

SVO, (silent) topics and the interpretation of referential *pro*: A discourse-syntax interface approach

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The issue of how a null subject (or argumental *pro*) is licensed and interpreted has been a matter of debate in syntactic theory for decades. Participating in this debate, this paper proposes a novel approach to the licensing and interpretation of the referential 3 (person) *pro*/TOPIC in human languages, based on discourse-syntax interface. I provide evidence from across languages that the antecedent of the dropped *pro*/TOPIC is a (silent) preverbal DP. I show that this DP is an ABOUTNESS-topic, merged in the C-domain, specifically in the Specifier of the Topic Phrase, where Topic Phrase is assumed to be a phase whose head, i.e. Topic, is endowed with an ABOUTNESS feature. Based on interpretation motivations, the ABOUTNESS feature counts as an Edge Feature, which requires merging a (silent) ABOUTNESS-topic in Spec,TopP, hence yielding a discourse property and coreferentially correlating the given ABOUTNESS-topic with the argumental *pro* in Spec,vP. Evidence is provided that *pro* enters the derivation with valued, but uninterpretable features. These valued features (of *pro*) value T's unvalued features via AGREE. The uninterpretable features of *pro* are interpreted by the interpretable features of the A-topic via AGREE as MATCH. As a result, *pro* is interpreted as a definite 3 person pronoun. The paper also provides empirical evidence that *pro* can be locally and nonlocally coreferentially correlated with the A-topic via matching A'-chains. A (Silent) A-topic Principle is proposed as a Universal Grammar condition, which is necessitated by interpretive and performative requirements. Given this Universal Grammar property, the Silent A-topic Principle licenses (silent) A-topics as antecedents for *pros*/dropped topics across human languages.*

KEYWORDS: SVO, (silent) aboutness topics, referential *pro*, NSLs, information structure, propositional structure, discourse-syntax interface, (non) local A'-chains, phase, (long-distance) Agree, Feature Matching, Feature Inheritance

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1. The problem

Licensing and interpreting a referential *pro* has been a matter of debate in syntactic theory for decades. With respect to allowing or not allowing a pronoun to be dropped, human languages can be divided into three typologically distinct types. These are presented in (1):

- (1) a. *Pro*-DROP languages (Null Subject Languages (henceforth, **NSLs**)
 - i) consistent NSLs (like Arabic, Italian, Spanish, Turkish, etc.)
 - ii) partial NSLs (like Hebrew, Finnish, etc.)
- b. *Pro*/TOPIC-DROP languages (henceforth, **TDLs** like Japanese, Chinese, Korean, etc.)
- c. Non*pro*/TOPIC-DROP languages (henceforth, **NPTLs** like English, French, etc.)

In (1a) languages, it was held that *pro*-DROP occurs due to the rich agreement morphology. In (1b) languages, however, it was argued that a dropped (topic) pronoun be recovered only from the coreference between it and a **DP** (= Determiner Phrase) in the discourse. In (1c) languages, it was generally assumed that pronouns cannot be dropped. In languages in (1a-b), the occurrence of *pro*-DROP is a well-known phenomenon, but the debate is centered on whether *pro* or T carries the interpretable features in (1a), and what licenses it in (1b). Regarding (1c) languages, the overall assumption is that these languages do not allow *pro*-DROP. However, I will show that even in these languages *pro*-DROP does take place in certain contexts.

I propose a novel and unified approach to the licensing and interpretation of the referential 3 person *pro*/TOPIC across human languages, based on discourse-syntax interface. In our system, both the discourse and the syntax components of the grammar are integrated in the interpretation of *pro*/TOPIC in the three typologically distinct types of languages in (1). The discourse role is manifested through: i) coreferentiality between *pro* and an ABOUTNESS topic (**A-topic**) in the C-domain, and ii) Top (i.e. the head of TopP (= Topic Phrase) is endowed with an Aboutness (= [**Abn**]) feature. This [**Abn**] feature is taken as an Edge Feature (**EF**), which requires merging a (silent) A-topic in Spec,TopP, yielding a discourse property and coreferentially correlating the A-topic in Spec,TopP with the argumental *pro* in Spec,*v*P. The role played by the syntax is manifested by the inflection attached to the verb, which licenses agreement between the verb and *pro*. The discourse-syntax interface role is manifested by: i) interpretation is “a requirement imposed by the interfaces between the syntax and neighboring systems” (Pesetsky & Torrego 2007: 265), and ii) the coreferentiality between both constituents is ‘regulated’ by AGREE AS MATCH (cf. Rouveret 2008; Frascarelli 2007). Our system hypothesizes that the ultimate licensing and interpretation of *pro*/TOPIC takes place as follows: i) *pro*

enters the derivation with valued, but uninterpretable features, ii) *pro*'s valued features value T's unvalued counterparts in the syntax, iii) *pro*'s interpretation takes place only when discourse comes to play, and that is, when a (silent) A-topic merges in Spec,TopP by coreferentially correlating the A-topic in Spec,TopP with the argumental *pro* in Spec,*v*P. The coreferential correlation is 'regulated' by AGREE (as MATCH).

The article is set up as follows. In Section 2, I investigate *pro*-DROP in all the language types presented in (1). In Section 3, I examine the relation between the preverbal DP and discourse. Here I try to answer the question as to why the preverbal DP is not a subject in (constant) NSLs, but rather an A-topic. It is base-generated in an A'-position, and constitutes a predicational structure with the verbal comment. Assuming, with Reinhart (1981), that the topic is what the sentence is about I will argue that the preverbal DP is an ABOUTNESS topic. In Section 4, I discuss the (narrow) syntax role in the interpretation of *pro*, highlighting the feature specifications of Top, T and *pro*. I propose that *pro* merges in Spec,*v*P and remains there throughout the derivation (see also Cardinaletti 1990, *et seq.*). The A-topic is base-generated in Spec,TopP by Spell-out (cf. Cecchetto 1999). The coreferentiality between this A-topic and *pro*(s) takes place via AGREE AS MATCH in which the feature specifications of the A-topic are copied onto *pro*'s counterparts. Section 5 presents the discourse-syntax interface in A-topic constructions. Our system reconciles the discourse and syntax at the interface via coreferentiality between both components, hence coreferentially linking the (silent) A-topic and *pro*, whereby the former functions as the antecedent for the latter. Thus, a (silent) A-topic condition is proposed as a UG principle, which correlates the syntax with the discourse, on the one hand, and accounts for the licensing and interpretation of *pro* in a language L, on the other hand, making our proposal novel and differentiating it from previous analyses. Section 6 concludes the paper.

2. *Pro-DROP across languages*

In this Section, I argue that in finite clauses a subject (and/or object) is allowed to be dropped if it is a pronoun, does not distort the information exchange, and is recoverable from the discourse in conformity with the Avoid Pronoun Principle (**APP**) formulated in (2). APP was proposed by Chomsky (1981) as a UG condition on silent pronouns.

(2) APP

An overt pronoun should be avoided if it is not strong, where strength refers to emphasis or recoverability

APP in (2) states that “a subcase of the conversational principle of not saying more than is required, or might be related to a principle of deletion-up-to recoverability” (Chomsky 1981: 65). In Arabic, the relevance of APP is manifested in examples like the following:

- (3) a. *šaliyy-un_i sa-yaʔti* pro_i *law šašara *huwa_{i/k}/pro_i bi-taħasun.*
 Ali-NOM FUT-come if felt he/pro with-good
 ‘Ali will come if he feels well.’
- b. *law šašara *huwa_{i/k}/pro_i bi-taħasun šaliyy-un_i sa-yaʔti* pro_i
 if felt he/pro with-good Ali-NOM FUT-come
 ‘If he_i feels well, Ali_i will come.’

The pronoun *huwa* is not allowed either in accidental, i.e. free (k) or non-accidental (i) coreference (see the indices), because it is weak (i.e. unstressed) in (3). This otherwise suggests that only *pros* are allowed in such contexts.

2.1. Consistent NSLs

In languages like Arabic, Italian, Spanish, Turkish, etc. a pronoun dropped in finite clauses was assumed to be associated with the typical richness of agreement inflection (**Agr_{infl}**) attached to the verb. This ‘richness’ of inflection was deemed to play an important role in the licensing and interpretation of the dropped pronoun (see e.g. Chomsky 1982; Rizzi 1986; Gilligan 1987; Huang 1984; Cole 1987; Ackema *et al.* 2006; Koenenman & Zeijlstra 2014). However, I argue that even in NSLs agreement morphology is not a sufficient ingredient for *pro*-DROP to take place, and that discourse plays a crucial role in the licensing and interpretation of 3 *pro*. Consider (4a) (from Italian, cf. Biberauer *et al.* 2010: 99) and (4b - c) from Arabic (cf. Shormani 2016a):

- (4) a. *Verrà* pro
 come.FUT.3MS
 ‘He will come.’
- b. *sa-t-aʔti* pro
 FUT.3FS-come
 ‘She will come.’
- c. *hind-un_i sa-t-aʔti* pro_i
 Hind-NOM FUT-3FS-come
 ‘Hind will come.’

According to the previous analyses, *pro* is interpreted as *He* in (4a) and *She* in (4b). In (4b), for instance, *pro* is interpreted as 3 person singular feminine. This interpretation was said to be associated with the Agr_{infl} infix *-t-* attached to the verb, because *-t-* carries these features. However, the problem is that the pronoun *He/She* in these

examples has no specific referent. Put differently, if (4a) or (4b) is said out of context/discourse, *He/She* simply *refers* to nobody (cf. Kayne 2000, 2002). This makes the interpretation of *pro* in these examples ‘vague’ (cf. Hasegawa 1985). Thus, the question is: what does *pro* refer to in such constructions? (I return to this issue in Section 5.2).

In (4c), the interpretation of *pro* is very clear, in that *pro* is interpreted as 3 person singular feminine. The clarity of the interpretation of *pro* in this example comes from the fact that it has a specific referent, the preverbal DP *hind-un* being in the same sentence. If we assume that this preverbal DP is a topic, ‘sitting’ in C-domain, and since C-domain belongs to the information structure (i.e. discourse, see e.g. Lambrecht 1994; Benincá 2001; Rizzi 1997, 2004, 2006; Cinque 2006; Erteschik-Shir 2007), it follows that discourse partly contributes to the interpretation of *pro* in (4c). However, the question remains as to why the preverbal DP *hind-un* is not the subject; and therefore, no need for *pro* at all? (I return to this issue in Section 3). The ‘vagueness’ of the interpretation of *pro* in (4a-b) adds support to the claim that discourse plays a crucial role in interpreting *pro* in (4c) (cf. Rizzi 1986; Gilligan 1987; Sigurðsson 1993; Abraham 1993; Rizzi 1986; Cardinaletti 1990a,b; Kayne 2000; Ackema *et al.* 2006; Erteschik-Shir 2007; Koenenman & Zeijlstra 2014). However, the Agr_{infl} in (4b), namely *-t-* also contributes to the interpretation of *pro*, which highlights the syntactic role in such interpretation. This is so because the computation of agreement (inflection) features takes place in the (narrow) syntax, and given that “the value of a particular feature [say, number] is morphologically represented on ... [a] lexical item”, here the verb (Pesetsky & Torrego 2007: 262), it follows that the syntax also partly contributes to the interpretation of *pro*.

To further see how the discourse and syntax contribute to the interpretation of the referential *pro*, consider the following:

- (5) a. *mata sa-t-aʔti hind-un?*
 when FUT-3FS-come Hind-NOM
 ‘When will Hind come?’
- b. *sa-t-aʔti pro ʔad-an.*
 FUT-3FS-come tomorrow-ACC
 ‘She (Hind) will come tomorrow.’

Given the conversation nature of (5), it is understood that *pro* in (5b) refers to the DP *hind-un* mentioned in (5a). Differently put, although the DP *hind-un* is mentioned in (5a), but not in (5b), the referent of *pro* in (5b) is understood from the context/discourse, and that this referent is the DP *hind-un*. On the other hand, the syntactic role

played in such interpretation is manifested by the Agr_{infl}, i.e. the infix *-t-*, which carries the 3 person singular feminine features, which, in turn, match those carried by the DP *hind-un*.

2.2. Partial NSLs

In languages in (1aii) like Marathi, Bengali, Finnish, Hebrew, etc., *pro* licensing is highly constrained, specifically the 3 *pro*. Unlike consistent NSLs, a definite 3 *pro* subject is allowed only in certain contexts. Note that partial NSLs have a generic *pro* subject (something equivalent to ‘one’ in English, but consistent NSLs like Arabic do not have it (see e.g. Gilligan 1987, see also Huang 2000: 53, for a comprehensive taxonomy of *pro*-DROP in these languages).

In Hebrew, for example, *pro* subjects are allowed only in strict environments and according to person and tense. As for person, referential *pros* are allowed only “with first and second person inflection; third person covert subjects are only possible in contexts of (non-standard) binding and/or Control” (Shlonsky 2009: 133). As for tense, referential *pros* are only allowed “in past and future tense clauses. They are ruled-out in present tense clauses.” Compare and contrast (6a) with (6b) (slightly modified from Shlonsky 2009: 134, cf. also Shormani 2016a):

- (6) a. (lo) *ma'arixim* *et ha truma* *šel-a.*
 NEG appreciate.PRES.MPL ACC the contribution of-3FS
 ‘People (don’t) appreciate her contribution.’
- b. **eyn-am* *ma'arixim* *et ha truma* *šel-a.*
 NEG-3PL appreciate.PRES.MPL ACC the contribution of-3FS
 ‘People don’t appreciate her contribution.’

According to Shlonsky, the ungrammaticality of (6b) lies in the use of the negative particle *eyn*, which cannot occur in past or in future tense. Because it carries the 3 person suffix, e.g. *-am*, *eyn* occurs only in present tense.

In partial NSLs, however, 1 and 2 *pros* freely occur in finite clauses, unlike 3 *pros*. Consider (7) (adopted from Ackema *et al.* 2006: 7-12):

- (7) a. *Nousin* *junaan.*
 step.PAST.1SG train.into
 ‘I boarded the train.’
- b. *Nousit* *junaan.*
 step.PAST.2SG train.into
 ‘You boarded the train.’
- c. **Nousi* *junaan.*
 step.PAST/3SG train.into
 ‘(He/she) boarded the train.’

One reason behind the inability of 3 *pro*(s) to occur in Finnish examples like (7c) may be that these languages have/allow for a generic pronoun like ‘one’ in English.

To further see how discourse contributes in allowing 3 *pro* to occur in partial NSLs like Finnish, for instance, consider (7d) (cf. Holmberg 2005: 539):

- (7) d. *Pekka_i väittää_j [että hän_{i5}/Ø_i/*_j puhuu englantia hyvin].*
 Pekka claims that he speaks English well

Describing this occurrence of 3 *pro* in Finnish, Holmberg states that “A 3rd person definite subject pronoun can be null when it is bound by a higher argument, under conditions that are rather poorly understood.” The “conditions that are rather poorly understood” to Holmberg, I contend, have mainly and largely to do with the discourse role, which is manifested by the coreferentiality between *pro* and a (silent) A-topic in the same discourse (I discuss this issue in detail in Section 5.2).

2.3. TDLs

(1b) languages like Chinese have no agreement morphology, but they allow any argument to be dropped, not just subjects. As far as subject/topic is concerned, many linguists (e.g. Huang 1984, 1989; Hasegawa 1985; Cole 1987; Neeleman & Szendrői 2007) hold that it is the topic-prominence, viz., a discourse factor, that allows *pro*/TOPIC to be dropped in these languages. Consider the following examples (cf. Huang 1984: 533):

- (8) Speaker A: *Zhangsan kanjian Lisi le ma?*
 Zhangsan see Lisi LE Q
 ‘Did Zhangsan see Lisi?’
- Speaker B: a. *ta kanjian ta le.*
 he see he LE
 ‘He saw him.’
- b. *pro kanjian ta le.*
 ‘[He] saw him.’
- c. *ta kanjian pro le.*
 ‘He saw [him].’
- d. *pro kanjian pro le.*
 ‘[He] saw [him].’

