A REVISED ANALYSIS OF EPP FEATURE-CHECKING: THE CASE OF MODERN FRENCH[*]

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This article investigates the observed variation in EPP-checking strategies cross-linguistically. In particular, I examine the differences between languages that check the EPP through V-T movement and languages that check the EPP by filling the specifier of TP overtly. Previous work has held the underlying assumption that only *one* syntactic operation is needed to satisfy the EPP. Consequently, current proposals are unable to account for a language that has both V-T movement and simultaneously requires that the specifier of TP be filled overtly, which is what we find in Modern French. The current proposal extends the D-feature hypothesis (Chomsky 1995, Alexiadou and Anagnostopoulou 1998), which argues that the EPP can be attributed to the satisfaction of a D-feature in T. However, I propose that *D* is not a single, homogeneous feature cross-linguistically but instead, that it is formed by a bundle of phi-features, which I call a *D-bundle*. I will argue that the EPP is satisfied through an *Agree* relation between two matching D-bundles (cf. Chomsky 2000, 2001, Béjar 2003, 2008). For present purposes, I propose that T is the *probe* that carries a D-bundle with unvalued phi-features, which must be valued by a D-element (*goal*) carrying a D-bundle with matching interpretable phi-features. Thus, the EPP can be attributed to feature valuation of an unvalued D-bundle on T. I argue that both DPs and verbs that move to T can carry a D-bundle, which is able to value the unvalued D-bundle on T. To account for the cross-linguistic variation, I argue that not all D-bundles are alike. Specifically, I argue that D-bundles can have different agreement properties and that it is these differences in agreement properties that can account for the cross-linguistic variation. In particular, these agreement differences can account for the French data, namely that V-T movement is required and that the specifier of TP must be filled overtly. Following Borer (1989) and Platzack (2003), I argue that agreement can be either *anaphoric* or *pronominal*. If the D-bundle on the verb is *anaphoric,* it must be bound within its binding domain, TP (Binding Principle A). The binding element will be an overt subject in spec-TP; this is what occurs in Modern French. However, if the D-bundle on the verb is

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pronominal, it cannot be bound within its binding domain (Binding Principle B). Therefore, the spec-TP position must remain free; this is what occurs in Spanish and other Null Subject Languages. I argue that these binding properties (anaphoric or pronominal) are encoded through an index on the interpretable D-bundle, which will determine if the D-bundle must be bound or not. Therefore, the current proposal will argue that whether or not the D-bundle must be or cannot be bound by a c-commanding element is determined independently of the EPP by the D-bundle carried by the verb that moves to T.

1.   Background

The Extended Projection Principle (EPP) has been investigated from several different angles in the literature. However, for this paper, I will focus primarily on the syntactic theories (Chomsky 1981, 1982, 1995; Alexiadou and Anagnostopoulou 1998, Alexiadou 2006) because I will argue that the EPP is a syntactic requirement, and not an interface requirement[1][2]. Existing syntactic theories of the EPP argue that it can be satisfied by checking one syntactic relation in the inflectional domain, TP[3]. In English, the specifier of TP (henceforth, spec-TP) must be filled overtly (Chomsky 1981, 1982, 1995), as in example (1a). If spec-TP is left empty, the sentence will be ungrammatical, as shown in (1b). As a last resort, if there is no DP subject, an expletive can be merged in spec-TP, as in (1c).

(1)   a. A man arrived
        b. *Arrived a man.
        c. There arrived a man.

In an influential proposal, Alexiadou and Anagnostopoulou (1998, henceforth A&A) argue that some languages can also satisfy the EPP through head movement, specifically, through V-T movement. In Spanish, a DP can precede or follow the verb (compare (2a) to (2b)) or it can be dropped altogether, as in (2c). Thus, there is no requirement that spec-TP be filled overtly in Spanish[4]. Importantly, when the subject appears pre-verbally in Spanish and other Null Subject Languages (NSLs), I follow A&A (1998) and Zubizaretta (1999) in assuming that it is found in an A'-position. Therefore, when a subject appears before the verb, it does *not* satisfy the EPP in Spanish.

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[1] For a semantic approach to the EPP, see Kiss 2002, Rosengren 2002; for a PF approach, see Holmberg 2000, Takahashi 2001, Bobaljik 2002, Landau 2007, among others.

