

These examples illustrate that VocP is the topmost projection, and that TopP is higher than ForcP. In (37b), the complementizer, i.e., *ʔinna* is base-generated in Forc⁰.²²

What remains for us to explain is the feature specifications of the heads Voc⁰ and Top⁰ in our system, and I tackle these in the following sections.

3.2.1. Voc's specifications

Recall that vocatives are reduced to vocative particles. It follows that Voc⁰ may not be a phase head in the C-domain, hence not the locus of C's features. Bearing in mind (15) and (36), let us examine the feature specifications of Voc⁰.

To begin with, vocative particles, overt or covert, are transitive in some way, in that they select for some elements as complements, as illustrated in (38).

- (38) a. *yaa
 voc
- b. *yaa l-bint
 voc, the-girl!
- c. yaa bint!
 voc girl!
 ‘Hey, girl!’

The ungrammaticality of (38a) indicates that the vocative particle must have a complement. This indicates that Voc⁰ has a c-selectional (constituent selection) feature. Since the vocativized constituents we are dealing with in this study are only nominals, I call this c-selectional feature [N].

The contrast between (38b) and (38c) suggests that the complement cannot be definite. In all the examples discussed so far, the use of the vocative particle *yaa*, for instance, indicates that it specifies, identifies or picks up a person or a group of people as addressee(s). It thus makes its NP-complement specific. This implies that the head Voc⁰ has a specificity [Spcty] feature. Further, since Voc⁰'s complement *always* represents the addressee, then, Voc⁰ has an addressee [Adrs] feature. Finally, since the “addressee” is (always) characterized as a 2 person entity, then Voc has a 2 person [2Pers] feature.

In what follows, I discuss and account for the obligatory presence of these features on the head Voc⁰. As for the specificity feature the head Voc⁰ has, consider (39).

²² Shormani (2017) provides empirical evidence from Standard Arabic that *ʔinna* is base-generated in Forc⁰ which gains support from the declarative nature of the clause type. I take *ʔinna* to be a marker of declarativeness (cf. Ross 1970, Chomsky 1995).

- (39) a. *yaa* *ʕali*, *taʕaal!*
 voc *Ali*, come
 ‘Hey Ali, come!’

In this example, it is clear that the vocative particle *yaa* specifies *Ali* and no one else from among a group of people. The situation may also involve several people named, for instance, *Ali*, *Ahmed*, *Khalid*, and even feminine entities such as *Alia*, *Fatima*, *Zaynab*, etc., but the speaker (with the help of the vocative particle *yaa*) calls/addresses only *Ali* out of all these people. This specificity can also be taken as a distinguishing feature of vocative particles, in that the vocative particle renders an indefinite constituent specific (cf. also Stavrou 2013, Hill 2014). Thus, this obligatory presence of the [Spcty] feature on the head Voc^0 comes from the interpretation, being a discourse requirement. Regarding the addressee feature, it is also clear that the use of vocative particles is intended to address an interlocutor. As illustrated in (39) above, what makes *ʕali* the entity that is addressed is *yaa*.²³

It is widely held that vocatives are always 2 person entities. (40) demonstrates that only 2, but not 1 or 3, pronoun is possible.

- (40) a. *heeh* *ʔant-i*
 voc you-FS
 ‘Hey you!’
- b. **heeh* *ʔana/naħnu*
 voc I/we
- c. **heeh* *hua/hiya!*
 voc he/she

It turns out, then, that the head Voc^0 is the locus of specificity, addressee and 2 person features in vocative constructions. Thus, given (15), and bearing in mind what we have discussed so far, (41) is hypothesized.

(41) Voc^0 is a discourse-based position in the C-domain; it is endowed with [Adrs], [Spcty] and [2Pers] features, and yields a performative expressive meaning.

(41) states that the head Voc^0 is a discourse-based position, and it is this head that specifies, identifies or picks up a person from among a group of people as the addressee. Due to being endowed with

²³ It should be noted that in cases where the vocative particle is absent, it is expected that, although the head Voc is null, it is what specifies an entity as the addressee, and hence vocativizing the A-topic.

[Adrs], [Spcty] and [2Pers] features, it yields a performative expressive meaning that vocativizes this *identified* person/entity.²⁴

3.2.2. Top's specifications

If VocP is not a phase, as assumed above, then TopP, headed by Top^o, can be taken as a phase in the C-domain. If so, it must exhibit the characteristics of phase heads in general, i.e., it must have the feature composition of C: ϕ -features and Tense (cf. Chomsky 2001, *et seq*). As for the former, Arabic provides strong empirical evidence that C has ϕ -features as shown in (42), where the C (i.e., the relative pronoun) agrees with the DP it introduces in all ϕ -features (from Shormani 2017).²⁵

- (42) a. *t-taalibu* *llaði* *jaaʔ-a* *pro* *ʔams-i*
the student.3MS who.3MS came-3MS yesterday-GEN
‘The student who came yesterday.’
- b. *t-tullaabu* *llað-iina* *jaaʔ-uu* *pro* *ʔams-i*
the-student.3MPL who-3MPL came-3MPL yesterday-GEN
‘The students who came yesterday.’
- c. *qabal-tu* *t-taalibata* *llati* *jaaʔ-at* *pro* *ʔams-i*
met-I the student.3FS who.3FS came-3FS yesterday-GEN
‘I met the (female) student who came yesterday.’

In examples (42a-c), C (i.e., *llaði*, *llað-iina* and *llati*, respectively) agrees with the constituent it introduces, namely *t-taalibu*, *t-tullaabu* and *t-taalibata*, respectively, in all ϕ -features. (T's inheritance of ϕ -features and tense from C, I will return to in section 3.3.3).²⁶

The assumption that C has a tense feature is advocated cross-linguistically. For example, Adger (2007: 34) argues that C in Irish exhibits a past and non-past tense contrast, as illustrated in (43).

- (43) a. *Deir* *sé go* *dtógfaidh* *sé an peann.*
say.PRS he that take.FUT he the pen
‘He says that he will take the pen.’

²⁴ Note that your argument that second person is a crucial feature of vocatives is partly challenged by Brazilian Portuguese, in which one may call to a group "Ó, gente!". The word [gente] is grammatically third person and singular, but is also used as a first person plural, so "A gente vai estudar." (literally "the people goes to study") means "We're going to study." If second person is a central feature in vocatives, it requires explaining how feature matching happens in these instances. Note that this connects to the [Mr. President] example in fn. 15.