The data in (8) show that Chinese allows the subject and object to be dropped as in (8b) and (8c), respectively. Interestingly, both subject and object pronouns can be dropped as in (8d). Accounting for these facts, Huang (1984), for instance, claims that this allowance is con-

ditioned by discourse, which allows for the recoverability of *pro*. He adds that interpreting *pro* as he/him in these examples is just one possibility, and that “[d]epending on the context, it may be ‘I’, ‘she’, etc.” (p. 537, fn. 4). He distinguishes NSLs like Italian from nonNSLs like Chinese, arguing that *pro*-DROP occurs in the former as a subject drop, and in the latter a topic drop. Another view is held by Roberts (2010: 86) who argues that both types of languages are ‘sharply’ contrasted with each other. Roberts, however, attributes this contrast to the agreement morphology as totally absent in nonNSLs *vs* ‘richly’ realized in NSLs (see also Ackema *et al.* 2006). However, in our system it is proposed that in languages like Chinese topics can be dropped without the need of the syntax for recoverability (cf. Erteschik-Shir 2007). The syntactic role played in licensing *pro*/TOPIC-DROP in these languages is, thus, ‘compensated’ by the Silent A-topic Principle (I return to this issue in Section 5.2).

2.4. NPTLs

This category includes languages like English and French; these languages are generally said not to allow a pronoun to be dropped. However, in this Section I will show that even in these languages pronouns can be dropped. In fact, in special discourse environments or registers, like registers where the ‘core’ grammar is overruled by ‘pressures of economy’, a pronoun can be dropped in NPTLs. These registers include diaries, short notes and some kinds of colloquial speech. Consider (9a-b) and (9c-d) from English and French, respectively (cf. Haegeman 2000: 130ff; see also Radford 2009: 36):

- (9) a. *He studied hard last night.*
b. *– studied hard last night.*
c. *Elle est alsacienne.*
She is Alsatian.
d. *– paraît intelligente.*
– seems intelligent.

To see how discourse allows for *pro*-DROP even in English, consider the example in (10), where discourse plays a crucial role in identifying the deleted pronoun *he* in (10c), and in accounting for its antecedent:

- (10) a. ?? *John went home. John ate his dinner. John went to bed. John got up at 6:30.*
b. ? *John_i went home. He_i ate his dinner. He_i went to bed. He_i got up at 6:30.*
c. *John_i went home, [-]_i ate his dinner, [-]_i went to bed and [-]_i got up at 6:30.*

Although English is not a *pro*-DROP language, the fact that (10c) is the most natural lies in dropping the noun/pronoun *John/he* from (10a) and (10b), respectively. Noam Chomsky (personal communication) rightly observes that (10a) “Is extremely awkward. ([10]b) is rather formal. ([10]c) would be normal in discourse.” In addition, Andrew Radford (personal communication) has rightly pointed out that assuming Grice’s Maxim, ‘Be concise’, (10c) would be the most usual form in discourse (or colloquial English). He also states that (10b) represents “short staccato, ‘punchy’ sentences.” Although (10a) is grammatical, it is only appropriate in “a scenario in a court where a lawyer is disputing who performed certain actions, and the lawyer says to a witness: Stop being evasive! Tell me exactly: WHO went home? WHO ate his dinner? WHO went to bed? WHO got up at 6.30?” Comparing the three utterances in (10), what would be represented in [-] is definitely the pronoun *he*, but not, say, the noun *John*. In such contexts, I propose that the DP *John* functions as the antecedent of all the dropped pronoun instances, which constitute a chain (I return to this issue in Section 5.2).

3. SVO, discourse and the preverbal DP

Given the standard assumption that C-domain is equated with the information/discourse structure, I will show in this Section that the preverbal DP is a C-domain element and not a T-domain one. I will also show that the preverbal DP is an A-topic, and that A-topic structure is a predicational construction.

3.1. The preverbal DP and C-domain

In some studies, the preverbal DP in Arabic SVO structures is claimed to be a subject, and belongs to T-domain (see e.g. Aoun *et al.* 1994; Mohammad 1990, 2000). However, I will provide evidence that it belongs to C-domain, focusing mainly on base-generation, specificity and interpretation phenomena.

3.1.1 Base-generation

I argue here that the preverbal DP in Arabic is an instance of base-generation, rather than movement. In particular, I argue that the A-topic shares this property with Clitic Left Dislocated (**CLD**) materials, which are said to be base-generated in their surface positions (see e.g. Cinque 1990; Demirdache 1991; Olarrea 1996; Rizzi 1997; Soltan 2007; Rouveret 2008; Shormani 2015), though A-topics

differ from CLDs in several aspects. There are several diagnostics in support of this, but I will just focus on three diagnostics, namely resumption, coreference with a referential *pro* and Case property.

It has been widely held that resumption is indicative evidence that a CLD element is base-generated in its surface position, rather than moved to it. However, the A-topic is not necessarily resumed in some contexts as shown in (11a), but in some other contexts resumption is obligatory as illustrated in (11b):

- (11) a. *ʕaliyy-un kataba qiʕʕat-an.*
 Ali-NOM wrote story-ACC
 ‘Ali wrote a story.’
- b. *ʕaliyy-un jaaʔa huwa wa ʕaalid-un.*
 Ali-NOM came he and Khalid-NOM
 ‘Ali, he and Khalid came.’
- c. **ʕaliyy-un jaaʔa wa ʕaalid-un*
 Ali-NOM came and Khalid-NOM

That the preverbal DP *ʕaliyy-un* in (11b) is an instance of base-generation comes from the fact that the coordinate structure *huwa wa ʕaalid-un* is an island, extracting out of which is not possible (cf. Ross 1967; Aoun *et al.* 1994; Harbert & Bahloul 2002; McCloskey 2002; Boeckx 2003; Soltan 2007). If resumption does not take place, the structure is rendered ungrammatical as shown in (11c). Another context in which the preverbal DP must be resumed comes from the behavior of floating quantifiers as (12) and (13) show:

- (12) a. *t-tullaab-u ʔat-uu kull-u-hum.*
 the students-NOM came-3MPL all-NOM-them
 ‘The students all came.’
- b. **t-tullaab-u ʔat-uu kull-u.*
 the students-NOM came-3MPL all-NOM
- (13) a. *ʕanan-tu ʔanna t-tullaab-a sa-yaʔtuuna kull-u-hum.*
 though-I that the-students-ACC FUT-come all-NOM-they
 ‘I thought that the students will all come.’
- b. **ʕanan-tu ʔanna t-tullaab-a sa-yaʔtuuna kull-u.*
 though-I that the-students-ACC FUT-come all-NOM

In (12a), the preverbal DP *t-tullaab-u* is resumed by the clitic pronoun *-hum* attached to the quantifier *kullu*. When resumption does not take place, the result is an ungrammatical structure as (12b) shows. Resumption brought about by floating quantifiers is also evidenced in embedded clauses as the examples in (13) show. The ungrammaticality of (12b) and (13b) has mainly to do with violating Ross’s (1967) COMPLEX DP CONSTRAINT, which is formulated in (14) (cf. Boeckx 2003; Shormani 2015):

- (14) COMPLEX DP CONSTRAINT
Nothing may be moved out of a complex DP

The preverbal DP *t-tullaab-u* and *kullu* form a complex DP, because they occur in the form of a Construct State (CS, a Semitic structure, see e.g. Ritter 1991; Danon 2001; Benmamoun 2003; Siloni 1997, Shormani 2014, 2016b) which is an island. Thus, when resumption takes place, the violation of (14) is repaired as in (12a) and (13a) (see also Demirdache 1991; Boeckx 2003; Aoun & Li 2003).

Let us now turn to the coreference with a referential *pro*. This diagnostic will be discussed in detail in Section 5.1. For now, consider (15). (15a) is a declarative sentence, and is schematized in (15b), while (15c) is an interrogative construction, which is schematized in (15d). (15c-d) are taken from Demirdache (1988: 12):

- (15) a. *ʕaliyy-un kataba pro qiṣṣat-an.*
Ali-NOM wrote story-ACC
'Ali wrote a story.'
- b. [_{CP} ʕaliyy-un_k [_{TP} [_T [kataba]_j [_{VP} (*ʕaliyy-un)/_{pro_k} [_v [t_i]... [_{DP} qiṣṣat-an]]]]]]
- c. *al-rijaal-u mataa katab-uu pro l-kitaab-a.*
DEF-men-NOM when wrote-3MP DEF-book-ACC
'The men, when did they write the book?'
- d. [_{CP} al-rijaal-u_i [mataa [_{TP} katab-uu [_{VP} _{pro_i} [_{v_{t_j}} l-kitaab-a]]]]

The coreferentiality manifested between the preverbal DP and *pro* indicates that the former is a result of base-generation and not movement. Informally, no two subjects can occupy the same position, whereby one remains and the other moves. Formally, if, according to our postulation, *pro* is base-generated in Spec,*v*P, the DP *ʕaliyy-un* can by no means be base-generated in, and moves from, that position. Along these lines, Demirdache (1988) rightly observes that the derivation of (15d) “cannot involve movement.” The preverbal DP cannot be preposed from Spec,*v*/VP to Spec,CP, and “must be a nominative topic base-generated to the left of the *wh*-phrase” which is linked with *pro* in Spec,*v*P.

Further evidence in support of base-generation of the preverbal DP comes from Case phenomenon. The standard assumption is that subjects of finite I/T are assigned Nom Case by T cross-linguistically (see Kitagawa 1986; Chomsky 1986; Borer 1986; Kuroda 1988; Speas 1990; Diesing 1990; Koopman & Sportiche 1991; Plunkett 1993; Olarrea 1996; Pollock 1997; McCloskey 1997; Shormani 2015). But since the preverbal DPs in Arabic can be assigned nonNom Case, it follows that the preverbal DP does not move to Spec,TP (or a higher position). Consider the following examples:

- (16) a. *kataba* *ʕaliyy-un* *qiṣṣat-an.*
wrote Ali-NOM story-ACC
‘Ali wrote a story.’
- b. **kataba ʕaliyy-a/in* *qiṣṣat-an.*
wrote Ali-ACC/GEN story-ACC
- c. *ʕaliyy-un* *kataba* *qiṣṣat-an.*
Ali-NOM wrote story-ACC
‘Ali wrote a story.’
- (17) a. *ʔinna ʕaliyy-an* *kataba* *qiṣṣat-an.*
that Ali-ACC wrote story-ACC
‘Indeed, Ali wrote a story.’
- b. *zanan-tu ʕaliyy-an* *kataba* *qiṣṣat-an.*
thought-I Ali-ACC wrote story-ACC
‘I thought Ali wrote a story.’
- c. *ʔaʕjaba-nii* *kawn-u* *ʕaliyy-in* *kataba* *qiṣṣat-an.*
satisfied-me being-NOM Ali-GEN wrote story-ACC
‘It satisfied me that Ali wrote a story.’

In (16a), the postverbal DP-subject *ʕaliyy-un* is Case-marked as Nom and no other Case would be possible as is illustrated by the ungrammaticality of (16b). However, (17) shows that the preverbal DP *ʕaliyy-an* is assigned Acc Case by the complementizer *ʔinna* in (17a), the matrix verb in (17b), and Gen Case in (17c). In the latter case, it functions as the genitive DP complement of the head of the CS *kawn-u*. This suggests that such a DP is not a subject, but rather a C-domain element, i.e. a topic of some sort, having a default Nom Case (cf. Schütze 2001; Mohammad 2000). If it were a subject moved from Spec,*v*/VP, it would have maintained its Nom Case (cf. also Shormani 2015).

3.1.2. Specificity

It is widely assumed that the notion ‘specificity’ of a DP can be obtained either by definiteness or by strong coreferentiality (see e.g. Heim 1982; Alexiadou *et al.* 2007; Lyons 1999; Ihsane & Puskás 2001; Dobrovie-Sorin 2001, 2002, Shormani 2017). As for the former case, a preverbal DP must be definite. This property is shared by CLD materials as well. Compare and contrast (18) with (19):

- (18) a. *al-kitaab-u* *qaraʔ-tu-hu.*
the-book-NOM read-I-it
‘The book, I read it.’
- b. *?*kitaab-un* *qaraʔ-tu-hu.*
book-NOM read-I-it
- (19) a. *ar-rajul-u* *ʔakala* *t-tuffaahat-a.*
the-man-NOM ate the-apple-ACC
‘The man ate the apple.’
- b. **rajul-un* *ʔakala* *t-tuffaahat-a.*
man-NOM ate the-apple-ACC

To account for the ungrammaticality of (18b), previous studies assumed that the CLD element *kitaab-un* must be definite. The same view was held regarding (19b). However, the fact that an indefinite DP can occur in the preverbal position as in (20b) casts some doubts on this assumption:

- (20) a. **rajul-un* *jaaʔa*.
 man-NOM came
 ‘A man came.’
- b. *rajul-un* *daxala* *ʕalay-naa*.
 man-NOM entered on-us
 ‘A man has come to us.’

In (20b), the preverbal DP *rajul-un* is strongly referential/specific, which is not the case in (20a). (20b) has a reading akin to ‘There is a particular man who came to us’. This reading is not available in (20a). In this sense, the DP *rajul-un* in (20b) is or refers to a specific person unique for both the speaker and hearer. As these facts show, what matters most seems to be the specificity of the preverbal DP, and not its definiteness (see also Shormani 2017).

The facts shown by Arabic and Italian data in the examples above give rise to two important issues: i) these facts add extra support that the preverbal DP in NSLs is a topic, and not a subject, and consequently ii) this topic is not necessarily definite. This line of analysis is sharply contrasted with some works in the literature, which assume sharp definiteness of the preverbal DP.

3.1.3. Interpretation

It has been held cross-linguistically that while VSO has athetic interpretation, SVO is interpreted as categorical (see e.g. Kuroda 1972; Sasse 1987; Basilico 1998; Lambrecht 1994; Trecci 2006, see also Yateem 1997; Soltan 2007; Shormani 2015, for Arabic). According to Kuroda (1972: 154), SVO represents ‘predicational’ constructions, having categorical judgments. These predicational constructions represent a relation between a topic and a predicate in topic-comment constructions. In this type of structure, a certain property is assigned to the individual denoted by the subject. Thethetic judgment, however, “represents simply the recognition or rejection of material of a judgment.”

One further remark about VSO *vs* SVO concerns markedness *vs* unmarkedness. VSO is said to be “the unmarked word order in Arabic sentences. It is the order found in so-called pragmatically neutral contexts, i.e. in sentences which require fewer mechanisms of

interpretation or derivation” (Fassi Fehri 1993: 19). This implies that SVO requires ‘further syntactic computations’, because it involves a topic as a left periphery constituent. Compare and contrast (21a) with (21b):

- (21) a. *kataba ʕaliyy-un risaalat-an.*
 wrote Ali-NOM letter-ACC
 ‘Ali wrote a letter.’
- b. *ʕaliyy-un kataba pro risaalat-an.*
 Ali-NOM wrote letter-ACC
 ‘Ali wrote a letter.’

In (21a), for instance, the focus is on the action, i.e. ‘the writing of the letter’, and the postverbal subject *ʕaliyy-un* is just involved in it. This involvement may not exclude some other entity like *Ahmed*, *Khalid*, etc. from the discourse. However, unlike (21a) the involvement of some entity other than *ʕaliyy-un* is excluded in (21b). Along these lines, Basilico (1998: 546) argues that in a categorical interpretation “a particular individual is singled out and then some property is attributed to that individual.” However, in athetic interpretation, Basilico argues, “our attention is drawn to the event itself and not the participants of the event.”