[2] It has also been argued that we do not need the EPP as a language universal and that it can be reduced to Case (cf. Grohmann et al. 2000, Bošković 2002, among others).

[3] There are also EPP theories that argue that it is not a TP operation but that it can be satisfied by extending another projection, such as C (Bury 2003, Frascarelli 2007, Jouitteau 2007). However, for this paper I will only discuss the EPP theories that argue that it is TP-operation.

[4] Under this proposal, A&A (1998) also do not need to postulate *pro* in the TP-domain. Instead, the spec-TP can remain empty because the verb is checking the D-feature through V-T movement.

(2)   a. Juan leyó   el libro.
          Juan read.3sg.past the book
          'Juan read the book.'
    b. Leyó Juan el libro.
    c. Leyó el libro.

To account for the observed variation in EPP-checking strategies, A&A (1998) argue that the EPP requires checking of a D-feature in TP (Chomsky 1995). However, they dissociate the EPP from the spec-TP position[5], arguing that there are two ways for languages to check the D-feature: i) filling spec-TP overtly; or ii) V-T movement. The first strategy is employed in English and other Germanic languages: the D-feature can be checked by moving the subject or by merging an expletive in spec-TP (as in Chomsky 1995). The second EPP strategy is employed in NSLs, such as Spanish. In these languages, A&A argue that the D-feature can be satisfied through V-T movement because the verb carries nominal features, which are able to check the D-feature on T. Thus, A&A's proposal is able to account for two types of EPP-checking strategies cross-linguistically. However, this proposal also predicts that languages will only require *one* of these strategies. As we will see, Modern French presents a counterexample to A&A's proposal and thus, a revision to the theory is required.

1.1 The puzzle: Modern French

On the surface, Modern French seems to resemble English in requiring that subjects be overt in order to fill the spec-TP position and simultaneously satisfy the EPP (3a). As a last resort, an expletive can be merged in this position (3b). However, if the specifier is left empty, the sentence will be ungrammatical (3c):

(3)   a. Un homme est   arrivé.
        A   man   be.3sg arrived
        'A man has arrived.'
    b. Il   est   arrivé un homme.
        It.expl be.3sg arrived a   man
        'There arrived a man.'
    c. *est arrivé un homme.

Based on the examples in (3), we might conclude that French satisfies the EPP like English: by filling the specifier of TP. However, French also has V-T movement (Emonds 1978, Pollock 1989, Biberauer and Roberts 2005). Consider the examples in (4), which suggest that the verb must move past the adverb in French (4a-b), but not in English (4c-d):

(4)   a. Je bois   souvent du   café.
         I drink.1sg often   some coffee
        'I often drink coffee.'
    b. *Je souvent bois du café.

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[5] Chomsky (1995) argues that the strong D-feature must be satisfied by merging a nominal element (DP, expletive or *pro*) in spec-TP before spell-out.

c. I often drink coffee.
d. *I drink often coffee.

Based on the examples in (4), we might conclude that French satisfies the EPP like Spanish: V-T movement. Thus, French seems to require two simultaneous strategies to satisfy the EPP: *both* filling spec-TP overtly and V-T movement.

Therefore, the French data present a problem for the current syntactic theories of the EPP because they all carry the underlying assumption that *it is sufficient to satisfy the EPP using only one syntactic relation (either move or merge) in the inflectional domain.* Consequently, no existing syntactic theory of the EPP is able to account for a language that must have two syntactic elements in the inflectional domain, Modern French, which has both V-T movement and simultaneously requires that spec-TP be filled overtly[6]. This paper will argue that the French data can inform us about the variation in EPP-checking strategies cross-linguistically and should be accounted for under a universal EPP theory. Thus, a revision to the current framework is required in order to account for French and simultaneously keep the EPP as a language universal.