²⁵ These examples are from standard Arabic.

²⁶ Whether relative pronouns are Cs or Ds is a controversial issue (see, e.g., Kayne, 1983, 1994, Borsley 1997, Aoun and Li 2003, Boeckx and Hornstein 2008, Rouveret 2008, and the work cited therein). I am adopting here Kayne's and Borsley's proposals that the relative pronouns are Cs (see also Shormani 2017).

- b. Deir sé gur thóg sé an peann.
 say.PRS he that.PST take.PST he the pen
 ‘He says that he took the pen.’

As can be observed, C exhibits tense contrast; it is *go* in (43a), but *gur* in (43b). The former is present and the latter past. Given this, it is possible to assume that T (even in imperatives) inherits C’s tense feature (I return to this issue in section 3.3.3).

Given that the vocativized nominals are aboutness topics, it is tempting to postulate that the head Top⁰ is endowed with an [Abn] feature. It follows that (44) holds true of Top⁰ (cf. Rizzi 2006, Frascarelli 2007, Shormani 2017).

- (44) Top⁰ is a criterial position in the C-domain, endowed with an [Abn] feature which yields an ‘at-issue’ content, and links the A-topic with *pro* in T-domain

In terms of (44), the feature [Abn] the head Top⁰ is endowed with cartographically constitutes an ‘information structure primitive’ in the left periphery, solely needed as an information/discourse requirement (cf. Shormani 2017). If we take the ‘at-issue content’ as an interpretative import, i.e., also an information/discourse requirement, the feature [Abn] turns to be an *Edge Feature* (cf. Chomsky 2005, 2008), which is valued by merging an A-topic in Spec,TopP.²⁷ If this ‘at-issue content’ entails performing a speech act, which is performed by an imperative structure, as assumed so far, then, it is reasonable to postulate that the feature [Abn] links/correlates the discourse with the syntax, i.e., the informational coda and the propositional structure. I discuss the latter in the following section.

To conclude this section, I would like to stress that the at-issue content expressed by the vocative expression can also be linked to that of the imperatives, as they, too, have such proposition or performative force. Along these lines, Kaufmann (2012) holds that the at-issue content of a simple imperative sentence is ‘a modalized proposition’ (see also Stegovec and Kaufmann 2014). Following Kaufmann lines, Stegovec and Kaufmann (2014) argue the at-issue content of an imperative sentence could be ‘paraphrased as ‘you should’... can also be used to give orders, advice, permissions, or the like (*performative modals*) rather than describe the state of affairs with respect to what is permissible (*descriptive modals*) (Stegovec and Kaufmann 2014: 629, emphasis in the original).

²⁷ This amounts to the fact that Top⁰ will have two probes, namely *Agree* feature and EF. The former concerns ϕ -features, in that Top⁰ probes for valuing its unvalued ϕ -features via *Agree* with *pro* in Spec,vP. The latter, however, is satisfied by merging an A-topic in Spec,TopP. The fact that [Abn] feature counts as an EF is motivated by LF interpretation purposes, which is at the heart of the proposal developed here (cf. Chomsky 2008: 139ff).

3.3. Propositional structure

We are now in a position to tackle the propositional structure in vocatives and how it relates to the informational structure. It is well-known that T-domain represents the propositional structure in other clause-type constructions, declarative clauses, for instance (see, e.g., Rizzi 1997, *et seq*). As for imperative structures, the standard assumption is that imperatives lack tense, hence T altogether. Contra this, I will briefly show in this section that imperatives have a TP structure akin to that of other clause-types. A priori, since the core (computational) operations take place in the (narrow) syntax, I would like to first sketch these operations.

3.3.1. Core operations

If, as assumed by minimalism, the computation procedure “arranges and rearranges items taken from the lexicon according to their properties with a view to meeting the requirements of Full Interpretation” (Boeckx 2003: 2), these “arranges and rearranges” can be taken as *Merge* and *Move*, respectively, as two core operations (cf. Chomsky 1995, *et seq*, Boeckx 2003). The former merges Lexical Items (LIs) and forms linguistic objects, and the latter moves them if necessary in the derivation, based on the intrinsic features of these LIs. *Merge* is basically related to immediate containment, sisterhood and c-command (see Chomsky 2001: 3 Boeckx 2003: 2), and *Move* is necessitated by a feature satisfaction. I will take *Move* as *Copy*. I will also assume, following (Chomsky 2000, 2001, Boeckx 2003), that the intrinsic features are encoded in LIs if they are in relations, and these relations are defined over the most core operation, i.e., *Merge*. Within that space lies another core operation, i.e., *Agree*, which ‘systematizes/regulates’ the interaction between a probe (usually functional) and a goal (usually lexical), and this interaction may take the following three mechanisms (cf. Chomsky 2000: 122, Boeckx 2003: 2f, Shormani 2017).

- (45) a. Features trigger *Match* (e.g., there is a valued and interpretable [Abn] feature on the A-topic that matches the unvalued/uninterpretable [Abn] on Top° and *pro*).
- b. Features trigger *Move* (e.g., i) the value(s) of the A-topic’s features are *copied* onto *pro*, and ii) V raises to T°).
- c. Features trigger *Agree* (e.g., the value(s) of the features of the goal match those of the probe).

3.3.2. Imperatives in vocative structures

Imperatives are taken as a clause-type; they have been studied thoroughly cross-linguistically (see, e.g., Downing 1969, Beukema and Coopmans 1989, Zhang 1990, Han 1998, Platzack and Rosengren 1998, Jensen 2003, Bennis 2006, Zanuttini 2008, Zanuttini et al. 2012). However, I will just focus on the properties presented in (46).

(46) **properties of imperatives**

- (i) their subject may (rarely) be an overt pronoun.
- (ii) their subject is always controlled by an overt/covert N/DP
- (iii) they have performative function
- (iv) They have no tense

Property (i) is instantiated in the following example.

(47) a. ?antah ?iftah l-baab!
 you open the-door
 ‘You open the door!’

b. ?iftah l-baab
 open the-door
 ‘Open the door!’