To conclude, the assumption that the preverbal DP *ʕaliyy-un* in (21b), for instance, is selected and the verbal predicate (or verbal comment) *kataba risaalat-an* is given *about him* suggests that the preverbal DP is an ABOUTNESS topic, viz., A-topic. Suppose this ABOUTNESS is a feature; it could be thought of as characteristic to A-topics, say, *ʕaliyy-un* in (21b), but not to any preverbal DP in general (say, CLD materials). This, however, begs the question as to whether or not ABOUTNESS is the only function a preverbal DP does. The standard assumption is that topics do different functions in the sentence including denoting ABOUTNESS, FAMILIARITY, GIVENNESS, CONTRAST, etc. coming up with such terminologies as A-topic, F-topic, G-topic, C-topic, respectively (see e.g. Givon 1983; Reinhart 1981; Frascarelli & Hinterhölzl 2007; Bianchi & Frascarelli 2010). However, these different functions are made use of where these topics co-occur. But since the preverbal DP does not co-occur with such topics, and since this preverbal DP is what apparently seems to be the (logical) subject in SVO structures, it can be argued that this preverbal DP denotes an ABOUTNESS feature *per se*. Still, however, issues like what is the nature of ABOUTNESS, A-topics, etc. need to be further investigated, and I tackle these and other related issues in the next Section.

3.2. Topics, ABOUTNESS and ABOUTNESS-topics

Although “topic” is what the sentence is about (Reinhart 1981), what counts as a topic is not very clear (Erteschik-Shir 2007: 7). I will, therefore, begin by examining the notion ‘topic’ in general, and return to ABOUTNESS and ABOUTNESS-topics. Several attempts have been made to define a topic based on linguistic components specifically in terms of either the syntax or phonetics (Reinhart 1981). Syntactically, particularly in terms of a linear order, it has been defined as the first element in the sentence and sometimes as the subject of the sentence (see e.g. Bayer 1980; Reinhart 1981; Givon 1983; Lambrecht 1994). Phonetically, stress and intonation have been employed in defining a topic as an unstressed expression.

Furthermore, topics have also been classified into two types, namely sentence topics and discourse/pragmatic topics. These two types of topics are illustrated in (22) (cf. Reinhart 1981: 54):

- (22) a. *Mr. Morgan is a careful researcher and a knowledgeable Semiticist, but his originality leaves something to be desired.*
b. Sentence topic: (22a) is about Mr. Morgan
c. Discourse topic: (22a) is about Mr. Morgan’s scholarly ability

Reinhart (1981: 54) holds that sentence topics and discourse/pragmatic topics are contrasted with each other as the difference between (22b) and (22c) suggests. The difference lies in that while “sentence topics must correspond to an expression in the sentence, discourse topics are topics of larger units and can be more abstract”. According to Reinhart, it is (22b) (but not (22c)) that the notion “aboutness the technical term *sentence-topic* is intended to capture in linguistic theory.” She refers to (22c) as a discourse topic.

Reinhart (1981) also argues that the topic is not necessarily the first element in the sentence as (23c) shows, where *Jane*, but not *John*, is the topic (but see Krifka 2001; Bianchi & Frascarelli 2010, for different conceptions):

- (23) a. *John saw Jane yesterday.* John is the topic.
b. *Did anybody see Jane yesterday?*
c. *John saw Jane yesterday.* Jane is the topic.

Reinhart argues that although *Jane* is not the subject; nor is it the first element in the sentence, it is the topic in (23c), because it is what the sentence is about (i.e. as an answer to the question in (23b)).

However, according to Bayer (1980: 7), subjects are more likely to be topics than objects are. Bayer argues for discourse/pragmatic subject topics

and takes the assumption “old *vs* new information” as a criterion to distinguish subject topics from object ones. The former, according to him, express “old information” and “coincide more often with the intuitively felt topics than “new information” and so on.” Another view favoring discourse criterion is advocated by Krifka (2001). Krifka argues that speech act itself plays a role in selecting topics, “an initiating speech act that requires a subsequent speech act like an assertion, question, command, or curse about the entity that was selected” (Krifka 2001: 25). Thus, I will assume Bayer’s and Krifka’s position that the subject (the preverbal DP in this study) is an A-topic.

Let us now turn to the notion ABOUTNESS. The notion ABOUTNESS has been tackled in terms of pragmatic *vs* semantic ABOUTNESS. Pragmatic ABOUTNESS is seen as what an interpreted sentence is about in a given context or discourse environment (Reinhart 1981: 58). According to Reinhart, a sentence in a particular context may not be topically marked in a specific way (i.e. either by intonation or dislocation). Given this, Reinhart suggests, an overt ABOUTNESS topic may not be there, or one salient referent denoted by some DP in a given sentence (see also Bayer 1980). In this sense, pragmatic ABOUTNESS seems to have a discourse connotation. The semantic notion of ABOUTNESS, on the other hand, can be viewed as not very much adequate, compared to pragmatic ABOUTNESS. According to Reinhart (1981), semantic ABOUTNESS is what a contextually isolated sentence may potentially be about, but pragmatic/discourse ABOUTNESS specifies the sentence in a given discourse. What concerns us here is in fact the pragmatic/discourse ABOUTNESS. Consider the following examples:

- (24) a. *maaḏaa* *ʕan* *ʕaliyy-in?*
 what about Ali-GEN
 ‘What about Ali?’
- b. *ʕaliyy-un* *ḏahaba* *ʔila* *s-suuq-i*
 Ali-NOM went to the-market-GEN
 ‘Ali went to the market.’
- c. *?*ḏahaba* *ʕaliyy-un* *ʔila* *s-suuq-i*
 went Ali-NOM to the-market-GEN

The constructions in (24) are part of a discourse in a question-answer conversation. In (24b), *ʕaliyy-un* is the ABOUTNESS topic of the sentence due to the fact that it answers the question in (24a). The same thing can also be said about English as indicated by the English gloss (cf. Portner & Yabushita 1998). The ungrammaticality/oddity of (24c) is due to focus. The DP *ʕaliyy-un* cannot be used in a postverbal position, because it is focalized in this context.

Reinhart’s (1981) approach to ABOUTNESS has been adopted and adapted by several authors. For example, Portner & Yabushita (1998)

elaborate on Reinhart’s seminal ideas and analyze *wa*-topics in Japanese in sentence-initial positions. They, however, differ from Reinhart in that their proposal concerns semantic more than pragmatic ABOUTNESS. They relate their proposal to ‘root scope,’ arguing that the interpretation of an A-topic should be related to this notion. To them, an A-topic should have scope over the whole proposition in a given sentence. They propose that A-topics are contrastive topics and that a C-topic is the same as an A-topic, but with focus which signals an alternative (see also Buring 2003, for similar conclusions). They take ABOUTNESS as a relation between discourse referents and proposition, concluding that the latter “represents subparts of the common ground” (Portner & Yabushita 1998: 152).

To sum up, if the notion ABOUTNESS is related to the preverbal DP, i.e. the logical subject, but not to any other type of topic, it follows that this ABOUTNESS is a feature of this DP, which makes it different from any other topic like C-topic, F-topic, G-topic, etc. (cf. Frascarelli & Hinterhölzl 2007). It also follows that an A-topic has the feature [+specific]. As noted in Section 3.1.2, this specificity of the topic is enforced by the discourse “to newly propose or reintroduce a topic”. A similar view of ABOUTNESS has also been developed by Frascarelli & Hinterhölzl (2007). However, Frascarelli & Hinterhölzl identify three types of topics, namely A-topic, C-topic and F-topic. A-topic (i.e. aboutness-shift topic in their terms) is base-generated in the Spec of the highest TopP projection. C-topic and F-topic, according to them, occupy Specs of lower TopP projections. Still, however, there are two issues to investigate: how A-topic constructions are derived and where the A-topic is base-generated, and I address these and other related issues in the following Section.

3.3. A-topic, predication and clausal projection

The idea that the preverbal DP is an ABOUTNESS topic suggests that it is an A`-constituent, and is base-generated in an A`-position, but where exactly? Given the assumption that Spec,TP in Arabic is an A`-position, it may be taken as the base-generation position of this A-topic. However, assuming (25) as the standard clause structure in Arabic (see e.g. Mohammad 2000; Aoun *et al.* 2010; Shormani 2015), it seems that Spec,TP is not an option as manifested by the ungrammaticality of structures like (26):

(25) CP>ModP>NegP> TP>vP> VP

(26) **laa* *ʕaliyy-un yuḍaakir-u jayyd-an.*
not Ali-NOM study well-ACC

Thus, the ungrammaticality of (26) presumably indicates that Spec,NegP is a possible option for the A-topic's base-generation position, particularly given the grammaticality of (27):

- (27) *ʕaliyy-un laa yuḏaakir-u jayyd-an.*
 Ali-NOM not study well-ACC
 'Ali does not study well.'

However, structures like (28) indicate that even Spec,NegP is not the exact base-generation position of the A-topic, but rather Spec,ModP:

- (28) *ʕaliyy-un qad laa yuḏaakir-u jayyd-an.*
 Ali-NOM may not study well-ACC
 'Ali may not study well.'

(28) apparently shows that Spec,ModP may be the base-generation position of the A-topic in Arabic. However, two phenomena perhaps rule out this possibility. First, it is not clear whether Spec,ModP qualifies as an A'-position. Second, structures like (29), where an A-topic and a CLD element co-occur rule out such an option:

- (29) *ʕaliyy-un l-qisṣat-u qad kataba-haa.*
 Ali-NOM the-story-NOM may wrote-it
 'Ali, the story, he may have written it.'

A strong piece of evidence that Spec,NodP cannot be a possible base-generation position of an A-topic comes from adverb placement. Consider the following examples:

- (30) a. *al-mudarris-u daaʕim-an laa yaʔti mubakkir-an*
 the-teacher-NOM always-ACC not come early-ACC
 'The teacher does not always come early.'
 b. *al-mudarris-u daaʕim-an qad laa yaʔti mubakkir-an.*
 the-teacher-NOM always-ACC may not come early-ACC
 'The teacher may not always come early.'
 c. **al-mudarris-u qad daaʕim-an laa yaʔti mubakkir-an.*
 the-teacher-NOM may always-ACC not come early-ACC

The ungrammaticality of (30c) strongly supports the assumption that Spec,ModP is not the position where A-topic is base-generated.

The above discussion apparently suggests that Spec,CP is the appropriate base-generation position of the A-topic. However, this possibility is ruled out, given the ungrammaticality of (31b):

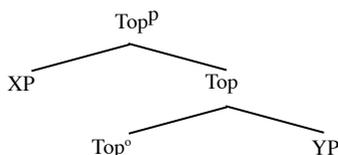
- (31) a. *ʕinna ʕaliyy-an yuḏaakiru jayyd-an.*
 that Ali-NOM study well-ACC
 'Indeed, Ali studies well.'

- b. *ʕaliyy-un ʔinna yuḏaakiru jayyd-an
 Ali-NOM that study well-ACC

To overcome the problem imposed by *ʔinna*, it seems that the C-domain must be articulated (or split, see Benincá 1983, *et seq.*; Rizzi 1997, 2004). Rizzi, for instance, assumes that C-domain is projected into **ForcP** (= Force Phrase), **TopP** and **FocP** (= Focus Phrase) (in addition to **FinP** (= Finite Phrase)). Rizzi’s main ideas stem from the assumption that C-domain is “the interface between a propositional content (expressed by IP) and the superordinate structure (a higher clause or, possibly, the articulation of discourse, if we consider a root clause)” (Rizzi 1997: 283).

However, the question is: where is exactly the A-topic base-generated? Given the predicational nature of topic-comment structures (see e.g. Kuroda 1972; Lambrecht 1994; Benincá 2001, 2006; Rizzi 1997, 2004), I propose (32) as the underlying structure of A-topic constructions in Arabic (and cross-linguistically, where XP is the A-topic, and YP is the verbal comment, precisely TP, cf. Rizzi 1997: 266, 2004: 7).

(32)



If this analysis is on the right track, it is, then, expected that “Top° defines a kind of “higher predication”, a predication within” the C-domain whose Spec is the A-topic and the verbal comment is its complement (Rizzi 1997: 286, see also Benincá 2001: 40). It follows that every predicative sentence must have a topic (Lambrecht 1994, see also Frascarelli 2007: 729). This is also on a par with the **EPP** (= Extended Projection Principle) of T (see Chomsky 1981: 26). Thus, if every A-topic sentence must have a topic, then, it is expected that the head Top° is endowed with a C-domain feature, which requires its Spec to be ‘filled’ with a ϕ -complete DP (in Chomsky’s (2001) sense). If, as we concluded in Section 3.2, the head Top (or Top° in (32)) is endowed with an ABOUTNESS feature, it is reasonable to postulate that this ABOUTNESS feature is unvalued (henceforth, [uAbn]) on Top°. Given the standard phase assumption that CP (here TopP) is a phase, Top’s [uAbn] can count as an EF feature (I return to this issue in Section 4.2.1).

As for the order of the C-domain's articulated phrases, I propose (33) as the hierarchical structure of A-topic constructions cross-linguistically (cf. Benincá 1983, 2001: 62, 2006, Benincá & Poletto 2004, Rizzi 1997, 2004):

- (33) ForcP.... TopP.... FocP.... TP....

(33) is supported by facts concerning *ʔinna*'s base-generation position in structures like (31a-b) above. The fact that *ʔinna* is base-generated in Forc⁰ gains support from the declarative nature of the clause type. I take *ʔinna* to be a marker of declarativeness, which, according to Chomsky (1995), is encoded in C, specifically in Forc⁰. One strong piece of evidence supporting this assumption comes from the complementary distribution between *ʔinna* and yes-no question particles like *hal* in Arabic structures such as (34). As a question particle, *hal* is base-generated in Forc⁰ (see also Benincá 2001: 62, for Italian TopP and ForcP positioning):

- (34) a. *ʔinna t-taalib-a* *ḍakiyy-un.*
 that the-student-ACC clever-NOM
 'Indeed, the student is clever.'
- b. *hal t-taalib-u* *ḍakiyy-un.*
 Q the-student-NOM clever-NOM
 'Is the student clever?'
- c. **ʔinna hal* *t-taalib-a* *ḍakiyy-un.*
 that Q the-student-ACC clever-NOM
- d. **hal ʔinna* *t-taalib-a* *ḍakiyy-un.*
 Q that the-student-ACC clever-NOM

As (34c-d) show, there is a complementary distribution between *ʔinna* and *hal* regardless of the position each occupies.

To conclude, I would like to stress that the A-topic cartographically constitutes an 'information structure primitive' in the left periphery, solely needed as an information requirement, and projected on its own (see also Erteschik-Shir 2007; Cinque 2006; Rizzi 2004, 2006; Cinque & Rizzi 2010). It has also been argued in this Section that the head Top⁰ is endowed with an [*uAbn*] feature, which counts as an edge feature. And this feature is satisfied by merging the A-topic in Spec,TopP. Thus, under the present analysis merging the A-topic in Spec,TopP is triggered by interpretative import which, I assume, rests on the [*uAbn*] feature of Top⁰. I will also show later on that once a predicational sentence is intended, merging the A-topic in Spec,TopP is a discourse requirement, and that it must be driven

by the interpretative needs of *pro*. The Spell-out of this A-topic is then determined by discourse, i.e. the A-topic is either spelled out or remains silent, depending on the discourse (cf. Erteschik-Shir 2007: 89, fn. 9; Chomsky 2001).

4. The narrow syntax and feature specifications

4.1. The narrow syntax

Minimalism sees the (narrow) syntax as a computation “procedure that 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). Following Chomsky (1995, *et seq.*; Boeckx 2003), I will refer to the terms ‘arranges’ and ‘rearranges’ as MERGE and MOVE, respectively, as two core operations. The former merges **LIs** (= Lexical Items) 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, viz. 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):

- (35)
- a. Features trigger MATCH (e.g. there is a [*uAbn*] feature on A-topic that matches [*uAbn*] on *Top*^o and *pro*).
 - b. (Properties of) 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*^o).
 - c. (Properties of) Features trigger AGREE (e.g. the value(s) of the features of the goal match those of the probe). AGREE is further defined and formulated in the following Section.