1.2 Do we need the EPP?

The current EPP theories are unable to account for Modern French because they assume that one syntactic relation in TP is enough. French therefore seems to present a counter-example to the current EPP framework, including the parametrized version of the EPP proposed by A&A (1998). A logical next step might be to argue that one of the movement operations in French (i.e. V-T movement or subject move/expletive merge) occurs for EPP-independent reasons. This would allow us to argue that French conforms to the current EPP theories and only requires that one syntactic element be found in TP. However, we quickly see that attributing either type of movement to an EPP-independent process inherently questions the nature of the EPP as a universal requirement, which was the original motivation behind the EPP (Chomsky 1982). For example, A&A (1998) acknowledge that French has verb movement in their proposal. However, they argue that the verb movement in French is not EPP-related but that it occurs due strong verbal features in T[7]. In contrast to NSLs, French satisfies the EPP like English: by filling spec-TP overtly. However, if we argue that verb movement in French occurs due to strong verbal features in T, why does it not occur for these reasons in other languages? Why is V-T able to check the EPP in NSLs but not in French? If the EPP is a language universal and some languages can check the EPP through V-T movement, should this strategy not also be available in other languages with verb movement?

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[6] For an overview of how the previous EPP theories are unable to account for the Modern French data, see Chapman (2013).

[7] Specifically, A&A argue that, in NSLs, the verb moves to AGR to satisfy the D-feature but that it moves to T in French due to strong verbal features. Thus, the authors attribute verb movement occurs to the EPP in NSLs, but not in French. Why would this be the case? An additional issue with this proposal is that the French verb does need to end up in AGR, like its NSL counterparts. A&A argue that the verb moves higher due to Case. Again, it is unclear why French would need these additional operations when the verb needs to end up in the same position as NSLs.

Another possibility is to argue that French satisfies the EPP through V-T movement, like NSLs, and that the requirement that spec-TP be filled occurs independently of the EPP. However, this presents us with a similar problem as attributing verb movement to an EPP-independent process. For example, if we argue that French requires overt subjects in spec-TP for an EPP-independent reason, such as Case, why does a similar process not also occur in English and other Germanic languages? Specifically, why is the overt subject in English and German attributed to the EPP but to an independent reason in French? Again, this questions the EPP as a universal requirement. Importantly, if we are able to argue that both movements in French can occur for an EPP-independent reason, this questions whether or not we should need the EPP at all. If we want to keep the EPP as a universal requirement, we will need another way to account for Modern French.

To sum up, if we attempt to attribute either EPP strategy in to an EPP-independent process, we question the nature of the EPP as a universal requirement. In order to keep the EPP as a language universal and simultaneously account for Modern French, the theory will need to be revised. The current proposal aims to provide an account of the EPP which will both keep the EPP as a language universal in the syntax and also account for the Modern French data. The paper is organized as follows: in Section 2, I will discuss the intuition that there is a link between T and D in the grammar. I will argue that D is not a homogeneous feature cross-linguistically but is better analyzed as a bundle of pronominal features, or a *D-bundle.* In Section 3, I will discuss the details of my actual proposal, the *D-bundle hypothesis.* In Section 4, I will demonstrate how this proposal is able to account for the cross-linguistic variation in EPP-checking observed in Null Subject Languages, in French and in English. In Section 5, I will briefly discuss the predictions made by this hypothesis. I will conclude and discuss some future work in Section 6.

2.   Connection between T and D

2.1 Nominal features and the T-domain

There has been an intuition in the literature that there is a striking similarity between the distribution of pronouns and the distribution of tense. In an influential proposal, Partee (1973) argues that English tense and pronouns should both be analyzed as variables and *not* as sentence operators because they have similar deictic and anaphoric uses[8]. A similar analysis is pursued in Enç (1987), who argues that tense should be analyzed as a referential expression, and not as a sentence operator. Therefore, following these analyses, tense should be analyzed as D (see also Enç 1986). Webber (1988) also argues that tense shares properties with definite NPs; thus, a further analysis for their similarity in distribution. Additional evidence for the similarity stems from the argument that participle verbal morphology can agree in gender, a type of nominal feature (Taraldsen 1978); thus, directly linking verbal elements to nominal elements in the syntax. Therefore, previous literature points towards similar distributional properties between T and D. While it remains unclear *why* the similarities in distribution should correlate with similarities in syntactic structure, it appears as

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[8] See also McCawley (1971) for an early argument that tense and pronouns have similar distributions.

though they are even more closely linked than previously assumed. Thus, I follow this old intuition and leave the details in regards to why for future work.