A closer look at (47) makes explicit that the subject of imperatives may be overt as illustrated by (47a). It can also be covert as illustrated in (47b), which is the normal/common status of the subjects of these structures. In fact, the general assumption is that imperatives are “subjectless” constructions. The subject is understood as a silent (unpronounced) ‘you’. If the subject of imperatives is a null pronoun, then, it should be controlled/bound by an overt/covert NP in the C-domain, conforming to property (ii) (I also return to this property in section 4). As for property (iii), it is held cross-linguistically that imperatives are structures that perform speech acts like order, request, advice, threat, praise, etc. This property will be referred to throughout the remaining part of this article. Property (iv) will be discussed in the following section.

3.3.3. T’s specifications

The standard assumption is that imperatives lack tense, and hence T altogether (see, e.g., Platzack and Rosengren 1998).²⁸ However, there are some recent studies (see, e.g., Jensen 2003, Shormani in press) which propose that imperatives do have tense. I show here that imperatives in Yemeni Arabic have tense, and hence T, and hence, supporting these studies. I also argue that T in imperatives has ϕ -features characteristic of T, in general.

As for tense, imperatives may be said to have a tense of some sort. This tense might be present or future, but not past, as illustrated in (48).

²⁸ Platzack and Rosengren (1998) claim that imperative structures lack not only T, but also MoodP and FinP.

(48) a. *ji?* *baʃd* *saʃah*, *ʃa* *tjah?*
 come after hour, will you.come
 ‘Come after an hour, won’t you?’

b. **ji?* *baʃd* *saʃah*, *qa* *ji?k?*
 come after hour, ASP come.you

As can be observed, in (48a) the structure consists of an imperative and a question tag. In YA, *ʃa* is a future particle, but *qa* is a perfect/past one. The ungrammaticality of (48b) obviously indicates that past tense is excluded in imperatives. But, the fact that (48b) is not possible suggests that there is a tense feature associated with T in imperative that prevents such a structure.²⁹ Based on this, I propose that T has present/future tense.³⁰ This present/future tense feature that T in imperative might be associated with is supported by the grammaticality of structures like (48a).

YA provides empirical evidence that T has ϕ -features. Consider the following examples.

(49) a. *?iktub!*
 write.2MS

b. *?iktub-i*
 write-2FS!

c. *?iktub-uu*
 write-2MPL!

d. *?iktub-ayn*
 write-2FPL!

As shown by the gloss, it is clear that T in imperative is ϕ -complete in the sense of Chomsky (2000, 2001). However, a crucial difference between T of imperative and that of other clause-types is that T in imperatives seems to *always* have a 2 person feature. This is also indicated by the-*you*-subject pronoun, overt or covert.³¹

²⁹ It should be noted here that this T’s tense feature in imperative is unchangeable unlike the declarative/interrogative T (see also Zhang 1990, for details).

³⁰ This proposal is line with Jensen’s (2003). Jensen proposes that imperatives have some sort of tense feature different from that of declaratives. She argues that the cross-linguistic absence of imperative tense morphology is “due to the presence of an imperative-flavoured-T° that competes with prototypical-declarative-T° for this functional position” (p. 158).

³¹ However, there are some proposals in the literature, seeing 3 person subjects a possibility in imperatives, as illustrated in (i) from English.

(i) a. Boys get out, girls stay!

As for Case, I argue here that T enters the derivation with a Nom Case feature. Unlike English, YA, like many other languages, distinguishes a nominative Case from an accusative one in (2 person) pronouns. *?antah* ‘you’ is the nominative form, while the clitic *-(a)k* is the accusative form of it. However, being a clitic in nature, it is difficult to use *-(a)k* as an example to illustrate this phenomenon, though languages like French can be used to illustrate this point.³²

It turns out that imperative T has ϕ -features, tense and Case features similar (but not identical) to those of T in general. However, the question is: where do these features come from? Recall that C in Arabic has ϕ -features, tense (and Case) features, as evidenced above, and given also the notion “Feature Inheritance”, we are adopting here, it is expected that T inherits these features from C (cf. Chomsky 2005, 2008).³³ YA provides empirical evidence that T inherits these features from C, as illustrated in the following examples.

- (50) a. daari ?inna-k ji?-k
 I.know that-2MS came-2MS
 ‘I know that you have come.’
- b. daari ?inni-š ji?-š
 I.know that-2FS came-2FS
 ‘I know that you have come.’

b. The tallest one sit at the back!

However, as we will see in this paper, under the proposed analysis these examples turn to be vocative structures. The 3 person nouns like *Boys*, *girls*, etc. are argued to be A-topics, ‘sitting’ in the C-domain, and not checking/valuing T’s tense feature. What values T’s tense feature is *pro*.

³² However, examples can be provided from languages like French. French distinguishes *Tu* from *Te*, the former is nominative and the latter accusative, as illustrated in (i).

- (i) a. *Tu* écris!
 you.NOM write
 ‘You write!’
- b. **Te* écris!
 you.ACC write

The ungrammaticality of (ib) clearly indicates that T has a nominative Case feature.

³³ Arabic provides independent evidence that C has a Case feature. This is illustrated in (i), from standard Arabic.

- (i) a. ?allah-u ya?lamu l-haal-a
 God-NOM knows the-situation-ACC
 ‘God knows the situation.’
- b. ?inna ?allah-a ya?lamu l-haal-a
 C God-ACC knows the-situation-ACC
 ‘Indeed, God knows the situation.’

In (ia), the topic *?allah* appears with a default nominative Case; however, in (ib) it appears with an accusative Case assigned by the C *?inna*.

c. daari ʔinna-**kum** jiʔ-**kum**
 I.know that-2MPL came-2MPL
 ‘I know that you have come.’

d. daari ʔinni-**kin** jiʔ-**kin**
 I.know that-2FPL came-2FPL
 ‘I know that you have come.’

These examples very clearly show that T inherits ϕ -features from C, or C-features are transmitted onto T. As is very clear from the glosses, in (50a-d) C, i.e., *ʔinna*, manifests agreement with the verb in all ϕ -features. It occurs as *ʔinna-k*, *ʔinna-š*, *ʔinna-kum*, *ʔinni-kin*, where C agrees with the verb in all ϕ -features.³⁴ If we assume that the agreement marking is a clitic, then according to the Unselective Attract Principle, “only a head endowed with ϕ -features can attract a clitic, [where] cliticization is a case of ‘unselective attraction’” (Rouveret 2008: 190).