4.1.1 Agree

In this study, AGREE is defined as 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). Given this, I assume the valuation mechanism of ‘attribute–value’ pair. Let the formal

features be of the type attribute–value pair for a valued feature F, then, the valued pair will be [Att: val], and the unvalued pair will be [Att: ____] (cf. Chomsky 2001: 5; Roberts 2010: 61). This is further defined in (36):

- (36) In a well-formed AGREE relation of which α and β are the terms, where α 's feature matrix contains [Att: ____] and β 's contains [Att: val_k], for some feature F= [Att: val_{i,k}], copy val_k into ____ in α 's feature matrix.

For the purpose of a unified account of formal characterization of features intended in (36), I will assume (contra Roberts 2010) that *pro* has an uninterpretable/unvalued Case feature. Specifically, I will assume that T has the Case feature [Case: _nom_] and *pro* has the Case feature [Case: ____]. Note that Roberts (2010: 60) argues that *pro* is a defective goal and that T and *v** in turn may not have Case features as a relevant factor “to the formal characterization of the nature of weak and strong pronouns.” To him, for *pro* to be a defective goal it should lack Case feature. In this sense, he follows Chomsky (2001) assuming that Case features are valued by convention: a DP whose ϕ -features are valued by T is Nominative and a DP whose ϕ -features are valued by *v** is Accusative. However, the fact that in our analysis *pro* is not a defective goal, as we will see in subsequent Sections, perhaps rules out Roberts’s analysis. 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 **PIC** (= Phase Impenetrability Condition, see Chomsky 2000: 108, 2001: 13).

4.2. Feature specifications

4.2.1. Top’s features

Bearing (32) in mind, I propose that TopP is a phase, whose head, i.e. Top° is endowed with all features characteristic to heads of phases in general. This is in line with Chomsky’s (2005: 18, 2008: 143) analysis of C. It follows that Top° is the locus of AGREE Feature. As for ϕ -features, Arabic provides independent syntactic evidence that C has ϕ -features.

First, the fact that C has ϕ -features is evidenced by structures like (37), where C (i.e. the relative pronoun) agrees with the DP it introduces in all ϕ -features:

- (37) a. *t-taalibu lladi jaa?-a pro lam-s-i.*
the STUDENT.3MS who.3MS came-3MS yesterday-GEN
‘The student who came yesterday.’
- b. *t-nullaabu llaḍ-iina jaa?-uu pro lam-s-i.*
the-student.3MPL who-3MPL came-3MPL yesterday-GEN
‘The students who came yesterday.’

- c. *qaabal-tu t-taalibata llaati jaaʔ-at pro ʔams-i.*
 met-I the student.3FS who.3FS came-3FS yesterday-GEN
 'I met the (f) student who came yesterday.'

As is very clear from the glosses, in examples (37a-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 4.2.2).

Secondly, the fact that C has ϕ -features comes from the ability of C, i.e. *ʔinna* to attract a pronominal clitic to adjoin to it:

- (38) *ʔinna-hum yaqrʔ-uuna l-kitaab-a.*
 that-they read-3MPL the-book-ACC
 'Indeed, they are reading the book.'

In (38), we notice that the pronominal clitic *-hum* is cliticized to C *ʔinna*. 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, see also Nash & Rouveret 2002).

Recall that Top° in predicational sentences is endowed with an $[u\text{Abn}]$ feature, which counts as an edge feature in TopP -phase. It follows that (39) holds of A-topic constructions (cf. Rizzi 2006; Frascarelli 2007).

- (39) Top° is a criterial position in the C-domain, and endowed with an $[u\text{Abn}]$ feature which yields a discourse property

Note that the ABOUTNESS feature the head Top° in (39) is endowed with is assumed to correlate the syntax (the propositional, i.e. TP) domain with the discourse (the information structure, i.e. TopP) domain. Thus, given the EF nature of $[u\text{Abn}]$ in the CP-phase, it is expected that our prediction in connection with (39) is borne out: $[u\text{Abn}]$ is valued by merging the A-topic in Spec,TopP .

The assumption that the $[u\text{Abn}]$ feature is A'-dependent makes EF different in nature from simply an EPP feature. The latter could be viewed as an A-dependency feature; that the $[u\text{Abn}]$ feature counts as an EF is motivated by LF interpretation purposes (cf. Chomsky 2008: 139ff). Chomsky (2008) postulates that EF can be either an external or internal merge. This also amounts to the fact that Top° will have two probes, namely AGREE feature and EF. The former concerns ϕ -features (cf. Chomsky 2008), in that Top° probes for valuing its unvalued ϕ -features via AGREE with *pro* in Spec,vP , and the latter yields a merging operation of an A-topic in Spec,TopP to ultimately

obtain the interpretive and performative requirement (cf. also Portner 2006). Given (35) and (36), AGREE will take the form of ‘variable matching’, whereby T(s) and *pro*(s) constitute an abstract variable matching, and when *pro* gets valued for a feature the other(s) will get the same value (I return to this issue below).

4.2.2. *T*'s specifications

In minimalism, a finite T is said to have unvalued/uninterpretable ϕ -features and EPP cross-linguistically (see e.g. Chomsky 2000, *et seq.*). As for the valuation of these features, it is held that ϕ -features are valued by T via AGREE, and EPP is valued by (re)merging a ϕ -complete DP in Spec,TP. In (consistent) NSLs, specifically those with VSO orders, however, the difference concerns the EPP feature and its valuation in these languages. Several proposals have been postulated on T's EPP (or equivalent) feature, its motivation, its satisfaction, etc. Some authors (see e.g. Biberauer *et al.* 2010: 99) propose that T in consistent NSLs has no/weak EPP feature, hence no checking is required. Some others argue that T has an EPP feature, but it is valued by some other mechanism. It can be checked by V-raising to T. This view was based on the assumption that the ‘rich’ Agr_{infl} attached to the verb has a pronominal status, which qualifies it to value this feature (see e.g. Platzack 2004; Barbosa 1995; Alexiadou & Anagnostopoulou 1998). This Agr_{infl}, these authors argue, is incorporated onto T, hence valuing the EPP of T via V-to-T movement (see also Koenenman & Zeijlstra 2014: 4). However, the pronominal status of Agr_{infl} is challenged and sometimes even refuted cross-linguistically (see e.g. Biberauer *et al.* 2010; Aoun *et al.* 2010; Shormani 2015, *in press*: b). In Arabic, the fact that the Agr_{infl} does not qualify as pronominal is also supported by facts from this language as shown in (40), where agreement inflection co-occurs with overt (subject) pronouns:

- (40) a. *at-tullabu* *jaaʔ-uu* *hum* *faqat.*
the-student.3MPL.NOM came-3MPL they.3MPL only
‘The students (m), it seems that they came only.’
- b. *at-taalibaatu* *jiʔ-na* *hunna* *faqat.*
the-student.3FPL.NOM came-3FPL they.3FPL only
‘The students (f), it seems that they came only.’
- c. *jiʔ-tu* *?anaa* *faqat.*
came-1SM/F I only
‘I came only.’

Given the assumption that subjects are not iterated (see e.g. Borer 1986, 1995; Aoun *et al.* 2010; Shormani 2015), the examples in (40) provide direct evidence that assuming the Agr_{infl} to be pronomi-

nal is not unproblematic (see e.g. Shormani 2015; Aoun *et al.* 2010: 60f, for a list of violations of this analysis).

In our system, given FEATURE INHERITANCE adopted here, it is expected that T will inherit 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: 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 (cf. Rouveret 2008). This antecedent is also clear in the examples presented in (37), where the A-topic, the relative pronoun and the verb agree in all features. It follows that T will inherit all Top's features, including [*u*Abn] (the valuation of which will be discussed in Section 5.1).

4.2.3. *Pro's specifications*

In **P&P** (= Principles and Parameters) framework (see e.g. Chomsky 1982; Rizzi 1982, 1986), *pro* was said to be ‘featureless’ in the sense that it is not specified for ϕ -features. For example, Rizzi's (1986: 519–522) formulates *pro* licensing and identification conditions as in (41) (cf. Holmberg 2005: 536):

- (41) a. LICENSING
pro is Case-marked by X^oy, where y is parameterized
- b. IDENTIFICATION
pro inherits the ϕ -feature values of X^oy (if it has ϕ -features; if not, *pro* gets a default interpretation or *arb*)

As for *pro* licensing, Rizzi (1986) argues that since I(nfl) Case-marks *pro*, I qualifies as a *pro*-licensing X^oy. This was based presumably on the correlation between licensing and the richness of agreement inflection in NSLs as noted so far. As is clear in (41b), identification of *pro* seems to depend on the assumption that it inherits the ϕ -feature values from I. However, this view has been argued to be imprecise, based on empirical evidence from across languages (see Section 2).

In minimalism, it is assumed that the notion interpretability vs uninterpretability is basically based on ϕ -features, which serve as the ‘bits and pieces’ of the AGREE/valuation operation. Thus, assuming that ϕ -features are uninterpretable on T, it is difficult to assume that

such uninterpretable features are able to license ‘featureless’ null subjects like *pro*. Based on this, Holmberg (2005: 538) proposes that *pro* is “specified for interpretable ϕ -features [and] values the uninterpretable features of Agr.”

In terms of (36), if we assume Chomsky’s (2001) stipulations regarding the nature of T’s uninterpretable features and those of Rizzi’s (1986) account of the licensing of *pro*, both T and *pro* will have the attribute-value pair [Att:___]. Therefore, “neither will be able to value the other” (Roberts 2010: 61). Apparently, this seems to run counter to our proposal, since it rules out the syntactic role played by Agr_{infl} in the licensing/interpretation of *pro*. To overcome this problem, I propose that valuation and interpretability of features are independent concepts, and that while interpretation is a requirement imposed by discourse, valuation is required by the syntax (cf. Pesetsky & Torrego 2007). Both operations result in an interface operation, the ultimate correlation. Thus, I propose that *pro* enters the derivation with valued but uninterpretable features. This proposal gains strong support from structures like (4), repeated here in (42), for convenience:

- (42) a. *Verrà* *pro*
 come.FUT.3MS
 ‘he/*one will come.’
- b. *sa-t-aʔti* *pro*
 fut-3FS-come
 ‘she/*one will come.’
- c. *hind-un_i* *sa-t-aʔti* *pro_i*
 hind-NOM fut-3FS-come
 ‘Hind will come.’

The fact that *pro* enters the derivation with valued features can be observed in (42a-b). These features are able to value T’s unvalued features in the syntax, which is not sufficient for *pro* to be interpreted, thus resulting in the vagueness of *pro*. For instance, in (42b) *pro* is interpreted as ‘she’ (with the help of the infix *-t-*). However, it is nonspecific: it simply refers to nobody. I assume that this ‘nonspecificity’ is due to the fact that *pro*’s features are uninterpretable, which results in the unacceptability of (42a) and (42b) if they are said out of context/discourse. It follows that the ultimate interpretation of *pro* is obtained only through discourse, represented by the A-topic in C-domain. Put differently, when an A-topic is base-generated in Spec,TopP, *pro* in Spec, ν P is ultimately interpreted via the coreferentiality with this A-topic (cf. also Carminati 2002).

Bearing this in mind, now consider (42c) in which the clarity of the interpretation of *pro* comes from the coreferentiality holding between the

DP *hind-un* and *pro* (i.e. the DP *hind-un* functions as an antecedent of *pro*). More formally, in (42c) the A-topic *hind-un*, which is specified for or carries valued ϕ -features, interprets *pro*'s uninterpretable features via AGREE, whereby *pro* gets the feature-values of the DP *hind-un*, and hence interpreted as such, given (36). The result of this AGREE is deleting all (un)interpretable and unvalued features, including those of *pro* at LF. In the next Section, I discuss in detail how this coreferentiality takes place, and how AGREE established between the A-topic and *pro* is 'regulated,' focusing mainly on 3 person *pro*.

5. The discourse-syntax interface

5.1. Coreferentiality between A-topic and *pro*

In P&P, *pro* was said to be an A⁻-bound variable (see e.g. Cinque 1990; Rizzi 1994). However, in minimalism binding conditions, which were mainly based 'on local domains different from phases, indices,' etc., are consequently rejected. Several proposals were advanced in the literature as to how binding conditions can be handled in minimalism (see e.g. Reuland & Reinhart 1995; Hornstein 2000; Kayne 2002; Zwart 2002). I will try to account for the coreferentiality between *pro* and the A-topic in terms of the core operations outlined in (35) and AGREE in (36).

Let us first take a non*pro*/TOPIC-DROP language like English and see how pronominal expressions like 'He' in structures like (43) are interpreted out of context (from Kayne 2002: 137):

- (43) a. He is a genius.
 b. Watch out! He's got a knife.

Kayne takes (43) to be grammatical only when "an unpronounced demonstrative" functions as an antecedent. In cases like (43a), 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 will see in the next Section. He considers (43b) to have a reading akin to (44):

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

He argues that *That man* in (44) "starts out as Spec of *he* and then moves to a nonthematic dislocated position". He thus reformulates the Condition B of Binding Theory as a movement, which seems to be tenable. However, although Kayne's theory seems to be tenable in English, specifically the assumption that the pronoun *he* in sentences like (44)

has a silent topic as an antecedent, it seems not to be so in Arabic, for instance. Consider (3), repeated here as (45), for convenience:

- (45) *ʕaliyy-un_i sa-yaʔti law ʕafara huwa_{i/k}/pro_{i/*k} bi-tahasun.*
 Ali-NOM FUT-come if felt he/*pro* with-good
 ‘Ali will come if he feels well.’

As shown by the indices, in (45) the pronoun *huwa* behaves inversely from *pro*, that is, while the former cannot have a structural reference, i.e. a coreference/interpretation based on the syntax, the latter cannot have a free reference. Put differently, (45) shows that *pro* seems to be always ‘bound’ by an antecedent, namely the A-topic in C-domain (the DP *ʕaliyy-un* here), while weak pronouns behave the other way around.

However, given (35), (36) and (39) and respecting locality, (46) could be assumed to hold true of A-topic constructions in Arabic (and perhaps across NSLs) (cf. Frascarelli 2007: 722):

- (46) Antecedent-*pro* coreferentiality Condition
 In a predicational sentence, let XP be the A-topic in the (non)local Spec,TopP of an occurrence of *pro*: then *pro* in Spec,vP, i.e. vP’s edge, obtains the feature specification(s) of the features on X° through a matching (AGREE) relation between A-topic, (T) and *pro*.

(46) makes explicit the existence of an A`-chain between the A-topic in Spec,TopP (a phase edge) and *pro* in Spec,vP (a phase edge). This A`-chain is a ‘matching chain’ which defines the AGREE relation established between *pro* in Spec,vP, T and the A-topic in Spec,TopP. Given the assumption that AGREE takes place between phases, 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; see also Polinsky & Potsdam 2001), *pro* in Spec,vP will be “seen” by C/Top° for AGREE (as Match). It follows, then, that *pro* is interpreted by being coreferentially linked with the A-topic in Spec,TopP.

Given (35), (36) and (46) and respecting cyclicity, after *pro* and T merge, T matches with *pro* abstractly. This abstract matching takes the form of ‘variable matching.’ That is to say, if *pro* gets the value [Att_α] for a feature F, then, T will also get that value. When the A-topic is merged, it matches (and interprets) (T’s and) *pro*’s features. And given the A`-dependency nature of [*uAbn*] feature, it is likely that *pro* obtains the feature specifications of the A-topic only when the TopP phase is completed and the whole sentence gets transferred to the interfaces for interpretation (cf. Frascarelli 2007).