While the link between T and D has not been made explicit in the EPP literature, many of the syntactic proposals have also pointed towards this relationship in the syntax. Interestingly, research on the EPP in TP has argued that the requirement can be satisfied by nominal elements (or D-elements). Both A&A (1998) and Chomsky (1995) attribute the EPP to the satisfaction of a D-feature on TP. While Chomsky (1995) maintains that only nominal elements can satisfy the EPP by filling spec-TP, A&A argue that the EPP can also be satisfied by moving a verb, carrying nominal features, to T. The current proposal will extend A&A's hypothesis in order to account for a wider range of languages, including Modern French. To sum up, the current EPP hypotheses have implicitly captured the recurring intuition in the literature that there is a connection between T and D. This connection predicts that cross-linguistic differences should be expected considering that pronominal elements (or Ds) behave differently from language to language.

3. Proposal: The D-bundle hypothesis

A&A's (1998) D-feature hypothesis brings up an important question: *What exactly is the D-feature?* Both A&A (1998) and Chomsky (1995) argue that there is an uninterpretable D-feature on T that must be checked by moving a D-element to spec-TP (Chomsky 1995) or a verb, carrying nominal features, to T (A&A 1998). Thus, the D-feature on T can be checked by another D or by another D-like element provided it carries nominal features (e.g. V). However, the precise properties of the D-feature remain unclear and do not allow us to account for the cross-linguistic variation in EPP-checking, e.g. Modern French.

To account for this variation, I propose that *D* is not a single, homogenous feature cross-linguistically but instead, that it is formed by a *bundle* of phi-features, which I call a **D-bundle.** I argue that T carries a D-bundle, consisting of unvalued phi-features. The unvalued D-bundle must be *valued* by an interpretable D-bundle carrying *matching* interpretable phi-features (Pesetsky and Torrego 2001, Béjar 2003, 2008). I argue that D-bundle feature valuation must occur through a syntactic *Agree* relation (Chomsky 2000, 2001). In line with the Minimalist framework, I argue that T, as the functional projection, carries the unvalued D-bundle; it is the *probe*. The *goal* will be the D-element that carries a *matching* interpretable D-bundle. Importantly, this does not mean that each interpretable D-bundle carries the same features. In fact, I will argue that the D-bundle properties can vary cross-linguistically, explaining the variation observed in EPP-checking strategies. Importantly, the phi-features in the interpretable D-bundle must completely match the phi-features in the unvalued D-bundle (Béjar 2003, 2008). If not, the unvalued D-bundle on T will remain unvalued and the EPP will not be satisfied.

3.1 Variation in the pronominal domain

Variation has been attested in the distribution of D-elements cross-linguistically (Kayne 1983, Rizzi 1986, Cardinaletti and Starke 1994, Wiltschko 1998, Déchaine and Wiltschko 2002, among others). Evidence for variation in the pronominal domain is provided in Wiltschko (1998), who argues that there are two different types of pronouns in German: personal pronouns and D-words.

Specifically, she argues that the personal pronoun and the D-word in German have separate distributions with different internal syntactic structures[9]. In order to account for these different distributions, Wiltschko (1998) argues that the personal pronoun in German consists of only phi-features and represents the category AgrD (agreement). On the other hand, the D-word projects *both* AgrD and D and thus, represents a full nominal phrase. Importantly, both of these categories in German are pronominal. Consequently, it follows that they both consist of a bundle of pronominal features, or what I have called a D-bundle. However, due to their different syntactic distributions, I argue that these D-bundles are *distinct* in German. The German data is important for the current proposal because it shows that it is possible for there to be two distinct types of D-bundles in a single language. If we extend this idea cross-linguistically, it follows that it should also be possible for distinct types of D-bundles to exist amongst different languages. Therefore, there can be different types of D-bundles depending on the language and also depending on the syntactic distribution, as is the case in German. Thus, variation is expected depending on the composition of the D-bundles carried by the D-elements. How does this relate to the EPP? In order to value the D-bundle on T, the phi-feature composition of the interpretable D-bundle on the pronominal element and the phi-features of the unvalued D-bundle on T must fully *match*.