I also assume that T has an (strong) EPP feature. This assumption is minimalist in nature, simply because it makes dealing with imperatives like dealing with other clause-type structures, which leads to non-construction specific postulations.³⁵

³⁴ There is also good evidence cross-linguistically that T is ϕ -complete. For example, Rouveret (2008: 190, fn. 10) provides the examples in (i) from Welsh, as evidence that C has ϕ -features.

- (i) a. y dyn y ’i rhoddais (ef) iddo
 the man C CL I-gave him/it to-him
 ‘The man to whom I gave it.’
 b. yramser y ’chgwelais
 the time that you I-saw
 ‘The time when I saw you.’

In (ia), the clitic ‘i is attached to the C y and in (ib) the clitic ‘ch is attached to it.

³⁵ If we take YA as an SVO language, then the analysis pursued here elegantly accounts for examples like (i).

- (i) a. ʔantah ʔiftah l-baab!
 ‘You open the door!’
 b. ʔiftah l-baab!
 ‘Open the door!’

If, however, we take it as a VSO language (which I adopt in this article), then, while *pro* is in Spec,vP, it could be assumed along the lines put forth by Alexiadou and Anagnostopoulou (1998), that in *pro*-drop languages, EPP of T is valued by V-raising to T (see also Shormani 2015, for a discussion). Alexiadou and Anagnostopoulou point out that one substantial property of VSO languages including Arabic is that in such languages EPP can be satisfied “via verb raising [to T] because they have verbal agreement morphology with the categorial status of a pronominal element” (p. 494). They add that no overt expletive subjects are used, which means that topics are base-generated somewhere outside the thematic domain (i.e. external to v/VP, possibly in Spec-TP). In fact, the idea that T has an EPP feature makes our proposal have a cross-linguistic appeal, in that it can be applied to VSO languages like Arabic, Irish, etc., and SVO languages like English, French, etc.

As it turns out, T in our system inherits *Agree* Feature from C in the (narrow) syntax, because as a phase head, C “may be the locus of agreement, selecting T and assigning it (unvalued) ϕ -features” (Chomsky 2005: 18). And based on antecedent reasons, “T, ϕ -features and Tense appear to be derivative, not inherent: basic tense and also tenselike properties (e.g., irrealis) are determined by C (in which they are inherent)” (Chomsky 2008: 143). This antecedent factor is at the heart of the proposal pursued here. In other words, assuming for the moment that the notion “antecedent” implied in Chomsky (2008) refers to a constituent in the A'-dependency domain, it is possible to argue that this antecedent is the A-topic as intended in our story. This antecedent is also clear in the examples presented in (42), where the A-topic, the relative pronoun and the verb agree in all features.

It is also reasonable to assume that Voc's features are transmitted onto Top⁰, which in turn may be transmitted onto T. There is a piece of evidence in support of this. Reconsidering examples like (47), the fact that the pronoun *?antah* is the subject of imperatives makes explicit that T in these structures enters the derivation with all Voc's features, namely [Spcty], [Adrs] and [2Pers]. These features (among others), are the *only* “licenser” of *?antah*, or *pro*, in imperative structures, as we shall see shortly.

3.3.4. Pro's specifications

Recall that property (i) implies that the subject of imperatives is a null category, but which null category?. There are, in fact, two types of null pronouns in human languages, viz. PRO and *pro*.³⁶ As for the subject of imperatives, there are actually two proposals in the literature: it is PRO (see, e.g., Han 1998) or *pro* (see, e.g., Beukema and Coopmans 1989). I assume that the subject of imperatives is *pro*, specifically 2 *pro* (cf. Beukema and Coopmans 1989, Jensen 2003, Bennis 2006).

The Null Subject Parameter (NSP) has received much research in the syntactic theory (see, e.g., Jaeggli and Safir 1989, Rizzi 1982, 1986, Holmberg 2005, 2010, Ackema et al. 2006, Biberauer et al. 2010, Huang 1984, 1989, N. Hasegawa 1985, Neeleman and Szendrői 2007, Koenenman and Zeijlstra 2014). The standard assumption is that *pro* is licensed by the rich agreement inflection in Null Subject Languages (NSLs).³⁷ There are three types of (referential) *pro* in natural languages, viz. 1, 2 and 3

³⁶ While PRO could be assumed to be the null subject of imperatives (see, e.g., Han 1998, Radford 2009), *pro* is more likely to be so. There is still a difference between both constituents, however. While PRO occurs in nonfinite clauses, *pro* occurs in finite clauses. And since finiteness is related to ϕ -features, it is reasonable to assume the adequacy of *pro* more than PRO as a subject of imperatives. Along the same lines, Kratzer (2009: 189, fn. 2) argues that PRO differs from *pro* in that while the former can be a “minimal pronoun”, the latter “does not have to be. Like its overt counterparts, *pro* can be born with all its features in place, in which case it is referential.”

³⁷ Note, however, that rich agreement inflection hypothesis is challenged and sometimes even refuted as the sole licenser of *pro*, especially when considering languages like Hebrew, Marathi, Finnish which are not that rich (so called partial NSLs, see, e.g., Biberauer et al. 2010). It also loses its strength in languages like Chinese, Japanese, which have no agreement inflection, but allow *pro*-drop property. In these languages, it has widely been held that discourse is the main licenser of *pro* (see, e.g., Huang 1984, 1989, N. Hasegawa 1985, Neeleman and Szendrői 2007, Shormani 2017).

pros. What concerns us here is the 2 person *pro*, the one characteristic of the subject of imperatives. Consider the following examples.