In terms of (46), *pro* will always have the interpretation of the A-topic. Since the A-topic dealt with in this paper is a lexical DP (for lack of space, I leave aside pronominal A-topics), it follows that *pro* is interpreted as 3 person singular/plural masculine/feminine. I will first exemplify these specifications in terms of singularity as illustrated in (47), and return to that of plurality:

- (47) a. *ʕaliyy-un_i katab-a pro_i qiṣṣat-an.*
 Ali-3MS.NOM wrote-3MS story-ACC
 ‘ali wrote a story.’
 b. *hind-un_i katab-at pro_i qiṣṣat-an.*
 hind-3FS.NOM wrote-3FS story-ACC
 ‘Hind wrote a story.’

In (47a), *pro* is interpreted as 3 person singular masculine. These features are also possessed by the A-topic *ʕaliyy-un*. In (47b), however, *pro* is interpreted as 3 person singular feminine. These features are also carried by the A-topic *hind-un*.

Consider (48) exemplifying plurality:

- (48) a. *at-tullab-u_i katab-uu pro_i qiṣṣat-an.*
 the-student.3MPL.NOM wrote-3MPL story-ACC
 ‘The students (m) wrote a story.’
 b. *at-taalib-aatu_i katab-na pro_i qiṣṣat-an.*
 the-student-3FPL.NOM wrote-3FPL story-ACC
 ‘The students (f) wrote a story.’

In (48a), *pro* is interpreted as 3 person plural masculine. These features are also attributes of the A-topic *at-tullaab-u*. In (48b), however, *pro* is interpreted as 3 person plural feminine. Similarly, the A-topic *at-taalib-aat-u* is specified for such features.

5.1.1. Locality and, shifting- and new- A-topics

Note that the examples discussed so far provide good evidence that the coreferentiality between the A-topic and *pro* is local. In other words, since the coreferentiality takes place in a single clause, *pro* is A`-bound locally. In this Section, I argue that *pro* can also be non-locally A`-bound (contra Frascarelli 2007). As (49) shows, Arabic provides independent empirical evidence supporting this assumption:

- (49) a. *r-rajul-u_i ʔaraada pro1_i [ʔan yanaama pro2_i].*
 the-man-NOM wanted that sleep
 ‘The man wanted to sleep.’
 b. *r-rajul-u_i zanna pro1_i ʔanna [-hu_i ʔarada*
 the-man-NOM thought that -he wanted

pro2_k] [*ʔan yanaama pro3_k]*]
 that sleep
 ‘The man thought that he wanted to sleep.’

In (49a), the A-topic *r-rajul-u* locally A`-binds *pro1*; it also A`-binds *pro2* nonlocally (*pro2* being in an embedded clause). In (49b), however, *r-rajul-u* does not control into the embedded clause between { }. The occurrences of *pro* in { } are bound by the clitic *-hu*. The latter can be thought of as a shifting A-topic in Frascarelli’s (2007) sense (cf. also Jiménez-Fernández 2016).

The fact that only a clitic, and neither a DP nor a weak pronoun, must be used in cases like (49) is clear from the ungrammaticality of (50) (cf. also Carminati 2002):

- (50) a. **r-rajul-u_i zanna pro1_i ʔanna* [[*r-rajul-a_k ʔarada*
 the-man-NOM thought that the-man-ACC wanted
 pro2_k] [*ʔan yanaama pro3_k]*]
 that sleep
- b. **r-rajul-u_i zanna pro1_i ʔanna* [[*huwa_i ʔarada*
 the-man-NOM thought that he wanted
 pro2_k] [*ʔan yanaama pro3_k]*]
 that sleep

In other words, the ungrammaticality of (50a-b) shows that the topmost spelled-out A-topic cannot be re-spelled out, neither as a DP as in (50a), nor as a weak pronoun as in (50b).

As noted above, the clitic *-hu* in (49b) is a shifting topic. This ‘shifting’ could be thought of as shifting the coreferentiality that links the A-topic and *pro*, in that the clitic serves as the referent of the embedded *pro(s)*, hence shifting the coreferentiality from the spelled-out A-topic of the matrix clause to it. In the sense of ‘shifting’ used here, the clitic *-hu* has a structural coreference, and the referent is the A-topic *r-rajul-u*. It can also have an accidental referent as in (51):

- (51) *r-rajul-u_i zanna pro1_i ʔanna* [[*-hu_i ʔarada*
 the-man-NOM thought that -he wanted
 pro2_k] [*ʔan yanaama pro3_k]*]
 that sleep
 ‘The man_i thought that he_k wanted to sleep.’

However, in this case the clitic *-hu* is not a shifting A-topic, but rather a ‘newly reintroduced A-topic’ (see below). That is, the clitic introduces a new A-topic into the discourse (see the indices). In this very sense, (51) is similar (but not identical) to (52):

- (52) *r-rajul-u*_i *zanna* *pro*_{1i} *ʔanna* [[-*haa* *ʔarada-t*
the-man-NOM thought that -she wanted-FS
*pro*_{2k}] [*ʔan yanaama* *pro*_{3k}]
 that sleep
‘The man thought that that she wanted to sleep.’

The newly introduced A-topic, viz., *-haa* in (52) refers to someone other than the A-topic *r-rajul-u*. In this case, the referent of *pro*₂ and *pro*₃ is interpreted as a 3 feminine singular, say, a woman. Although the clitic *-haa* has introduced a new A-topic, it also shifts the reference from the first-established A-topic to some other entity. Note also that a newly introduced A-topic can also be a lexical DP as (53) shows:

- (53) *al-mudarris-u*_i *zanna* *pro*_{1i} *ʔanna* [[*t-taalib-a*_k *ʔarada*
the-teacher-NOM thought that the-student-ACC wanted
*pro*_{2k}] [*ʔan yanaama* *pro*_{3k}]
 that sleep
‘The teacher thought that that the student wanted to sleep.’

The DP *t-taalib-a* in (53), though introducing a new A-topic, ‘shifts’ the ABOUTNESS from the topmost spelled-out A-topic, namely *al-mudarris-u* to it. Note also that the newly introduced A-topic in (50) and (52) also A`-binds *pro* nonlocally (cf. Landau 2013).

As our argument above apparently shows, the terminology ‘shifting A-topic’ is overlapped or can be interchangeably used with ‘newly introduced A-topic.’ The two terminologies have, in fact, been used interchangeably by Trecci (2006) and Frascarelli (2007). However, there is a crucial difference between both constituents: while ‘shifting A-topic’ shifts coreferentiality, but not ABOUTNESS, ‘newly introduced A-topic’ shifts both coreferentiality and ABOUTNESS. This fact stems from the contrast between (51) and (53). If this line of analysis is true, the generalization in (54) can be maintained (contra Frascarelli 2007).

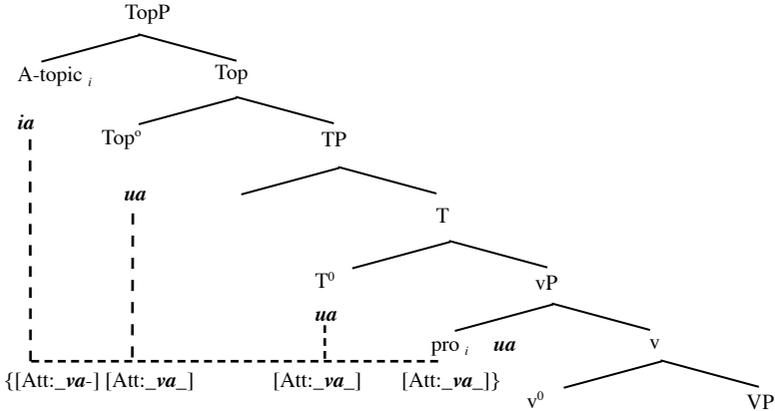
- (54) every newly introduced A-topic can be a shifting A-topic but not vice versa.

The fact that an antecedent of a referential *pro* may not need to be local is straightforwardly evidenced from the examples discussed in this Section. In (49-53), we find two types of A`-chains: a local A`-chain and a nonlocal A`-chain. The former is represented by structures like (49), and the latter by structures like (53), for example. In what follows, I will explain how AGREE takes place in local A`-chains, and come back to that taking place in nonlocal A`-chains in the next Section.

In local A`-chains, the chain is construed between A-topic, Top, T and *pro*. A MATCH (AGREE) relation is then established, whereby

Top's, T's and *pro*'s unvalued features are valued by the A-topic (in Spec,TopP). Then, the interpretation of *pro* comes to play, in that *pro* gets the grammatical features of the A-topic. I propose a matching A'-chain to be formed between A-topic, Top, T and *pro*. In this A'-chain, A-topic matches (and values/interprets) T's and *pro*'s unvalued features. In this type of chain, AGREE takes place as follows. Let an unvalued feature F have the value *ua*, then, *va* is its valued counterpart. Also let *ua* be the ϕ -features (including [*uAbn*]), of Top, T and *pro*, then, when the A-topic with *va* is merged, an A'-chain is formed between these four elements via AGREE AS MATCH, and hence all unvalued/uninterpretable features get valued/interpreted and deleted at LF. Given (35) and (36), each of these elements will get the value [Att: *va*]. This is further schematized in (55).

(55)



As shown in (55), after MATCH relation takes place, *pro* gets all the feature specifications of the A-topic. Note also that *pro* transmits the θ -role to the A-topic (given the standard assumption that θ -assignment is defined in *vP*-phase). In this type of coreference, *pro* will get interpreted as a definite 3 masculine singular pronoun (see also Biberauer *et al.* 2010). *Pro*'s unvalued Case feature is valued as [Att: *nom*] as a consequence of AGREE (cf. also Chomsky 2001).

To conclude this Section, I would like to point out two problems that seem to run counter to our analysis. The first problem concerns structures like (42a-b), repeated here as (56a-b), for connivence.

- (56) a. *Verrà* *pro*
 come.FUT.3MS
 ‘he/*one will come.’
- b. *sa-t-a?ti* *pro*
 FUT.3FS-come
 ‘She/*One will come.’

The problem in (56a-b) lies in that there is no A-topic in the sentence so that *pro* can be coreferentially linked with. The second problem concerns structures like (51-53), where there seem to be several phases, several *pros*, but only one spelled-out A-topic. If we assume that there is a null A-topic, which could be taken as the referent of *pro(s)* in such structures, then, two questions impose themselves: i) how are such silent A-topics licensed in the grammar of a L?, and more importantly, ii) how does AGREE (and coreferentiality) take place in these structures? These questions and other related issues will be the main concern of the next Section.

5.2. (Silent) A-topics as antecedents for *pros*

Recall that *pro-DROP* is a direct consequence of APP as an economy principle in the grammar of human language. Recall also that the APP has been viewed as a subpart of a ‘conversational principle’ for not saying more than what is required, and the absence of overt pronouns is just a phonological matter. That is to say, the nature of weak (i.e. not stressed) pronouns allows for the ‘degradation’ of these pronouns to *pros*. Bearing this in mind, let us restate the question (i) in the previous Section as: is it possible to have a discourse principle that licenses and recovers silent A-topics, solely for economy of the grammar, much like APP?

First, consider (10) from English, repeated here as (57), and see how discourse plays a crucial role in identifying the deleted pronoun *he* in (57c) and in accounting for its antecedent:

- (57) a. ?? *John went home. John ate his dinner. John went to bed. John got up at 6:30.*
 b. ? *John_i went home. He_i ate his dinner. He_i went to bed. He_i got up at 6:30.*
 c. *John_i went home, [-]_i ate his dinner, [-]_i went to bed and [-]_i got up at 6:30.*

Given Grice’s Maxim, i.e. ‘Be concise,’ though English is not a *pro-DROP* language, it seems that (57c) is the most natural, (57b) is less marginal and (57a) is the most marginal. The marginality of (57a) lies in keeping the DP *John*, which is a topic in the discourse, in all the sentences. The less marginality of (57b) presumably lies in substituting the lexical DP *John* with the pronoun *he*. The naturalness of (57c), thus, lies in that the pronoun *he* has been deleted as represented by [-]. More formally, what is in [-] is *he* but not spelled

out, say, for discourse purposes, which seems quite reasonable. From an LF perspective, (57c) can be represented as (58):

(58) John_i went home, [_i <he>]_i ate his dinner, [_i <he>]_i went to bed and [_i <he>]_i got up at 6:30.

In (58), the [_i <he>] can be thought of as a silent copy of *he/John* in (57b/a), and this is correct in English only in the discourse.

Thus, if our analysis regarding a language like English is on the right track, I think it is more likely to argue in favor of a UG principle concerning silent topics in NSLs, in particular and across human languages in general.

As for consistent NSLs, consider (5), repeated here as (59). (For the purpose of argument, I will assume that structures like (42a) in Italian and (42b) in Arabic are similar (but not identical) to (59b)):

- (59) a. *mata sa-t-aʔti hind-un?*
 when FUT-3FS-come hind-NOM
 ‘when will hind come?’
- b. *sa-t-aʔti pro ʔad-an.*
 fut-3FS-come tomorrow-ACC
 ‘She will come tomorrow.’

In (59b), though the DP *hind-un* is not mentioned, it is understood from the context, i.e. discourse, that *hind-un* is the antecedent of *pro*. From an LF perspective, thus, (59b) can be represented by (60):

(60) [_i <hind-un>]_i *sa-t-aʔti* *pro*_i *ʔad-an*

In (60) [_i <hind-un>] can be thought of as a silent A-topic of *hind-un* in (59a). This follows from the assumption of the formation of an A`-chain between A-topic and *pro*. The requirement of this A`-chain stems from the A`-dependency or the antecedent-pronoun assumption in A-topic constructions. Along these lines, Grimshaw & Samek-Lodovici (1998: 195) argue that *pros* “are possible only if licensed by an antecedent with a topic discourse status.”

In addition to all this, recall that in NSLs like Arabic an embedded A-topic or weak pronoun can (and must) not be re-spelled out (as we have concluded in connection with (50)). Under this analysis, it is very much tempting to postulate the existence of a mechanism that ‘regulates’ the behavior of (silent) A-topics in all the language types in (1), a mechanism that correlates the discourse with the syntax at the interface. If we assume that this mechanism holds true for all languages, it is possible to consider it a UG principle that correlates the discourse with the syntax in a L, on the one hand, and accounts

for *pro*'s interpretation in human languages, on the other hand. Thus, given (2), namely the AVOID PRONOUN PRINCIPLE, I propose (61) as a UG principle, and parameterization can then be assumed. I shall call this principle the (Silent) A-topic Principle (**SAP**):

- (61) (Silent) A-topic Principle
 In a discourse:
- a. once an A-topic α is spelled-out, an A-topic β should be silent if $\alpha = \beta$, and $\alpha > \beta$
 - b. in NSLs:
 - i. α need not be spelled out
 - ii. β is the antecedent of *pro* iff $\beta \neq \alpha$
 - c. an A'-chain is formed between α , $\beta_{1,2,\dots,n}$ and $pro_{1,2,\dots,n}$, via MATCHING (AGREE) relation

(61a) is a general rule presumably holding across languages. (61b), however, seems to be limited to NSLs. (61bi) elegantly accounts for the facts in examples like (42a-b), and (61bii) accounts for structures like (51). (61bi) is, in other words, a discourse-syntax interface rule. The syntax role is based on the AGREE(ment) taking place in the narrow syntax, while the discourse role builds on (2), and Grice's Maxim of quantity "say neither more nor less than required" (Andrew Radford, personal communication). Thus, α , or the first most spelled-out A-topic, need not be spelled out in NSLs, provided that the discourse-syntax interface role is met/obtained. In (61c), if a chain is formed between the topmost spelled-out A-topic, silent A-topic(s) and *pro*(s), then, its reliability could be maintained in terms of chain reduction rules (see Biberauer *et al.* 2010: 98; see also Nunes 2004: 21f, for discussion on the validity and reliability of such rules). (61c) licenses and elegantly accounts for the existence of nonlocal A'-chains (contra Frascarelli 2007). In what follows, the relevance of (61) is thoroughly discussed.