How can we account for languages that satisfy the EPP through verb movement? Following A&A (1998), if V-T movement is also able to check the D-feature on T due to its nominal features, we might also expect that the verb will carry a D-bundle, allowing it to check the EPP in a similar way as its pronominal counterparts. I argue that the D-bundle associated with the pronoun consists of similar pronominal features as the D-bundle associated with the verb that moves to T, allowing both elements to value the D-bundle on T. Further, if D-bundles can come in different flavours pronominally (as we see in German), it follows that the D-bundles on verbs that move to T may also come in different flavours. In other words, there may also be two distinct types of D-bundles on verbs that move to T. Thus, we expect there to be variation in EPP-related movements depending on the composition of the D-bundle found on the D-element. However, how is this variation encoded? So far, I have argued that there can be different D-bundles cross-linguistically but that in order to satisfy the EPP, the D-bundle on the D-element must match the D-bundle on T. I will argue that the apparent differences in EPP-checking can actually be attributed to differences in agreement properties encoded on the interpretable D-bundle.

3.2 Variation in agreement properties

Interestingly, variation has also been attested in *Agreement* properties cross-linguistically. In particular, the differences found in Agreement patterns have been attributed to anaphoric properties of the verb. Platzack (2003) argues there are two types of Agreement in verb-raising languages: pronominal and anaphoric (also cf. Borer 1989)[10]. Specifically, Platzack (2003) argues that when

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[9] See also Patel-Grosz and Grosz (2010) for a similar analysis.

[10] Platzack (2003) actually argues that Agreement is merged in the syntax in order to check thematic roles. In his system, Agreement cannot remain low in the syntax and is forced to attach to another element before spell-out. Verb-raising ensures that the derivation does not crash.

agreement is *anaphoric*, it must be locally bound, in accordance with Binding Principle A. If agreement is anaphoric in a language, it is predicted that the language will not have null subjects. As agreement must be bound, overt subjects must be merged in TP to serve as the binders of the verb found in T. For Platzack (2003), this is what occurs in French and Icelandic, languages that have verb movement but also require overt subjects in order to bind the agreement on T. On the other hand, when agreement is *pronominal*, it must be free (i.e. it cannot be locally bound), in accordance with Binding Principle B. If agreement in a language is pronominal, this predicts that the language will allow null subjects. Agreement on the verb in T must be free and thus cannot be bound by an overt subject in the specifier. For Platzack (2003), this is what occurs in NSLs, such as Italian. Similarly to A&A (1998), Platzack also does not need to postulate the empty pronoun, *pro,* in the TP-domain. In fact, if *pro* was merged in spec-TP, this would be a direct violation of Binding Principle B in Italian and other NSLs. Platzack's analysis also demonstrates that there is a relationship between verbal properties and pronominal elements (or D-elements).

How can Platzack's (2003) proposal be extended to the current framework? Recall that Wiltschko's (1998) proposal argues that while there are two types of D-elements in German with different syntactic distributions, both of these elements project a common syntactic phrase, AgrD. In other words, both pronominal elements in German have *agreement* features. As verbs that move to T are also able to value the D-bundle on T, I have argued that verbal elements also carry a D-bundle and therefore, they also carry *agreement* features. Following Borer (1989) and Platzack (2003), agreement can be either anaphoric or pronominal in nature. I propose that the type of agreement carried by the D-element is a property that is encoded on the D-bundle. In particular, I argue that the interpretable D-bundle will carry an index. If the D-bundle is anaphoric, the index must be bound locally (i.e. through c-command). However, if the D-bundle is pronominal, the index cannot be bound locally. Thus, this proposal predicts that there should be one verb that must be bound (anaphoric) and one verb that can remain free (pronominal) *within its binding domain.* Thus, agreement either *must* be locally bound or *cannot* be locally bound (Platzack 2003), according to Binding Principles A and B, respectively.

3.3 Binding conditions

I argue that the important distinction between the two types of D-bundles on the verb is what type of agreement it carries: anaphoric or pronominal. If the D-bundle can stand on its own, its agreement is *pronominal* and cannot be bound within its binding domain. However, if the D-bundle cannot stand on its own, its agreement is *anaphoric* in nature and *must* be bound within its binding domain. However, what is the relevant binding domain in regards to the EPP? Adapted versions of Büring (2005)'s definitions of a Binding Domain and Binding Conditions are shown in (5) and (6):

(5) **Binding domain** (adapted from Büring 2005:48)
γ is the *governing category* for D if and only if γ is the smallest clausal category (S, S', IP, CP, TP) which dominates D.
(6) **Binding Conditions** (adapted from Büring 2005:48)
a. An anaphoric D must be bound in its governing category.
b. A pronominal D must be free in its governing category.