(51) a. ?iktub *pro*!
write.2MS

b. ?iktub-i *pro*!
write-2FS

c. ?iktub-uu *pro*!
write-2MPL

d. ?iktub-ayn *pro*!
write-2FPL

Based on the rich inflection Arabic exhibits, *pro* in YA, as shown by the data in (51), can be interpreted as a singular masculine ‘you’, a singular feminine ‘you’, a plural masculine ‘you’ and a singular feminine ‘you’ in (51a-d), respectively. However, it seems that this “interpretation” is only partial; it is difficult to identify the referent(s), i.e., the people, this ‘you’ refers to. Put differently, suppose these examples are said out of context/discourse, it will be impossible to identify the one/person “functioning” as the addressee in all these examples.³⁸ For instance, in (51a) it is not clear whether the addressee is a ‘student’, ‘audience’, ‘clerk in an office’, etc. That said, if (51a-d) are said without taking the vocativized nominal as the referent of *pro*, the interpretation of *pro* will be ‘vague’. This ‘vagueness’ seems to have cross-linguistic evidence. Take languages like French and English as an example; compare and contrast the examples in (51) with (52) (cf. Kayne 2002).

(52) a. *pro* écris!

b. *pro* write this!

The fact that *pro* may exhibit ‘vagueness’ in languages like English and French, more than in Arabic, ensues from the fact that they are “very poor” in agreement inflection, specifically in imperative constructions. However, this ‘vagueness’ disappears if the vocative is mentioned in the sentence, as shown in (53).³⁹

³⁸ The idea that the interpretation of *pro* is discourse/context-bound has also been emphasized by several authors. For instance, Kayne (2002) stresses that contextualization is a crucial factor in the interpretation of a 3 *pro*. Corver (2008: 71) also ascertains that null pronoun may not be adequately and fully interpreted out of “the situational context”.

³⁹ Kayne (2002: 137) considers examples like (i) ungrammatical if they are said out of context/discourse, because they have no referents in the conversation world.

(i) a. He is a genius.

- (53) a. Hey Ali, *pro* write!
 b. Hey students, *pro* open your books!

pro in these examples refers to *Ali* in (53a) and *students* in (53b); and therefore, the interpretation of *pro* is clear. As far as Arabic is concerned, consider the vocative structures in (54).

- (54) a. *yaa ʕali, ʔiktub!* *pro!*
 VOC Ali, write.2MS
- b. *yaa ʕalia, ʔiktub-i* *pro!*
 VOC Ali, write-2FS!
- c. *yaa tullab, ʔiktub-uu* *pro!*
 VOC students, write-2MPL
- d. *yaa taalibaat, ʔiktub-ayn* *pro!*
 VOC students, write-2FPL

The clear interpretation of *pros* in (54) is solely due to the presence of the A-topics in the C-domain, namely *ʕali*, *ʕalia*, *tullab* and *taalibaat* in (54a-d), respectively.

Thus, based on these facts I propose that *pro* in imperative structures enters the derivation with valued, but uninterpretable features. In the (narrow) syntax, *pro*'s valued features value T's unvalued corresponding ones. This valuation of T's features in the syntax, I claim, is not sufficient for *pro*'s Full Interpretation (because *pro*'s referent is not stated in the world/discourse). However, when the discourse (represented by the vocative expression in CP) comes to play, *pro* obtains its ultimate interpretation. Put differently, when an A-topic is merged in Spec,TopP, *pro* in Spec,vP is ultimately interpreted via the coreferentiality with this A-topic, after/in the Spell-Out operation.

Note also that this coreferentiality between the A-topic and *pro* not only clarifies the interpretation of *pro*, but also the interpretation of the whole vocative expression. That is to say, if vocatives are designed to perform an expressive meaning/speech act, which in turn is fulfilled by the imperative verb, then, even the interpretation of the vocative part is obtained if and only if this coreferentiality

-
- b. Watch out! He's got a knife.

Kayne takes (i) to be grammatical only when "an unpronounced demonstrative" functions as an antecedent. As for cases like (ia), Kayne assumes the existence of a *silent* topic in the discourse as an antecedent of the pronoun 'He', which is in line with the present analysis, as we shall see in the next section. He considers (ib) to have a reading akin to (ii).

- (ii) Watch out! That man, he's got a knife.

comes to play. And since this coreferentiality takes place between CP and TP domains, it follows that the interpretation of vocatives requires correlating the syntax and discourse at the interface. Still, however, this gives rise to two important questions: i) how does this coreferentiality take place (cf. property (ii)), and more importantly, ii) how is it licensed in a language *L*? These among other related issues are discussed in details in the following section.

4. Correlating the syntax and discourse at the interface

In this section, I extend the claims put forth in Shormani (2017) and apply them to the analysis of vocatives. In particular, I show that the syntax is correlated with the discourse in vocative constructions, a correlation that accounts for the ultimate interpretation of these structures. An essential property of vocatives, specifically address type, is that they may not be said on their own, i.e., they may not stand alone, as shown in (55) below. In other words, if, as argued for so far, vocatives are designed to perform a performative expressive meaning, then there is some sort of action and this action must be performed by a verb (performing a speech act). This verb, I assume, is the imperative form of the verb.

(55) ??*yaa ʕali!
 voc Ali

The idea that (55) may not be acceptable ensues from the fact that if (55) is said without the imperative part, the addressee/hearer will immediately respond by saying one of the expressions in (56):

(56) a. ‘Yes?’
 b. ‘What?’
 c. ‘Can I help you?’

and the speaker would say, for instance, ‘*come!*’, ‘*do this!*’, ‘*open the door!*’, ‘*write this!*’, among others. What I would like to suggest here is that vocative expressions consist of two parts, namely the vocative and the impetrative, and that both should co-occur.

However, imperatives are not the only type of sentence that can co-occur with vocatives. The fact that interrogative and declarative structures co-occur with vocatives is clearly manifested in examples like (57). Our task then is to understand the interpretation of these structures.

(57) a. yaa ʕali! muh l-kitaab maʕak?
 voc Ali is the-book with.you?
 ‘Hey, Ali! Is the book with you?’

b. yaa ʕali! ʕalia tihib t-tuffaah!
 voc Ali Alia likes the-apples
 Hey, Ali! Alia likes apples!’