(61) may have a cross-linguistic implementation, which, I think, stems from Grice's Maxim and APP. It may also be assumed that embedded A-topics (i.e. β s) are deleted at LF, perhaps in terms of the "Antecedent Contained Deletion" argued for in Fox (2000).

As for NSLs, consider (62) taken from a phone conversation between a professor and a vice chancellor secretary in Yemeni Arabic (only the part spoken by the secretary is taken):

- (62) a. ad-duktuur ?ahmad_i saar pro₁_i ?ila l-?ijtimaaf.
 doctor Ahmed_i went to the-meeting
 b. wa [<ad-duktuur ?ahmad>], laa qad riji? pro₂_i
 and not has come

In (62), the silent topic is [<ad-duktuur ?ahmad>] which is coindexed with the topmost A-topic and *pro*₁ in (62a) and *pro*₂ in (62b).

The coreference is further schematized in (63), where *ad-duktuur ʔahmad* is symbolized by \emptyset (cf. Biberauer *et al.* 2010: 96):

- (63) a. $[_{\text{TopP}} \text{ad-duktuur } \text{ʔahmad}_1 [_{\text{TP}} [_{\text{T}} \text{saar} [_{\text{vP}} \text{pro}_1 \dots \text{ʔila } \text{l-ʔijtimaaf}]]]]$
 b. $\text{wa } [_{\text{TopP}} \langle \emptyset \rangle]_2 \text{ laa qad } \text{rijif } \text{pro}_2$
 where 1=2

It is evident that even though the A-topic is silent in (62b), it can be established as an antecedent for *pro*, once the latter enters into a chain with the highest spelled-out A-topic in the same discourse.

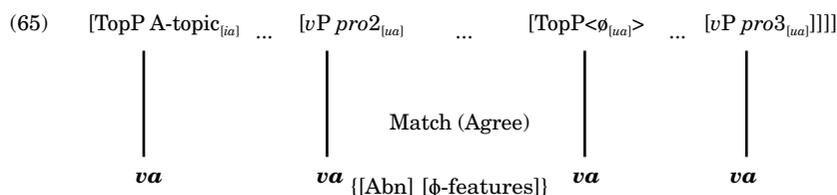
Given (61b), the problems and questions imposed by structures like (51-53) can now be tackled. The fact that an A-topic β can be a referent for *pro* iff $\beta \neq \alpha$ stems from the ABOUTNESS shifting requirement. That is to say, the ABOUTNESS shift brought about by β prevents α from being a referent of *pro*. In (53), for example, the embedded A-topic *t-taalib-a* (but not *al-mudarris-u*) serves as an antecedent for *pro2* and *pro3*, because it shifts the ABOUTNESS from *al-mudarris-u* to it. Thus, (53) will have the LF representation in (64):

- (64) $\text{al-mudarris-u}_i \text{ zanna } \text{pro1}_i \text{ ʔanna } [[\text{t-taalib-a}_k \text{ ʔarada}$
 the-teacher-NOM thought that the-student-ACC wanted
 $\text{pro2}_k] [\text{ʔan } \langle \text{t-taalib-a} \rangle]_k \text{ yanaama } \text{pro3}_k]$
 that sleep

In (64), *pro1* is coreferentially linked with the matrix A-topic *al-mudarris-u*. It is not coreferentially linked with any *pro* in the embedded clauses. There are two embedded clauses; in the first, *pro2* is coreferentially linked with the A-topic *t-taalib-a*, which is the (first) spelled-out A-topic. *Pro3* is coreferentially linked with the silent A-topic $\langle \text{t-taalib-a} \rangle$. Thus, *pro2*, *pro3* and the silent A-topic $\langle \text{t-taalib-a} \rangle$ are all coreferentially linked in an A'-chain with the newly introduced A-topic *t-taalib-a*. This also conforms specifically to (61b).

Recall also that the second problem imposed by structures like (51-53) concerns the mechanism in which AGREE takes place in such structures. In (64) above, for example, a nonlocal A'-chain is established between *t-taalib-a*, Top2, T2, *pro2*, $\langle \text{t-taalib-a} \rangle$, Top3, T3 and *pro3*. Note that the latter case involves two TopP-phases and two vP-phases (see also Rouveret 2008, for similar, but not identical, cases in Welsh and Irish relativization). It follows that AGREE taking place in this context is presumably an instance of long-distance *Matching*.

Assuming also with Chomsky (2008) and Rouveret (2008) that AGREE applying between phases is not subject to PIC effects, or otherwise PIC does not hold of long-distance AGREE, these structures give rise to no problem. Thus, AGREE taking place in structures like (64) can be roughly schematized in (65).



Cyclicity is maintained, once a chain is formed, and once a higher Top^o or v^o is valued for α (where α stands for [Abn] + φ) via MATCH (AGREE) with *va* of the topmost Top^o, all [*u*Abn] features (along with φ-features) get the same value [Att: __*va* __] (the silent A-topic is represented by [∅] in (65)).

However, problems imposed by structures like (64) seem not to be the end of the story. In other words, discourse involves different types of sentences, including different types of structures with multiple phases. Consider (66), a longer form of (62):

- (66) [ad-duktuur ʔahmad]_i saar pro_i ʔila l-ʔijmaaʕ wa laa qad riʔiʕ pro_i laakinn-uh_i qaal pro_i ʔinna-uh ʕa- yirjaʕ pro_i wa yuqaabil pro_i kull n-naas, wa ʕa-yiʕuuf pro_i kull maʕaakil-hum
 ‘Doctor Ahmed_i went to the meeting and he_i hasn’t come yet, but he_i said that he_i will come back and meet all the people and will consider all their problems’.

There are several TopP- and vP-phases in (66). The topmost DP *ad-duktuur ʔahmad* ‘doctor Ahmed’ qualifies as an A-topic, and its introduction takes place at the interface. There are several *pros*. There seem also to be several silent A-topics. Two clitics are spelled out attached to the Coord^o (head of **CoordP** = Coordinate Phrase) *laakinn* and Forc^o *ʔinna*. There is also a ‘long’ nonlocal A`-chain. Let us take these constituents in turn.

The clitic *-uh* is coreferentially linked with the A-topic *ad-duktuur ʔahmad*. It has to do mainly with the property of the host this clitic is attached to. That is, the Forc^o *ʔinna* and the Coord *laakinna* require their hosted element (i.e. complement) to be spelled out. It may also have to do with the context/discourse that forces ‘a specific referential interpretation’ which results in the occurrence of the clitic (Cinque 1990: 75). The coreferentiality between this clitic and the A-topic makes it clear that

the speaker is talking about one and only one person, i.e. *ad-duktuur ʔahmad*. This is manifested by the AGREE (MATCH) Feature between both, i.e. both are 3 person masculine singular. Thus, the occurrence of these pronominal clitics implies that they are strong pronouns, which does not give rise to a violation of APP in (2). However, one characteristic common to these clitics is that they contrast sharply with the clitic used in (52). That is to say, the clitic *-haa* in (52) functions as an ‘introducer’ of a ‘new A-topic’ in the conversation/discourse. But the clitic *-uh* in (66) does not signal such a shift, hence does not introduce a new topic; it rather shifts the coreferentiality much like *-hu* in (51).

There are six *pros* occurring in (66), and they are all coreferentially linked with the A-topic *ad-duktuur ʔahmad*, which means that all *pros* refer to this A-topic, providing strong evidence for nonlocal A`-chains (cf. Grimshaw & Samek-Lodovici 1998). It turns out, then, that the A-topic *ad-duktuur ʔahmad* is the topmost discourse spelled-out element, which *pro* is identified with.

As for the silent topics, let us consider (67), which shows the LF representation of (66):

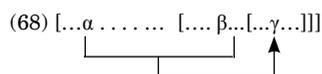
- (67) [ad-duktuur ʔahmad]_i *saar* pro_i *ʔila l-ʔijmaaʕ wa* [<ad-duktuur ʔahmad>]_i *laa qad riʔiʕ* pro_i *laakinn-uh* *qaal* pro_i *ʔinna-uh ʕa-yirjaʕ* pro_i *wa* [<ad-duktuur ʔahmad>]_i *yuqaabil* pro_i *kull n-naas wa* [<ad-duktuur ʔahmad>]_i *ʕa-yiʕsuuf* pro_i *kull maʕaakil-hum*

There are three silent A-topics in (67) represented as [<*ad-duktuur ʔahmad*>]. These are (null) copies of the first articulated A-topic [*ad-duktuur ʔahmad*]. This actually gives rise to two conclusions. The first is that silent A-topics function as antecedents for *pros*. The second is that such nonspelled-out copies (along with *pros*) are linked in “a chain-like relation between them, and this relation is established by an operation across sentences in a discourse” (Biberauer *et al.* 2010: 96, for more on A`-chains, see e.g. Boeckx 2003; Demirdache 1991). These two conclusions derive directly from (61c).

However, there seems to be a problem imposed by structures like (66) for AGREE to take place. This problem lies in the Spell-out of the clitics attached to Forc^o in two in-between (or intermediate) phases. Differently put, the Spell-out of these clitics in intermediate phases indicates that lower phases are spelled out before the merging and spelling out of the topmost A-topics. This means that AGREE would be blocked, or otherwise probing from a higher phase into the lower spelled-out phase would be blocked by PIC. That is to say, when a lower phase is completed, it is sent to the interfaces for processing, hence frozen. And given PIC, no probe would access it in search of a goal.

One way out would be to assume that the head Forc° is not a phase head. If so, then, it would be treated as nonphasal heads, say, T° . Differently put, given our assumption that complementizers like *ŷinna* are ϕ -complete (see our discussion in connection with (40)), it could be argued that Forc is not a defective intervener; and therefore, would not block AGREE , or probing from a higher phase. This analysis is in line with Chomsky (2000: 123) concerning defective intervention. The assumption that *ŷinna* ‘attracts’ a clitic to be attached to it adds support to this claim. This otherwise means that Forc has uninterpretable features. By attracting the clitic to $\text{Forc}/\text{ŷinna}$, these features get valued/interpreted. Furthermore, if we assume, with Rouveret (2008), that the Spell-out of the clitic on Welsh/Irish complementizers is nothing but the Spell-out of agreement features, then, the Spell-out of these clitics in (66) is borne out (cf. also Roberts 2010). In this line of analysis, the same long-distance AGREE applied in (65) can also apply in (66). Consequently, the interpretation of *pros* and silent A-topics take place at the interface.

If, however, $\text{Forc}^\circ/\text{Coord}^\circ$ is a phase head in intermediate phases, then, it is possible to assign $\text{Forc}^\circ/\text{Coord}^\circ$ an $[\text{uAbn}]$ feature so that it links them to the topmost Top° head, hence avoiding PIC effects. In other words, since AGREE applies between phases as assumed above, and since $[\text{uAbn}]$ is a phasal feature, it could be argued that $[\text{uAbn}]$ feature on each phase-defining head functions as a probe in the phase it heads. This $[\text{uAbn}]$ feature then defines a goal in the next higher phase; the process stops when it encounters a head whose $[\text{uAbn}]$ is inherently valued by the once-spelled-out A-topic in A-topic constructions (see *a* in (61a)). This head is the topmost Top° (of the topmost TopP -phase). Thus, $[\text{uAbn}]$ marking on each intervening phase head and a finite verb manifests the successive cyclic agreement relationships established between the phasal heads Top° , $\text{Forc}^\circ/\text{Coord}^\circ$ and ν° . If this analysis is on the right track, then, (68) could be generalized.



If β in (68) is an intermediate phase, say, ForcP , it will no longer be intervening or blocking AGREE from taking place, once its head, i.e. Forc° , is assigned an uninterpretable $[\text{uAbn}]$ feature. One possible advantage of this scenario is that base-generating the A-topic in Spec,TopP in the interface follows from the discourse of informative and interpretive requirements which involve “late Merge and Antecedent-contained-deletion” (cf. Rouveret 2008: 158, fn. 9; Chomsky 2004; Fox

2000). This is, in fact, indicative evidence in support of the discourse-syntax interface, which accounts for the interpretation of silent A-topics and *pros* via coreferentiality, linking them with the ‘late merged’ (and spelled-out) topmost antecedent A-topic.

To conclude, although SAP is a discourse-syntax interface principle, it is also partly related to the PF interface. The latter may arise from minimizing the computations that “calls for erasure of all but one copy, so that the phonological component can forget about the others; the issue does not arise in the mapping to the semantic interface, where all copies remain without complication” (Chomsky 2008: 146). However, the fact that this ‘phonological minimizing’ directly and largely derives from discourse is maintained in this study. It is difficult (and perhaps impossible) to think of such minimizing independently of discourse. The fact that Arabic structures like (42b), English structures like (43a-57c) and Italian structures like (42a) are unacceptable out of context/discourse clearly signals this correlation. Given this, SAP is intended to be a principle of UG which is necessitated by the need of a link between the core grammar (i.e. the syntax) and the information structure (i.e. the discourse). In this line of reasoning, SAP ‘systematizes’ this link and optimizes this correlation.

Still, however, a word of parameterization is now in order. In (1a) languages, Agr_{infl} has a partial role to play in the interpretation of *pro*, and discourse has also a partial role in such interpretation (cf. (4, 6, 7)). In (1b) languages, like Chinese there is no role played by Agr_{infl} . SAP complements the role played by the rich Agr_{infl} in accounting for *pro*/TOPIC-DROP in these languages. For example, the fact that topic *pros* in (8) are recoverable from the discourse is accounted for elegantly under SAP. In languages in (1c), like English and French, for instance, it is possible to argue that the deleted pronoun *he* in (9b & d) and (57c) is not a subject, but rather a topic ‘sitting’ in Spec,TopP, i.e. a phase (after moving from Spec,TP to Spec,TopP). Assuming, with Kayne (2005: 6), that Spell-out operation must ‘see’ only the constituents that are in Specs of nonphases like TP, the nonspelled-out form of *he* in (57c) is, thus, straightforwardly accounted for under SAP. So far so good.

6. Conclusions and further research

This article proposes a novel and unified approach to the interpretation and licensing of referential 3 *pro* in human languages. It

investigates the correlation between the discourse and syntax in the licensing and interpretation of the referential 3 *pro* at the interface. This correlation is manifested by the interrelation between the propositional domain, i.e. TP, which ‘shelters’ the inflectional system, the thematic domain, which ‘houses’ the referential *pro* and the information/discourse domain, which hosts the A-topic. In (1a) languages, *pro* can be partly interpreted by means of Agr_{infl} attached to the verb, and partly by the discourse via the coreferentiality with the A-topic. The partial role played by Agr_{infl} in interpreting referential *pro* leads us to propose that *pro* enters the derivation with uninterpretable, but valued features. These features are interpreted by the A-topic via AGREE as a MATCHING relation. However, in (1b-c) languages the dropped pronoun is a *pro*/TOPIC; it is recoverable from the discourse, and accounted for by SAP.

The assumption that the subject pronoun in Spec,vP (a phase) is not spelled out is also expected, given that “Spell-out systematically and automatically ‘fails to see’ phrases in the Spec of a phase” (Kayne 2005: 6). If we assume that AGREE takes place between phases and that for *pro* to be identified AGREE relation requires an edge position, it is then reasonable to first argue that the preverbal DP is not a subject, but rather a topic, sitting in a Spec of a phase, i.e. in Spec,TopP in (1a) languages. Secondly, this AGREE could then be taken as an instance of long-distance AGREE, which accounts for the coreferentiality in (non)local A`-chains that are constructed between the topmost A-topic, silent A-topics and *pros* in a discourse. Thirdly, therefore, the assumption that the referential *pro* in Spec,vP carries the feature-values of the A-topic is much expected at the interface.