I assume that D includes both pronominal elements and verbs that move to T, provided they carry D-bundles. What is the governing category for D with respect to the EPP? In this case, the smallest clausal category is **TP**. Thus, TP is the relevant governing category. The relevant binding conditions are defined in (6): (6a) is for D-bundles with an anaphoric index while (6b) is for D-bundles with a pronominal index. Thus, anaphors must be bound while pronouns must be free within their respective governing categories (in this case, within TP).

In French, the anaphoric-like properties carried by the verb's D-bundle in must be satisfied in the TP-domain. However, in NSLs, the pronominal-like properties carried by the verb's D-bundle must remain free in NSLs. For example, if the D-bundle on the verb carries an anaphoric index, it *must* be bound within TP. If the verb is found in T, there is only one c-commanding position within TP: the specifier. Thus, to obey Binding Principle A, spec-TP must be overtly filled with a co-indexed element in order to c-command the anaphoric D-bundle on the verb in T. The EPP is satisfied through feature valuation of the unvalued phi-features on T with matching interpretable phi-features on V. This is exemplified in Figure 1[11].
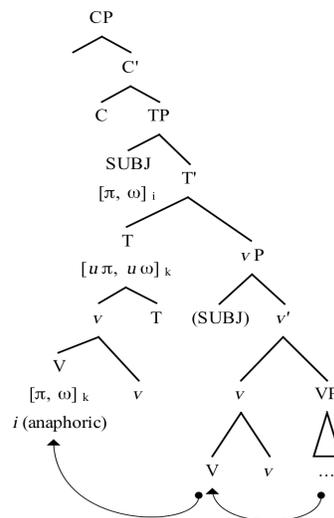
Figure 1: Binding domain for *anaphoric* D-bundle on T

On the other hand, if the D-bundle is pronominal, it *cannot* be bound within TP. Therefore, spec-TP should be empty. If spec-TP is filled, this would violate Binding Principle B and the sentence should be ungrammatical. Instead, if there is a co-indexed overt subject, it must be found outside of the binding domain (in spec-CP for example). Similarly to the previous tree, the EPP is satisfied through feature valuation of matching features on T and V, as in Figure 2.

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[11] The phi-feature notation is adapted from Béjar (2003, 2008).

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                        CP
                      /    \
                 SUBJ       C'
                [π, ω] i   /  \
                          C    TP
                              /  \
                             *    T'
                                 /  \
                                T    vP
                           [uπ, uω]k  /  \
                              /  \  (SUBJ)  v'
                             v    T        /  \
                           /  \           v    VP
                          V    v         / \    /\
                      [π, ω]k  v        V   v  ...
                    i (pronominal)
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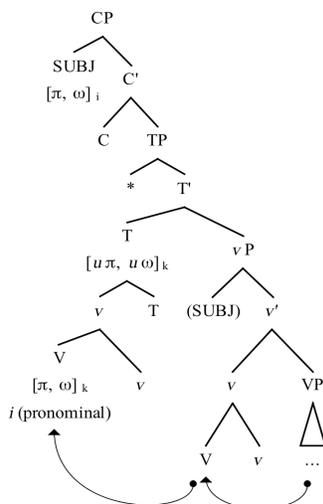
Figure 2: Binding domain for *pronominal* D-bundle on T

Therefore, this proposal is able to account for the differences in EPP-checking mechanisms seen in French in comparison to NSLs: the verb that moves to T in French carries a *distinct* D-bundle from the verb that moves to T in NSLs. In particular, the D-bundles differ in their agreement properties. In French, the verb's D-bundle is anaphoric in nature while the Spanish verb's D-bundle is pronominal. To sum up, the current proposal demonstrates that there are two types of possible D-bundles on the verb, which carry distinct features in addition to the two types of D-bundles found on pronouns. These different types of D-bundles mirror the cross-linguistic variability seen in the pronominal domain.