Although the vocative expression *yaa ʕali* co-occurs with interrogative and declarative structures in (57a) and (57b), respectively, the underlying interpretation of these structures involves some sort of a performative act. Put differently, the interrogative phrase *muh l-kitaab maʕak* in (57a) can be said to perform a speech act, which can be a *request to give the speaker the book*. That is, the speaker in (57a) simply means: *give me the book (if it is with you)*. Imagine a situation in which a teacher is looking for a book, and he or she thinks that that book is with a student, named *Ali*, then the speaker may be said to have a choice to either articulate a question: *is the book with you?* or an imperative: *give me the book*. In (57b), which is a declarative sentence, the speaker is telling the addressee, i.e., *Ali*, that a person named *Alia* likes ‘apples’, but not, say, ‘banana’, and that he or she wants ‘*Ali* to bring *Alia* an apple.’ Again, here too, the speaker perhaps paraphrases or simply implies, i.e., indirectly asks, that the addressee *bring apples for Alia*, but not any other type of fruit.

All this suggests that in vocative constructions, there is some sort of “coincidence” between the vocative part and the imperative one (cf. Abuladze and Ludden 2013). I take this coincidence to be a correlation, which links the syntax with the discourse at the interface, or the C-domain projections, viz. VocP and TopP, and the T-domain projections, viz. TP and vP. TopP and vP are phases, while VocP and TP are not. I will take this correlation as coreferentiality between the A-topic and *pro*; the former occupies Spec,TopP and the latter Spec,vP. Along these lines, Benincà (2001: 41f), for example, argues that TP links vP/VP “with the syntactic subject and the other arguments; CP encode[s] the relation between the propositional content of the sentence and what gives a sentence its actual meaning in relation with the discourse.”

Bearing this in mind, we are now in a position to address the two questions imposed in section 3.3.4. These questions are restated here as follows: i) how does the coreferentiality between A-topic and *pro* take place in vocative constructions, and ii) how is this coreferentiality licensed in a *L*?

Let us start with question (ii). Recall property (ii) of imperatives: the null subject of imperatives is *always* controlled by a lexical N/DP in the (higher) root clause. In the *Principles and Parameters* (P&P) framework, this ‘control’ was handled in terms of Binding Theory, specifically in terms of Principle B (see, e.g., Chomsky 1982, 1986, Rizzi 1982, 1986, Jaeggli and Safir 1989). Nevertheless, this account is actually not unproblematic in minimalism (see, e.g., Reinhart and Reuland 1993, Zwart 2002, Kayne 2002, H. Hasegawa 2005, Hicks 2009, Antonenko 2012). These authors try to modify the P&P ‘Binding Principles’, and propose various mechanisms. However, the problem with these proposals is that there are certain cases which they fail to account for (see Antonenko 2012, for details).

Therefore, I propose that binding/coreferentiality should be handled in terms of *Agree* as *Match*. Bearing the properties of Features (45) in mind, the *Agree* (matching) mechanism takes the form outlined in (58) (cf. Shormani 2017).

(58) *Agree* is a long-distance matching operation whereby the values of the valued features of α (or the goal) are copied onto the unvalued feature counterparts of β (the probe), whereby the *attribute-value* pair {[Att: val], [Att: ___]} represents the valuation mechanism (cf. Chomsky 2001:5, Roberts 2010: 61, Shormani 2017). This is further formulized in (59).

(59) For an *Agree* whose α and β are the terms for some feature F:

- a. α contains the feature matrix [Att_i: ___]; β 's contains [Att_i: val_j]
- b. [Att_i: (val_{..k..})], copy val_k into ___ in α 's feature matrix.

For the purpose of a unified account of formal characterization of features, (59) can be exemplified as follows: let α /T have the Case feature [Case: _nom_] and β /*pro* [Case: ___], then the result of the valuation mechanism is *pro* => [Case: _nom_].⁴⁰

Given (45) and (59), and following Shormani (2017), in a vocative structure after *pro* and T merge, there will result a variable matching construed between T and *pro*. If T has the value [Att_α_] for a feature F, then, *pro* will get that value, as a result of *Agree*. It follows that when the A-topic is merged, it matches (and interprets) T's and *pro*'s features. And given the antecedent nature of [Abn] feature, it is likely that *pro* obtains the feature specifications of the A-topic before/when the C-phase is spelled out.⁴¹ This story seems to result in local A'-chains. In other words, given that the A-topic is hosted in the C-domain, and that *pro* is in the T-domain, coreferentiality between (Voc⁰), the A-topic, (T⁰) and *pro* results in a local A'-chain (the head of this chain is the A-topic and the tail is *pro*).

Let us now turn to question (ii) stated above, i.e., how is coreferentiality licensed in vocative structures? If coreferentiality between the A-topic and *pro* takes the form in (59), then, there must be a condition/principle of UG that licenses such coreferentiality in a language *L*. If this is on the right

⁴⁰ I will also assume that the originally uninterpretable/unvalued features delete at the end of the relevant phase (which phase is relevant depends on the precise formulation of the Phase Impenetrability Condition (PIC) (see Chomsky 2000: 108, 2001: 13). Note also that I am following Chomsky (2008) in that PIC "holds only for the mappings to the interface, with the effects for narrow syntax automatic" (Chomsky 2008:143, see also Bošković 2005; Boeckx 2003, Shormani 2017).

⁴¹ Along these lines, Sigurðsson and Maling (2010: 66f) argue that "pronouns, overt or silent, are not input to the syntactic computation but its output, that is, syntax computes or 'produces' pronouns by matching and bundling up features." Focusing on person, they argue that a pronoun has a person value and this value results from matching process of twofold: "First, an argument or event participant (i.e., θ) is matched against an interpretable clausal P(erso)n head or feature, as being either +Pn or -Pn. Second, +Pn arguments are matched against the above mentioned silent logophoric agent ('speaker') and the logophoric patient ('hearer') features in the CP domain."

track, and given (45) and (59), then (60) would be hypothesized, holding of vocativization in Arabic (and possibly cross-linguistically).