One direct implication of the proposal pursued here is extending and applying it to the analysis of 1 and 2 *pros* across languages. As for the latter, in Shormani (*in press*: b) I have extended this proposal and applied it to the analysis of imperatives in Arabic. It may also be extended and applied to the analysis of *qul*-clauses ‘say-clauses’, a speaker-dominant construction, which involves 1 *pro*, and I leave this for future research.

Note

¹ The following abbreviations are used throughout this article: 1, 2, 3 = first, second and third person, respectively, Abn = Aboutness, Acc = Accusative, Agr = agreement, Agr_{infl} = Agreement inflection, arb = arbitrary, C = complementizer, EPP = extended projection principle, EF = edge feature, F = feminine, Gen = Genitive, Gend = gender, Genr = generic, M = masculine, Nom = Nominative, NSLs = Null Subject Languages, Num = number, P&P = Principles and Parameters, PL = plural, SAP = Silent A-topic Principle, S = singular, Spec = specifier, SVO = subject verb object, T = tense, u = unvalued, UG = Universal Grammar, V = verb, v = valued, *v* = *v* in *v*P, VSO = verb subject object. Other abbreviations and/or acronyms used in the text are introduced in the first use.

² This article will be limited to the 3 person *pro*, leaving 1 and 2 person *pros* for future studies. There are, in fact, substantial differences between 1 and 2 *pros*, and 3 *pro*. As far as Arabic is concerned, traditional Arab grammarians (e.g. Ibn Malik) point out that 1 and 2 *pros* differ from 3 *pro* in that while the latter can be substituted by a lexical/pronominal DP, the former cannot. Another difference that can be noted here is that discourse may have nothing to do with the identification of 1 or 2 *pro*, because the speaker and the addressee are present in the context. That is, the referents these *pros* refer to are present; their identification does not involve much apparatus like the 3 *pro*. Or, there might be some role for the discourse to play in the identification of 1 and 2 *pros*, but not as much as that involved in the 3 *pro* (see Shormani *in press*: a) for a discussion). Along these lines, Kayne (2000) proposes that only the 3 *pro* can be assumed to be a real *pro*. He provides empirical evidence from across languages, stressing that since 1 and 2 person can be cliticized, the clitics representing them have the status of pronouns. Consider the Italian examples in (i) (from Kayne 2000: 176, gloss mine):

- (i) a. *Parlavano*
 spoke.*pro*.3PL
 ‘They spoke.’
 b. *Parlavamo*
 spoke.1PL
 ‘We spoke.’

Kayne argues that (ia) is a third-person (plural) null subject sentence. However, (ib) contains an overt subject, which is the agreement suffix *-mo*, while the agreement suffix *-no* in (ia) need not be pronoun-like. He stresses that while the agreement suffix in (ib) ‘must be nonpronominal’ (ia) must contain a covert *pro*. He also takes Paduan and Venetian, among several other North Italian dialects, as examples of languages/dialects “which require overt subject clitics in the third person but not in the first person or in the second person plural.” This makes them completely different from the 3 *pro*. The interpretation/identification of the latter, however, requires discourse involvement. This also supports our proposal that out of context, a 3 *pro* is vague. A further difference has to do with the referent. That is, the referents of 1 and 2 *pros* are always pronouns, while the referent of 3 *pro* is always a nominal/lexical DP, see also Koenenman & Zeijlstra 2014: 3ff, for Yiddish, Icelandic and Danish data). There is also a difference between 2 *pro*, and 1 and 3 *pro*. The former, but not the latter, occurs in vocative and imperative structures as in (iia) and (iib), respectively (see also Shormani *in press*: b):

- (ii) a. *ʔiftaħi pro l-baaba!*
 open the-door.ACC
 ‘(You) open the door.’
 b. *yaa ʕaliyyu, ʔiftaħi pro l-baaba!*
 VOC Ali.NOM, open the-door.ACC
 ‘You Ali, open the door!’

In Arabic, 1 *pro* and 3 *pro* do not occur in these structures, where the dropped pronoun is always 2 *pro*. In Shormani (*in press*: b), I have argued that a 3 *pro*, for instance, can never occur in vocatives/imperatives for several reasons the most important of which have to do with the addressee role, which is assigned to the subject of imperatives (see also Portner 2004; Hill 2007, 2013, 2014).

³ Pesetsky & Torrego (2007) propose that the interpretability of features is an independent operation of their valuation. Precisely, their analysis argues against Chomsky's (2001: 5) Valuation/Interpretability Biconditional, which is stated in (i).

(i) Valuation/Interpretability Biconditional

A feature F is uninterpretable iff F is unvalued.

Pesetsky & Torrego provide empirical evidence that Chomsky's correlation between valuation and interpretability does not always hold. The evidence they provide includes data from English, Latin, Russian, etc.

⁴ A reviewer suggests to consider Cardinaletti's (1990) Ph.D thesis in this aspect. I gladly accept this suggestion, but the work turned out to be unavailable to me even after contacting the author.

⁵ In principle, the assumption that *pro* exists even in nonNSLs complies with Chomsky's (2001: 2) UNIFORMITY PRINCIPLE given in (i):

(i) In the absence of compelling evidence to the contrary, assume languages to be uniform, with variety restricted to easily detectable properties of utterances.

⁶ If it happens the pronoun *huwa* is stressed, it can in fact occur in such contexts in Arabic. But then the natural occurrence of *huwa* is the C-domain as a topic as in (i):

(i) ʕaliyy-un, sa-yaʕti pro, law huwai/*k ʕaʕara pro, bi-tahasun
 Ali-NOM FUT-come if he felt with-good

'Ali will come if he feels well.'

Note also that accidental coreference is not allowed, too, as is clear from the index *k.

⁷ Hasegawa (1985: 297) rightly notes that the "relation between the existence of a rich agreement system and the phenomenon of *pro*-DROP... is vague." In fact, even Chomsky (1982) himself wonders how rich is 'rich enough' for a language to allow the *pro*-DROP phenomenon. However, as noted in relation to the examples in (4), there is a partial role played by the syntax via Agr_{infl} in the interpretation of the referential *pro*. In this view, I side with Chomsky (1982) and Huang (1989) who hold that although there are counterexamples to *pro* identification hypothesis, still there is some reason to assume the existence of agreement inflection as a 'partial' requirement for *pro*-DROP to occur at least in NSLs like Arabic. I propose that in NSLs *pro*-DROP is partly related to the syntax, and partly to the discourse, on both of which the interpretation of referential *pros* is ultimately obtained (for a recent definition of *rich agreement*, see Koenenman & Zeijlstra 2014: 4).

⁸ Frascarelli (2007: 694) assumes that subject *pro* in examples like (4a-b) does not refer. However, this may not be possible, because if subject *pro* does not refer, then *pro* in (4a-b) will be nonreferential/generic/arb, presumably equivalent to 'one' in English. But this is not the case due to the fact that consistent NSLs like Arabic and Italian do not have a null pronoun equivalent to 'one', specifically in active (see e.g. Biberauer *et al.* 2010). A reviewer draws my attention to an example from Spanish: *Fumas y te mueres* → (*pro*-2SG-ARB) *smoke and then (pro*-2SG-ARB) *die* (with the meaning 'one smokes and then one dies'). In this example, the reviewer points out that Spanish allows "an arbitrary second person singular *pro*, with generic interpretation, as a result of dropping an impersonal second person pronoun". This is in fact in line with an analysis put forth by Shormani (*to appear*). In Shormani (*to appear*), I argued that in impersonal passive NSLs like Arabic have a generic/indefinite *pro*. However, notice that either in the example provided by the reviewer or the views held in Shormani (*to appear*) the availability of a generic/indefinite *pro* is conditioned by impersonals, be they active or passive.

⁹ Benincá (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.”

¹⁰ Null subjects are also allowed in Old English as shown in (i) (from Walkden 2013a:156: ex. 2):

- (i) *Nu scylun hergan hefaenricaes uard*
 now must praise heavenly-kingdom.GEN guard
 ‘Now we must praise the lord of the heavenly kingdom.’

As can be observed, the pronoun ‘we’ is not spelled out in the Old English example. As far as I can tell, the idea that A-topics can be taken as antecedents for *pros* was first proposed by (Trecci 2006; Frascarelli 2007; Frascarelli & Hinterhölzl 2007). Walkden (2013a) follows Frascarelli & Hinterhölzl (2007) and applies their proposals to Old English, though attributing no role to discourse or interface components.

¹¹ Rouveret (2008: 168), for example, argues that the preverbal DP is an instance of A’-dependency (see also Cinque 1990). He also stresses that the “resumptive pronoun in an A’-binding structure is “not created by movement.”

¹² A reviewer wonders “what happens when the subject is a quantifier, which cannot be a Topic unless it is specific.” I agree to this statement; a quantifier can function as an A-topic only if it is specific/definite. Consider (i):

- (i) a. *al-kull-u jaaʔa*
 the-all-NOM came
 ‘All of them came.’
 b. **kull-un jaaʔa*
 All-NOM came

The ungrammaticality of (ib) lies in the fact that the quantifier *kull-un* is neither definite nor specific. Consider also specificity and unspecificity as shown in (iia) and (iib), and the grammaticality and ungrammaticality, respectively:

- (ii) a. *kull-u muslim-in yuʕali ʔila l-kaʕbat-i*
 every-NOM Muslim-GEN prays to the-Kaba-GEN
 ‘Every Muslim prays to Kaba.’
 b. **kull-u rajul-in jaaʔa*
 every-NOM man-GEN came

Although the quantifier *kullu* in both (iia & b) occurs in a CS, only in (iia) it is specific. Its specificity lies in that it has a discourse. The discourse is the sentence it is used in. *kullu* occurs as the head N of the CS *kull-u muslim-in* ‘every Muslim’ praying to *l-kaʕbat-i*, thus, excluding non-Muslims. Bearing this in mind, consider (iii) (see also Shormani 2014, 2016b):

- (iii) *kull-un qaama bi-ʔadaaʔ-i waajib-i-hi*
 every-NOM stood by-performing-GEN duty-GEN-his
 ‘Everybody has done his duty.’

In (iii), the structure is grammatical and its grammaticality lies in that the quantifier *kull-un* is specific. This sentence is said in a context where there is a group of people who are doing some work, and everyone has been assigned something to do. By completing the work, one of them will say the sentence in (iii) if he is asked by the boss a question like *What has everybody done?* A quantifier can also be specific in certain idiomatic expressions, consider (iv):

- (iv) a. *kull-un yuyanni ʕala laylaah*
 every-NOM sing on Layla.his
 ‘Everybody mourns his bad luck.’
 b. “*wa-kull-un fii falak-in yasbaʕun*” (Qur’an)
 and all-NOM in planet-GEN swim.PL
 ‘Everybody has his own business.’

¹³ A reviewer observes that “[o]ne cannot simply take clitic resumption as an indication of lack of movement ... clitic doubling as big DP [involves] ... movement although one sees obligatory resumption.” However, the assumption that Clitic Doubling and ‘big DP’ involve movement, though resumption takes place, is not uncontroversial. There is no universally agreed-on approach to Clitic doubling, which is still a matter of hot debate. Some scholars take a base-generation approach (see e.g. Jaeggli 1986; Borer 1984; Frascarelli 2007), while others take a movement approach (see e.g. Kayne 1975; Uriagereka 1995; Belletti 2004; Poletto 2008) and yet others reconcile the base-generation approach and the movement approach (see e.g. Sportiche 1996; Anagnostopoulou 2006). Furthermore, Poletto (2008: 58) tries to relate clitic doubling to CLD structures, stressing that CLD structures are “the only context in which doubling can occur”. Kramer (2014) distinguishes between clitic doubling and agreement properties, developing an Agree-based analysis of Amharic object marker. For one thing, in Arabic clitic doubling in the sense of Poletto (2008: 50) is not available. For example, the Arabic equivalent to the Venetian dialect example in (ia) is ungrammatical, even in CLDs:

- (i) a. *A chi ti ghe ga dito cussi?*
to whom you to-him have said so
‘To whom did you talk like that?’
b. **ʔila man ʔilai-hi qul-ta ɖaalika*
to who(m) to-him said-you that

Bearing in mind the difference between A-topic constructions and CLD, clitic doubling or big DP under movement analysis cannot be assumed even in Italian, simply because it cannot account for constructions, where the relation between *pro* and A-topic is not a result of merging them in a single DP. Nor can it account for extraction of topics from a ‘big DP’ containing the *pro*/clitic as (ii) shows (from Frascarelli 2007):

- (ii) a. *Il proprio _{*i/k} libro, Leo_k non sa chi, l’ha letto.*
His own book, Leo does not know who read it.

b. [il proprio _{*i/k} libro]_i Leo_k non sa [_iil proprio _{*i/k} libro] < [chi, [lo, ha letto [DP_i lo [NP pro]_i]]]]

In (ii), it is expected that the DO (= direct object)-topic (*il proprio libro*) is ‘interpreted in a position that is c-commanded by Leo, but not by chi.’ So, merging the topic in the local C-domain of the weak pronoun and excluding the presence of a ‘lower copy’ in the DP containing the clitic accounts straightforwardly for such expressions.

¹⁴ It should be noted here that floating quantifiers like *kull* ‘all’ carry resumptive pronouns only when they occur postnominally, but when they co-occur pre-nominally, they do not; they rather constitute construct states with the nouns they accompany (see also Shormani 2014).

¹⁵ Along these lines, Rizzi (2006) argues that there are a number of differences between subject and topic. One such difference lies in that while the latter is always D(iscourse)-linked, the former is not necessarily so. Another difference noted by Rizzi (2006) is that while subject belongs to T-domain, topic belongs to C-domain; subjects agree with the verb, while topics do not have to.

¹⁶ Note that I will continue using *v* to stand for *v** as a phase head throughout the paper.

¹⁷ Specificity in the context of this article is taken as a ‘discourse’ property, which individualizes an indefinite DP, making it refer to a (specific) referent (see e.g. Uriagereka 1995; Lyons 1999). This individualization makes the preverbal DP refer to a specific referent ‘uniquely determined for the speaker and the addressee (cf. Lyons 1999: 59f, see also Mohammad 2000: 111ff). This also amounts to a crucial difference between definiteness and specificity. I assume that this difference lies in that while specificity is a discourse property, definiteness is a syntactic and/

or semantic one. In this sense, discourse specifies the preverbal DP as a topic, and this ‘specificity’ is, in other words, “to newly propose or reintroduce a topic in the discourse” (Bianchi & Frascarelli 2010: 52). As we shall see shortly, this specificity is a feature linked to the notion ABOUTNESS, which is, in turn, a property of the C-domain.

¹⁸ Further evidence that an A-topic can be specific though indefinite comes from Italian. Consider (i) (from Frascarelli 2007; see also Trecci 2006):

- (i) *Gli studentij si lamentano sempre dei brutti voti con Leok, perché ogni studente_j pensa che pro_j/*_k è un genio!*
 ‘Students_j always complain about bad marks with Leok, because [every student]_j thinks he_j/*_k is a genius’.

Following Ihsane & Puskás (2001), Frascarelli argues that though the DP *studente* is indefinite, it qualifies as a topic; it also “qualifies as a Proper syntactic antecedent for *pro* in the embedded clause” (Frascarelli 2007: 729). She concludes that definiteness and specificity should be kept separate, because “a definite DP is not always specific” and vice versa. Given the discourse as in (i), a specific DP can also be indefinite and serves as a referent of *pro* (see also Erteschik-Shir 2007: 8, for Danish specific indefinite topics). It is not even necessary that a definite DP refers to a specific entity (see also Lyons (1999), for evidence cross-linguistically, and Shormani 2017, for Arabic and Hebrew data). Lyons has found out that specificity is different from definiteness in several aspects. He has reported on a number of Polynesian languages like Samoan and Maori, where specificity is marked by some sort of articles differently from definiteness (p. 57ff).