The *D-bundle hypothesis* is an extension of A&A's (1998) original proposal about the different ways that languages can satisfy the EPP. However, their account was too restrictive and could only account for languages on two ends of the spectrum: languages that can check the EPP by i) filling spec-TP with a pronominal element; and ii) moving the verb to T. Therefore, their proposal could only account for languages that look as straightforward as English (i.e. spec-TP must always be overtly filled) or Spanish (i.e. null subjects are permitted and V-T can check the EPP). However, A&A cannot account for a language with mixed behaviour, such as French, without arguing that one of the syntactic operations occurs for an EPP-independent reason. In fact, A&A do not discuss a third possibility: that the properties of the D-elements themselves may vary cross-linguistically. Specifically, that the D-bundle carried by the D-element may need to be *bound* by a c-commanding element. When this type of analysis is pursued, we are able to keep the EPP as a universal requirement and account for cross-linguistic variability in the properties of the D-bundles.

## 4. Cross-linguistic variation

4.1 Null Subject Languages

In NSLs, such as Spanish, V-T movement is able to value the unvalued phi-features on T. In these languages, subjects are freely dropped or remain lower in the clause. Under the current proposal, this suggests that the verb in NSLs carries the *pronominal* D-bundle. Consequently, the verb cannot be bound within its binding domain (TP), according to Binding Principle B. Thus, this predicts that overt subjects will not be found in spec-TP. Otherwise, this would be a direct violation of Principle B. In NSLs, the verb can stand alone because its D-bundle carries pronominal agreement. However, we need a way to account for pre-verbal subjects in NSLs. They must be found outside of the binding domain in order to not violate Binding Principle B. I follow Zubizaretta (1999) and A&A (1998) in assuming that the subject in NSLs is found in an A'-position (i.e. spec-CP or a topicalized position). Thus, it is outside of the binding domain (TP) and does not violate the binding principles.
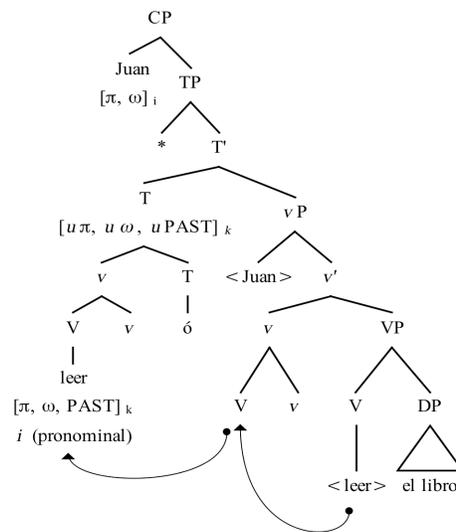
Figure 3: Tree for the Spanish sentence, *Juan leyó el libro* ('Juan read the book'), which shows that the verb in T is not bound by a c-commanding element in its binding domain, TP

4.2 French

In French, a mixed strategy of both head and phrasal movement is used to value the unvalued D-bundle on T. I argue that the verb carries the *anaphoric* D-bundle and *must* be bound within its binding domain (TP), in order to satisfy Binding Principle A. The binding element will be an overt DP or expletive in spec-TP, the only c-commanding position within TP. Therefore, the D-bundle's anaphoric-like properties explain why French does not have null subjects: as the D-bundle on the verb must always be bound, overt subjects are always required, as exemplified in Figure 4.
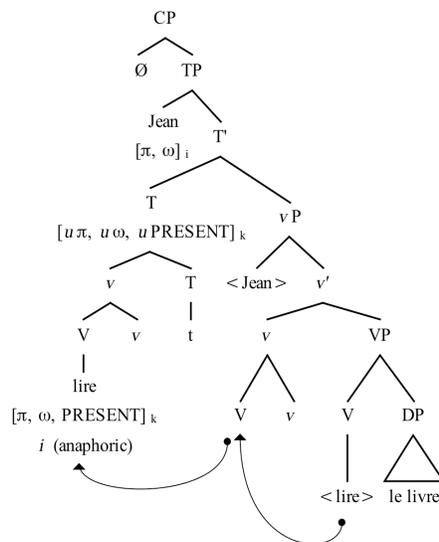
Figure 4: Tree for the French sentence, *Jean lit le livre* ('Jean reads the book'), which shows that the verb in T must be bound by a c-commanding element in its binding domain, TP

Thus, the variation in EPP-checking strategies observed between NSLs and Modern French can be explained by independent differences in the anaphoric-like properties of the D-bundles carried by the verb. In particular, the verbs in NSLs and French carry distinct feature bundles, which differ based on the agreement properties of the verb. Thus, all Romance languages satisfy the EPP in the same way: by moving the verb to T. The languages differ based on independent agreement properties of the D-bundle carried by the verb.