(60) A-topic-*pro* coreferentiality Principle (ACP)

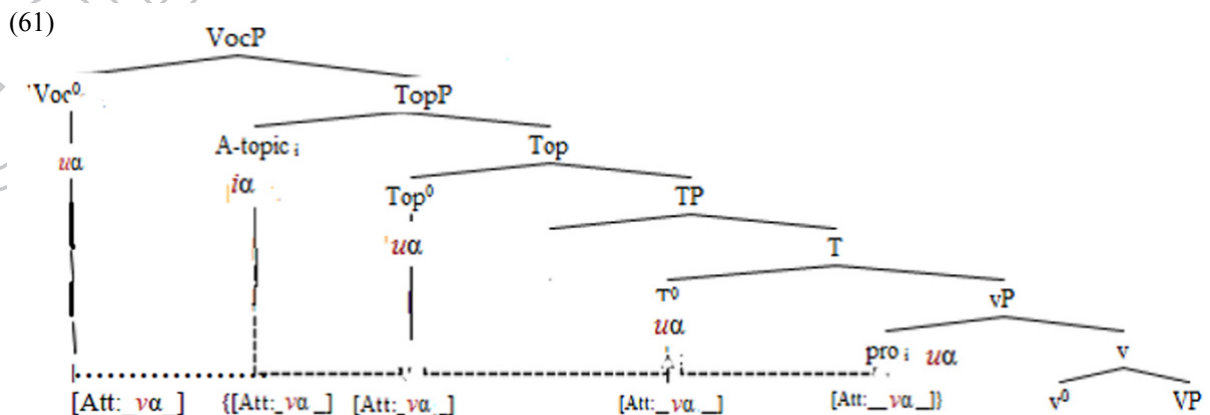
In a vocative structure,

- i. Let XP be a phase whose edge ‘houses’ the A-topic as an instance of *pro*:
- ii. *pro* in Spec,vP, i.e., a phase edge, obtains the feature specification(s) of the features on X[°]
- iii. Coreferentiality takes place via a matching (*Agree*) relation between (Y[°]), A-topic, (X[°]) and *pro* [where Y[°] = Voc[°]; X[°] = Top[°]].

If vocatives (and imperatives) behave similarly across languages, which I presuppose, then (60) could be generalized and extended to all human languages, and parameterization, if any, would then be assumed.

Note that our prediction in terms of (59) regarding the construal of local A'-chains between the A-topic in Spec,TopP (a phase edge) and *pro* in Spec,vP (a phase edge) is also explicitly suggested in (60). This A'-chain is a ‘matching chain’ which defines the *Agree* relation established between *pro* in Spec,vP, T[°], Top[°], the A-topic in Spec,TopP and Voc[°]. Given the assumption that *Agree* takes place between phases (Chomsky 2008), then, the matching relation between these elements is an instance of a long-distance *Agree*. Given also the assumption that a constituent in the vP-edge is visible for *Agree* in long-distance (see Rouveret 2008: 171), *pro* in Spec,vP will be “seen” by C/Top[°] for *Agree* (*Match*). It follows, then, that *pro* is interpreted by being coreferentially linked with the A-topic in Spec,TopP.

Formally, let an unvalued feature F have the value *ua*, then, *v/ia* is its valued/interpretable counterpart. Also let *ua* be the ϕ -features (and [Abn]) of Voc[°], Top[°], T[°] and *pro*, then, when the A-topic with *va* is merged, a matching A'-chain is formed between these five elements via *Agree* as *Match*, and hence all unvalued/uninterpretable features get valued/interpreted and deleted at LF. Given (45) and (59), each of these element will get the value [Att: *va*]. This is further schematized in (61).



Recall that the interpretation of vocatives involves discourse/pragmatic information “such as the degree of familiarity between the speaker and the addressee, the type of interaction between them, the speaker’s designs on the addressee, and so on” (Hill 2013: 133). Given the discourse nature of (60), it is much expected that the analysis proposed here accounts for this interpretation. In what follows, I will argue that it really elegantly does so.

Recall that vocatives involve various speaker-addressee relations, but it is difficult to exemplify them all here. I will just focus on some of these relations. Consider the following examples.

(62) a. *yaa tullaab_i-i, ðaakruu pro_i bi-jidd!*
 voc students-my study with-hard
 ‘O’ my students, study hard!’

b. *yaa tullaab_i, ðaakruu pro_i bi-jidd!*
 voc students study with-hard
 ‘Hey students, study hard!’

In (62b), there is some sort of ‘care’ expressed by a ‘teacher’ who advises ‘his students’ to ‘study hard.’ This ‘care’ is not found in (62a). (62a) may be stated by a principal/dean, but not by a teacher; (62b) can be understood as ‘threat’ (teachers are known to be more caring than deans, for instance). Note that the only difference between (62a) and (62b) is that the 1 person clitic *-i* is attached to *tullaab* in (62a), but not in (62b). Hence, the care/threat contrast can be ascribed to this clitic (cf. also Corver 2008, Stavrou 2013). Given this, it is possible to assume that this interpretation is obtained only when Voc^0 enters the derivation, and consequently Voc^0 be part of the coreferentiality, hence conforming to (46iii). Put simply, given our postulation so far that vocatives are reduced to $VocP$, it is expected that vocativization, and hence vocative interpretation, takes place only when Voc^0 is merged.

Furthermore, if vocative particles are discourse markers, signaling endearment, respect “politeness, formality, status, intimacy, or a role relationship, [etc., ... and they] mark the speaker characterizing him or her to the addressee” (Zwicky 1974: 796), it follows that these meanings are expressed by the vocative particles (see also Kasher 2013). In other words, if vocativization underlies these interaction/communication meanings, and if the head Voc^0 is “responsible” for making an A-topic a vocative, then, these performative meanings must be encoded in Voc^0 . And this seems to probably be the case. The following examples illustrate this point.

(63) a. *ʔustaað_i-i l-habiib, tafaddal ʔijlis pro_i!*
 teacher.voc-my the-beloved, please sit
 ‘My respected teacher, please have a seat!’

b. *ħabiib_i-i, taʕaal pro_i ʕind-i*

beloved.VOC-my come with-me

‘Darling, come to me!’

c. ζ amm-u ζ ali, xuð haaðeh l-hadiyya! *pro*!

uncle.VOC-DIM Ali take this.F the-present

‘My dear Ali, take this present!’

In (63), there are no vocative particles. Vocativization is expressed by the grammaticalized terms *Ɂustaað*, *habiiib* and ζ amm in (63a-c), respectively. These terms carry emotive performative/expressive meaning each. For example, the term *Ɂustaað* signals respect between the speaker and addressee, a ‘student’ and a ‘teacher’, respectively, as in (63a). In this situation, it also shows politeness between both interlocutors. The term *habiiib* expresses endearment between a wife and a husband, and ζ amm expresses compassion between an uncle and a niece. The fact that the speaker is characterized to the addressee is also signaled. The 1 person clitics, *-i*, *-i*, and *-u*, signaling the speaker, and which are attached to the grammaticalized terms, can be taken as indicative evidence of these speaker-addressee relations.⁴² Thus, because these grammaticalized terms lose their lexical identity and function as vocative particles, they are base-generated in Voc⁰, which means that it is Voc⁰ which expresses the meaning of respect, endearment and compassion, so far so good.