¹⁹ For works which assume sharp definiteness of the preverbal DP/topic, see (e.g. Fassi Fehri 1993; Soltan 2007; Holmberg 2010; Roberts 2010). For example, based on this definiteness Holmberg (2010) and Roberts (2010) hypothesize that T in NSLs has a D(-efiniteness) feature (I return to this point in Section 4).

²⁰ Although A-topic structures share some CLD properties, there are still some differences between both structures. One such difference concerns the fact that agreement between the A-topic and the verb is obligatory (cf. Shormani 2015). Compare and contrast (i) with (ii).

- (i) a. *al-ʔawlaad-u qaabal-uu ʕaliyy-an.* (A-topic)
 the-boys-NOM.3MPL met-MPL Ali-ACC
 ‘The boys met Ali.’
 b. **al-ʔawlaad-u qaabal-a ʕaliyy-an.* (A-topic)
 the-boys-NOM.3MPL met-3MS Ali-ACC
- (ii) a. *al-ʔawlaad-u qaabal-a-hum ʕaliyy-un.* (CLD)
 the-boys-NOM.3MPL met-3MS-them Ali-NOM
 ‘The boys, Ali met them.’
 b. **al-ʔawlaad-u qaabal-uu-hum ʕaliyy-un.* (CLD)
 the-boys-NOM.3MPL met-3MPL-them Ali-NOM

In (ia), the A-topic *al-ʔawlaad-u* and the verb *qaabal-uu* are both masculine plural. This agreement condition is the main reason of the ungrammaticality of (ib). However, this agreement is not required in (iia): the CLD element *al-ʔawlaad-u* is masculine plural, while the verb is masculine singular. When the verb agrees with the CLD element, the result is an ungrammatical structure as (iib) shows (cf. Shormani 2015). A second difference concerns specificity vs. definiteness: while an A-topic can be specific, rather than definite, a CLD element must be definite. A third difference that can be noted here concerns the fact that a CLD can be an object, a hanging object, an object of a preposition, etc. while A-topic can only be the logical subject of a verb.

²¹ Note that Reinhart (1981: 56f) argues for a discourse approach to ABOUTNESS, rejecting the “purely intonational approach” which allows for a free position in the

sentence. Reinhart argues that while the intonational approach is “consistent with the facts, [it] does not define topics directly but rather the way they are marked linguistically. It leaves open the question under what discourse conditions a given expression would count as topic, and, consequently would be unstressed.”

²² The notion ABOUTNESS has also been defined in psychological terms of speakers’ intentions and interests. For example, following Strawson (1964: 87f), Erteschik-Shir (2007: 13f, emphasis in the original) argues that the ABOUTNESS expressed by the topic provides “new information... “about” the referent” mainly for the hearer’s sake. Given this, Erteschik-Shir argues that the topic has three central properties:

- (i) a. The topic is what a statement is about.
- b. The topic is used to invoke “knowledge in the possession of an audience.”
- c. “The statement is assessed as putative information about its topic.”

²³ However, since A-topic and C-topic are almost completely different from each other, and can also co-occur, their proposal seems to need some refinement. There is also one additional aspect, which makes their analysis difficult to apply to Arabic: they relate A-topics to *wa-*, which does not exist in Arabic, among other languages. Along these lines, Frascarelli & Hinterhölzl (2007) argue that F-topics do not affect the conversational dynamics. They are also not restricted to root clauses.

²⁴ There are also some studies tackling topics in Arabic (see e.g. Farghal 1992; Yateem 1997; Shlonsky 1997; Ouhalla 1997; Bakir 1980; Ayoub 1982; Aoun *et al.* 2010). However, the common thing to all such studies, I have noticed, is that they are best described to have been concerned with left clitic dislocation in general, i.e. without distinguishing between a subject topic and object topic (the latter includes topicalization, hanging topics, etc.).

²⁵ Frascarelli & Hinterhölzl’s (2007) and Bianchi & Frascarelli’s (2010) studies are mainly focusing on the distribution of A-topic, C-topic and F-topic, arguing against ‘free recursive’ co-occurrence of such topics. For one thing, it has been argued by Benincá (1983, *et seq.*) that topics are not recursive. In Benincá’s conceptions, what looks like C-topics or F-topics turned out to be some sort of Foc or Forc elements (I return to this issue below).

²⁶ The assumption that Spec,TP is an A’-position has been argued for cross-linguistically (see Mahajan 1990, 2003, for Hindi; McCloskey 2000, for Irish; Borer 1995, for Hebrew; Plunkett 1993; Shormani 2015, for Arabic, among other authors and languages). In Arabic, one evidence comes from wh-extraction, where wh-movement cannot cross the topic in Spec,TP in A-topic construction, compared to a postverbal-subject construction. Consider (i) and (ii), exemplifying both phenomena (cf. Shormani 2015):

- (i) a. *maaḏaa_i qaraʔa ʕaliyy-un [t_i]*? (postverbal-subject construction)
 what read Ali-NOM
 ‘What did Ali read?’
 b. [CP *maaḏaa* [TP [t] [T *qaraʔa*] [_{VP} [ʕaliyy-un] [VP[V[t]]]]]
- (ii) a. **maaḏaa ʕaliyy-un qaraʔa [t]*? (A-topic construction)
 what Ali-NOM read
 b. [CP *maaḏaa* [TP [ʕaliyy-un] [T *qaraʔa*] [_{VP} [VP[t]] [v[t]]]]]

Note that in (i), the wh-word *maaḏaa* moves cyclically from its canonical position through Spec,VP, Spec,TP and finally Spec,CP (for Minimality, see Rizzi 1990, or Shortest Move, see Chomsky 1993; Zwart 1996). In (ii), however, it raises from its canonical position to Spec,VP and then to Spec,CP, and it seems that this is the only reason behind the ungrammaticality of (iia). In other words, while in its successive cyclicity the wh-word *maaḏaa* “passes” through Spec,TP in (ia), it does not do so in (iia). Thus, it could be concluded that this is the only reason for the ungrammaticality of (iia), which, in turn, suggests that Spec,TP in Arabic is an A’-position.

²⁷ The symbol '>' in (25) represents a dominance/scope relation holding between two adjacent projections. ModP stands for Modality Phrase and NegP Negative Phrase. For ease of exposition, I ignore other projections like MoodP (= Mood Phrase) and AspP (= Aspect Phrase).

²⁸ Examples like (30) suggest that adverbs (or AdvPs) may occupy Spec,ModP.

²⁹ I propose that the DP occupying Spec,TopP is interpreted as the A-topic. This A-topic is assumed to be "a kind of higher subject of predication assumed to be contextually familiar; its complement is interpreted as the Comment, a complex predicate predicated of the Topic (Rizzi 2004: 7).

³⁰ A reviewer draws my attention to the fact that our proposal in (33) is very much in line with Benincá's (1983) and subsequent work, which is different from that of Rizzi's (1997). Rizzi's proposal is roughly schematized in (i):

(i) ... C° (Top*) (Foc) (Top*) ...

In fact, Rizzi assumes that topics are recursive, and can occur preceding or following Foc, which is not the case cross-linguistically. Benincá, instead, proposes that topic precedes focus and "there is not an optional position for Topic below Focus", and this has also been strengthened in her paper Benincá (2001) and subsequent work like Benincá (2006) (Paola Benincá, personal communication). These ideas have also been approved by Rizzi (2004), specifically referring to Benincá & Poletto's (2004) hypothesis that "...topic strictly precedes left-peripheral focus..." (Rizzi 2004: 9). Thus, under this analysis topics cannot occur to the left and to the right of FocP simultaneously.

³¹ Given our conclusion that predication is a discourse-based phenomenon, it may well be argued that the speaker's intention of producing an A-topic sentence is a pre-articulation issue. There is some sort of similarity between A-topic and a vocative nominal in that both may be argued to be the result of the speaker's intention (see e.g. Strawson 1964; Rizzi 2004; Erteschik-Shir 2007; Shormani (*in press*: a-b)). This phenomenon may be vividly manifested in VSO languages like Arabic, for instance, where the speaker's intention is much respected. That is, the speaker might choose the type of the sentence before its actual articulation as either a topic-comment structure, where the topic occurs preverbally in a topic-comment structure, or postverbally in a VSO structure, in the same way the speaker chooses to vocativize a N/DP. One salient difference between both structures is that while the topic-comment structure is declarative the vocative one is imperative (for more on the similarity (and difference) between A-topic and a vocative nominal, see Lambrecht 1996; Portner 2004; Sonnenhauser & Hanna 2013; Hill 2013; Shormani *in press*: a).

³² Note that the mechanisms in (35-36) are summarized here in order to show how they relate to the narrow syntax. Their relevance as well as application to the proposals put forth here will be instantiated and thoroughly discussed the more we proceed.

³³ From now on, I will use the [uAbn] to indicate an unvalued ABOUTNESS feature and [vAbn] to indicate its valued counterpart.

³⁴ The idea that C has ϕ -features is advocated in the literature. For instance, Bianchi (2003: 26) holds that "both person agreement and tense are anchored to the local Logophoric Centre of the clause" (see also Sigurðsson 2004; Safir 2004). Pesetsky & Torrego (2001: 360) adopt this idea maintaining that "C bears an uninterpretable T-feature with the EPP property." Chomsky (2001: 8, 2005: 18, 2008: 143) argues that C is ϕ -complete. Further Rizzi (1997: 307 & 324) proposes that Top ϕ has Agreement features.

³⁵ In fact, whether relative pronouns are Cs or DPs is a controversial issue (see e.g. Kayne, 1983, 1994; Borsley 1997; Aoun & Li 2003; Boeckx & Hornstein 2008; Rouveret 2008, and the work cited there). I am adopting Kayne's & Borsley's proposals that the relative pronouns are Cs.

³⁶ 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 complementizer *y* and in (ib) the clitic 'ch is attached to it.

³⁷ Other proposals that could be noted here include EPP valued by EXPL(ative) *pro* (Rizzi 1982; Mohammad 1990, 2000), EPP valued by a null locative 'here' or null EXPL (Sheehan 2010), D-(efiniteness) feature (Holmberg 2010; Roberts 2010), valued by base-generating a definite topic in the C-domain, D-linking feature (Rizzi 2006), valued by base-generating a DP in Spec,CP. However, the fact that indefinite topics can occur in the preverbal positions casts some doubts on D-(efiniteness) feature proposal (see our examples in (18-27)). The same argument applies to the D-linking feature, because D-linking is not a property of A-topics (cf. Frascarelli 2007). For a discussion on violations brought about by EXPL assumptions, see Shormani (2015).

³⁸ As for tense feature, in addition, some scholars argue that C has this feature as in the case of Irish (see Adger 2007: 34, for evidence that C in Irish exhibits past and non-past tense feature). Given this, it is then reasonable to assume that T inherits C's features including tense feature.

³⁹ This is in addition to theory-internal problems caused by the radical changes linguistic theory has gone through, specifically concerning reducing or abandoning P&P notions like government, DS, SS, binding, etc.

⁴⁰ See also Hasegawa (2005) and Hick (2009) for recent overviews. Note also that I will use the term 'bound' to refer to syntactic (not free) coreference.

⁴¹ For example, based on antecedent contexts, Chomsky (2008: 142) argues that "the core case of Condition (A) does not involve c-command, but rather AGREE. C-command may turn not to be an operative relation for Condition (A), which would support the view that the only relations are the inescapable ones." Kayne (2002: 133) also criticizes P&P view of binding. He holds that neither condition B nor condition C is a primitive of UG. Condition C, Kayne argues, is superfluous, and hence can be dispensed with. For condition A and its status in minimalism, see Hornstein (2000).

⁴² There is also good evidence in child language acquisition that *pro*-DROP takes place in English. For example, sentences like *Hug Mommy, Play bed*, etc. are typical cases of empirical evidence supporting this phenomenon (see Bloom 1990: 491).

⁴³ A reviewer wonders whether the pronoun *huwa* in (45) receives emphatic intonation "akin to a contrastive emphatic pronoun, similar to the ones found in Spanish". It does not actually receive such emphatic intonation, because it is weak in this use (for more on this, see Ouhalla 1997, for Arabic, and Carminati 2002, ch. 5, for Italian and Spanish, among other languages). Note also that *pro* referentiality in (45) is conditioned by the context. The context is as follows: it is *Saliiyy-un* whose coming is conditioned by *feeling* well. If, say, Ali is not feeling well, then he will not be able to come. The same phenomenon also holds true in Italian as (i) shows (from Frascarelli 2007: 695):

- (i) a. *Jim andrà se *lui/ pro si sentirà bene.*
Jim will go if he feels well
b. *Se *lui/ pro si sentirà bene Jim andrà*
If he feels well, Jim will go

However, the difference between Arabic and Italian lies in that while Arabic is a VSO language, Italian is a SVO one. This could be accounted for in terms of parametric variation between both languages (see also Biberauer et al. (2010) for how referentiality works in partial NSLs like Finnish and Marathi).

⁴⁴ Along these lines, Sigurðsson & Maling (2010: 66) 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.”

⁴⁵ Note also that the Spell-out of *hind-un* in (60) will not be an A-topic, but rather a focus, i.e. stressed for emphasis as (i) shows:

- (i) Hind-un *sa-t-a?i* pro *ʔad-an*.
Hind-NOM FUT-3FS-come tomorrow-ACC
‘Hind will come tomorrow.’

However, I will not dwell in this issue here. For more on *focus*, see Ouhalla (1997) and Carminati (2002).

⁴⁶ As an A'-antecedent for all silent topics and *pros* in a discourse, the Spell-out of *a* could be thought of as an instance of late-Spell-out driven solely by discourse cross-linguistically taken to distinguish between “zero-topic languages like Chinese from non-zero-topic languages like English” (Huang 1984: 549). The idea that SAP can be implemented across languages ensues from the fact that silent topics are an across-linguistic phenomenon (see e.g. Huang 1984: 545-549, for Chinese and German; Hasegawa 1985: 305ff, for Japanese; Hayes & Lahiri 1991, for Bengali; Reinhart 1981: 54ff; Gilligan 1987; and more recently, Kayne 2002; Radford 2009, for English; Trecci 2006; Ackema et al. 2006; Frascarelli & Hinterhölzl 2007; Frascarelli 2007, for Italian; Roberts 2010, for Finnish and Italian; Sigurðsson 2011; Walkden 2013a & b, for Icelandic, Old English and Old German; Jiménez-Fernández 2016, for Spanish, among other authors and languages).

⁴⁷ In fact, our system contrasts sharply with Frascarelli (2007). Frascarelli (2007: 709f) claims that the interpretation of *pro* depends always on the A-topic in the ‘local’ C-domain. In her system, when A-topic is silent “it can be repeated by means of low copies (in Famp)”. But this does not hold as clearly shown in this Section.

⁴⁸ Note that the pronominal clitic *-uh* in Yemeni Arabic is equivalent to the standard Arabic *-hu*.

⁴⁹ Note that neither a weak pronoun like *huwa* nor *pro* is possible to surface here. As for the former, the reason has to do with the fact that *huwa* is not a bound pronoun, but rather a free one. And *pro* does not (and, in fact, cannot) function as a clitic. This is actually in line with Kayne’s (2005: 7) suggestion that “[a]pparent cases of pronunciation of an intermediate or lower copy might be hidden cases of doubling.”

⁵⁰ In terms of Discourse Representation theory, or File-Change Semantics, Erteschik-Shir (2007: 34) argues that “[t]he key idea in the way of thinking about the semantics of discourse is that each new sentence or phrase is interpreted as an “update” of the context in which it is used.”

⁵¹ This is also in line with Chomsky’s (2008) assumption 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, 2009). Chomsky (2008: 143) provides empirical evidence that AGREE may take place into a lower phase from two languages: Icelandic and Chukchee. In Icelandic, for example, AGREE takes place “into a lower phase without intervention in experiencer constructions in which the subject is raised (voiding the intervention effect) and agreement holds with the nominative object of the lower phase” (see Chomsky 2008: 159, fn. 25).

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