As is clear in (ia & b), D agrees with the head in number and gender, hence adding some sort of support to our claim that D has *Agree* feature, and that this *Agree* feature is presumably transmitted from K in the syntax.

[24] The assumption that D is Caseless comes from the fact that the unvalued Case feature of the head N depends in its valuation on an *Agree* relation established between the whole DP-head and an external head, possibly T/v.

[25] In addition, if we consider the DP node a phase, probing into it for φ-features would be problematic (see e.g. Gutiérrez-Bravo 2001; Svenonius 2004; Shlonsky 2012). For example, Shlonsky (2012: 274) argues that projections like "Num or N embedded within DP" would not be accessible to outside probing, say by T/v, though "[t]he edge of DP, that is, its spec or its head, namely Det, are accessible to" such outside probing.

[26] It is controversial as to whether nonfunctional categories are phases. For example, Abels (2012) claims that PPs are phases, though PP is said to be a lexical projection. Abels argues that PPs are phases whose specifiers are escape hatches which could be targeted by movements. Though TPs are functional projections, they are said to be not phases. However, Butler (2005) argues that TPs may be phases. On such issues, among others, I refer the reader to work by (Abels 2012; Bruening 2009, 2013; Matushansky 2005; Svenonius 2004; Citko 2014; Butler 2005; Gutiérrez-Bravo 2001; Ndayiragije 2005).