In addition, YA provides strong evidence that Voc⁰ encodes discourse features like formality, superiority, unfriendliness, etc. For example the vocative particle *yaa* is formal, while *yeeh* shows superiority of the speaker, and *heeh* indicates informality and unfriendliness (for an explanation see fn. 5, above). As it turns out, then, our prediction that vocativized nominals are A-topics, and that vocativization is encoded in the head Voc⁰ is borne out. The latter has been shown to encode not only [Spcty], [Adrs] and [2Pers], but also the speaker-addressee relations, which are the core functional properties of vocativization cross-linguistically.⁴³

Note that the coreferentiality between the A-topic and *pro* in these structures seems to suggest that vocatives are arguments (contra the widely spread assumptions in the literature, but see Moro 2003, for similar conceptions). Given that *pro* in imperatives is characterized as a 2 person *pro*, and is

⁴² Note that the Dim(inutive) *-u* is vocatively used in (63c). When it is used in this sense, it also signals a 1 person “marker”. The function it performs is to express compassion and closeness the speaker shows towards the addressee. Note also that the sense in which *-u* is used in (63c) is always to address children. The clitic *-i* is used here to express a sense of closeness, which is different from its normal use as a possessive marker.

⁴³ Note that the coreferentiality between the A-topic and *pro* in vocative structures seems to suggest that nominal vocatives are arguments of some kind (contra the widely spread assumptions in the literature, but see Moro 2003, for similar conceptions). Given that *pro* in imperatives is characterized as a 2 person *pro*, and is referential in nature (i.e. different from generic/indefinite *pro*), it could be assumed, perhaps along the lines put forth by Downing (1969) and Ross (1970), that in terms of the performative analysis the A-topic/vocativized nominal is an argument of a performative predicate located in the C-domain, which controls/binds *pro* (cf. Zanuttini et al. 2012).

referential in nature (i.e. different from generic/indefinite *pro*), I argue along the lines put forth by Downing (1969) and Ross (1970) that in terms of the performative analysis the A-topic/vocativized nominal is an argument of a performative predicate located in the C-domain, which controls/binds *pro*. Note also that the 2 person reading a vocativized nominal/A-topic has can be ascribed to the coreferentiality between the A-topic and *pro*. That is to say, given the fact that *pro* is a 2 person pronoun, and by being in one A'-chain with the A-topic, and given (45 & 59), *pro*'s features including [2Pers] are copied/percolated onto the A-topic. This account enables us to account not only for [2Pers] feature percolation, but also for the percolation of other features, namely [Spcty] and [Adrs].

5. Conclusion

In conclusion, I have proposed a novel approach to the analysis of vocative expressions, based on data from YA. I have concerned myself only with three questions: the first concerns the internal structure of vocatives. The answer to this question is provided in section 2, where I concluded that vocative particles are discourse markers, transitive in nature, and their complements are nominal-like elements, the second question concerns the external structure. The answer to this question is attempted in section 3, where I demonstrated that vocatives are reduced to the vocative particles, projecting to VocP, and their complements turn to be aboutness topics. VocP is a discourse-based projection posited in the C-domain. The head Voc^o is argued to be endowed with discourse-based features, namely [Adrs], [Spcty] and [2Pers], and yields an expressive meaning. I have also argued that nominal vocativized constituents are A-topics, projecting to TopP, whose head, i.e., Top^o is endowed with [Abn], an edge feature, and yields an at-issue content, and the third question concerns the correlation between the internal and external structures of vocatives. The answer to this question is provided in section 4. In this section, I have argued that both structures are correlated at the interface via coreferentiality between the informational and propositional structures of vocatives.

The analysis presented in this article seems to have several implications. I will just mention the most important ones. The first implication is that tackling vocatives in terms of aboutness topics seems to be minimalist in nature; it reduces the complexities and the machinery apparatus of the computational system of the language faculty (cf. Chomsky 2001, *et seq*). For example, we do not need more projections like SpeakerP, RoleP, AddresseeP, and so forth, as assumed in some of the recent literature (see, e.g., Hill 2007, Corver 2008, Haegeman 2014). These projections impose extra complications for the computational system. But they disappear if we just postulate that the vocative is reduced to the particle and that its complement is an A-topic.

Another implication has to do with extending this approach to vocatives cross-linguistically. Given the fact that vocatives and topics, specifically A-topics, perform expressive meaning/speech act of referring cross-linguistically, it is possible to apply the analysis developed here to vocatives across languages. Take (41) as an example, it seems to be applicable to the cross-linguistic data (though not enough) presented in this article. (60) may well be thought to have the same status cross-linguistically.

One more implication is that the analysis can also be extended and applied to imperatives as a separate clause-type. If we take the assumption made in this article that the thematic subject of imperatives is *pro*, and that the logical subject is a NP referent positioned in Spec,TopP, in the absence of vocatives/A-topics a silent pronoun (*pro*) can be assumed to (re)merge in Spec,TopP. Only further research determines whether ‘this suggestion is on the right track’, and I leave this for future studies.

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Public Interest Statement

Vocatives are very important expressions used in human language. Despite this importance, they have been neglected in linguistic investigation. Traditionally, vocatives were thought of as a pragmatic aspect of language. Syntactically, the main reason for this neglect seems to be the assumption that vocatives are not parts of sentence structure, thus not worth of syntactic study. However, this article argues and defends the idea that vocatives are a syntactic phenomenon. It provides a scientific modern analysis for vocatives based on minimalism and cartography approaches. The paper is interesting for both specialists and non-specialists. As for specialists, it develops a novel theory arguing that the ultimate interpretation of vocatives requires correlating syntax and discourse at the interface, a theory capable of accounting not only for the ultimate interpretation of these expressions, but also the properties left untouched by previous approaches. For non-specialists, however, the article enriches and enhances the understanding of vocatives by involving data from Yemeni Arabic, in addition to data from a cross languages.

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