4.3 English

How can we account for English? English does not have verb movement of main verbs to T (Pollock 1989). Thus, we do not need to consider whether or not the verb carries pronominal or anaphoric agreement. Following the original EPP proposal, English requires that an overt subject (or expletive) is found in all sentences, which has usually been to occupy the spec-TP position (Chomsky 1981, 1982, 1995). Under the current proposal, the unvalued phi-features on T need to be valued by matching interpretable features. If there is no V-T movement in a language, the only other way to value the features on T is by moving a nominal element, carrying a D-bundle with interpretable phi-features.

5. Predictions

The main prediction of the D-bundle hypothesis is that there will be variability in how the EPP can be satisfied in a given language depending on the type(s) of D, or the type(s) of D-bundle(s) that the language allows. This is due to the fact

that there is a lot of variability in the pronominal domain cross-linguistically. If the verb is able to value the uninterpretable phi-features on T because it carries pronominal features, it could be analyzed as a D-element, just like the pronominal element that fills spec-TP. Further, if there are two types of D-bundles associated with pronominal elements (Wiltschko 1998) and if the verb can be analyzed as a D-element, we might also expect that there are two types of D-bundles associated with verbs that move to T. In addition, just as we saw different syntactic distributions with the pronominal elements, we might also expect to see different distributions with verbs that move to T. I have argued that verb movement languages differ depending on whether or not the agreement carried by the verb's D-bundle is *anaphoric* or *pronominal* (Platzack 2003). I argued that in NSLs, the verb carries *pronominal* agreement and thus, cannot be locally bound. However, the verb in French carries *anaphoric* agreement and *must* be locally bound (within TP). This explains why an overt subject is always required in French, and why NSLs allow their subjects to be dropped.

6. Conclusion

This paper has proposed that there is a connection between T and D, which has been formalized as the EPP. Since pronominal features come in many flavours, it is not surprising that there should be several ways for languages to satisfy the EPP cross-linguistically. Importantly, this paper has argued that previous EPP proposals were correct in arguing that the EPP must be checked by one element in TP. However, the previous proposals were unable to account for languages like French because they did not look closely at the properties of the pronominal features themselves. The French data can be accounted for within the current framework when we consider the binding properties of the D-bundle on the verb. In French, the index on the D-bundle is anaphoric and must be bound within its binding domain (TP). This analysis is thus able to explain why an overt element must be found in spec-TP in French. This proposal has important consequences not only for French but also for the EPP in general. When the EPP is looked at in this way, we are able to ensure that it remains a language universal and we are also able to explain the observed cross-linguistic variation.

While this proposal has been able to account the EPP-checking strategies in a wider range of languages by arguing that D-bundles on the verbs that move to T can carry anaphoric properties, the current analysis has not addressed *why* this is the case. Future work will need to consider why T and D seem to have similar properties and distributions in the syntax (for a potential semantic-based analysis, see Chapman 2013). Further, the current proposal is only able to account for the EPP phenomena in a subset of languages, one of which was previously ignored in many EPP theories, French. However, this proposal is currently unable to account for the unusual EPP cases (Holmberg 2000, Bury 2003, Rezac 2004, Frascarelli 2007, Jouitteau 2007, Kučerová 2012). Thus, future work will need to determine how the *D-bundle hypothesis* may be extended to the EPP-phenomena attested in these languages.

To conclude, this proposal argues that all languages must satisfy the EPP in T with a D-element, carrying a D-bundle. The variation lies in the properties of the D-bundles; particularly, their anaphoric-like properties. Importantly, this proposal also argues that the EPP is a syntactic requirement, and not an interface requirement. In this framework, the unvalued D-bundle on T must be valued

before spell-out and thus, before LF and PF. This rules out interface theories of the EPP and keeps the requirement in the syntax.

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