The EPP Across Languages

by

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Abstract

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The Extended Projection Principle (EPP) formalizes the requirement for a subject in every clause. In this dissertation, I develop a typology of EPP effects based on a sample of typologically, geographically, and genetically diverse languages. I define the EPP as the obligatory movement of some element into the inflectional domain, and argue that the EPP can vary in three different dimensions: (i) whether an argument or a predicate is the goal of the EPP-probe, (ii) whether the goal is a head or a phrase, and (iii) whether a larger constituent is pied-piped. I demonstrate that these three dimensions interact to create a total of seven different attested EPP types across languages. I demonstrate that intra-linguistic alternations in EPP type are attested, which provide evidence that these types are functionally equivalent on some level.

I also present the hypothesis that the EPP type of a language should be predictable based on other properties of the language. As such, I discuss several properties that co-occur with particular EPP types cross-linguistically. For example, predicate-EPP languages pattern together by having a high, defective T head, which results in a set of shared properties, including: (i) a lack of non-finite clauses, (ii) high or preverbal tense marking, (iii) a T merged with C, and (iv) defective definiteness marking. On the other hand, I show that the null subject type of a language does *not* correlate with EPP type.

Finally, I also propose two different functional purposes for the EPP. First, I propose that the EPP has an anchoring function, linking the utterance to the world by raising an element marked with an index to a position of prominence. I present the hypothesis that *all* operations within the inflectional domain have an anchoring function. Second, I argue that the dichotomy between predicate and argument EPP languages can be explained if we understand the EPP as a high predication operation, which raises either the predicate or the argument to a position which c-commands the other. I then propose that all anchoring operations, including the EPP, have dual functions, thus incorporating the two functions of the EPP.

I dedicate this thesis to my nieces, Emma and Gracie.
If this dissertation is my baby, then I guess that makes it your cousin!

Emma "helping" me work.

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Writing is mostly a solitary activity, but it is a lot easier to get a large volume of writing done when you have some sort of accountability. For this, I am indebted to the variety of writing groups I have been a part of over the last few years. Thanks to Joel Rodgers and the Milestones and Pathways program for setting up the various Dissertation Writing Bootcamps and Write-on-Site events that I have attended, but especially for organizing Writing Group R, my unforgettable Thursday morning writing group. Thank you to all of the past and present members of Writing Group R, including: Ashley Williamson, for her stickers and her leadership; Brigidda Bell, for being kind and gracious; Laurie Drake, for getting out; Kelsey Jacobson for giving us hope and for drinking all the leftover milk; Matt Jones for booking the rooms for the UNDEAD writing group, and for being my SSHRC postdoc peer review buddy; Magdalena Sobol for your great baking skills and for being the first to acknowledge us all in your publication; Marie-Annick Prevost and Dolon Chakravartty, for being faithful, consistent members; and our one-time mascot, the duck.

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Contents

Abbreviations

1, 2, 3, 4 = 1st, 2nd, 3rd, 4th (obviative) person
1:2 = first person acting on second person
2:1 = second person acting on first person
ABL = ablative case
ABS = absolutive case
ACC = accusative case
ADE = adessive case
AGR$_V$ = agreement on unaccusative verb
ALL = allative case
ANAPH = anaphor
ANTIP = antipassive
ART = article
AT = actor topic
ATTR = attributive
AUG = augmentative
CAUS = causative
CL = classifier
CN = common noun determiner
COM = common
COMP = complementizer
COND = conditional
COP = copula
CRS = currently relevant state
CT = circumstantial topic
DAT = dative
DEC = declarative
DEF = definite
DEM = demonstrative
DET = determiner
DIM = diminutive
DIST = distal
DIST.PST = distant past
DN = determinate noun determiner
DU = dual
DUR = durative
ELA = elative case
EMP = emphatic
ERG = ergative case
ESS = essive case
EX = exclusive
EXCL = exclamative
EXIST = existential

EXPL = expletive
F = feminine
FOC = focus
FUT = future
GEN = genitive case
H = human
HAB = habitual
ILL = illative case
IRR = irrealis
IMP = imperative
INCEP = inceptive
INDIC = indicative mood
INE = inessive case
INF = infinitive
INDEF = indefinite
INST = instrumental
INTR = intransitive
IPFV = imperfective
LOC = locative
M = masculine
MOD = modalis case
NEG = negation
NFIN = non-finite
NOM = nominative case
NMLZR = nominalizer
OBL = oblique
OBV = obviative
PAR = partitive case
PART = participial mood
PASS = passive voice
PERF = perfect
PFV = perfective
PL = plural
POS = possessive
PRED = predicate
PREP = preposition
PRES = present
PROG = progressive
PROP = proper noun
PROSP = prospective
PROX = proximate
PRT = particle
PST = past

PST.PTPL = past participle

Q = question marker

RECPERF = recent perfect

REFL = reflexive

SG = singular

SBJ = subjunctive

SX = intransitive subject extraction

TA = transitive animate

TOP = topic

TR = transitive

TT = theme topic

VN = verbal noun

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Chapter 1

Introduction

In grade school, children in English classes are taught that every sentence must have a subject. However, like so many notions taught in grade school, subjecthood is actually much more complicated than it at first seems. It is surprisingly difficult to formalize the requirement for a subject in an explanatory way, especially if the varying cross-linguistic manifestations of this requirement are taken into account. In the 1980s, Chomsky proposed the Extended Projection Principle (EPP, proposed in Chomsky 1981, named in Chomsky 1982) for this very reason, to motivate the necessity of subjects in English. Since then, it has been extended as the motivation for many different word order phenomena cross-linguistically, well beyond its initial motivation.

The EPP was first proposed and adopted within the Government and Binding framework, and it is increasingly problematic under the current Minimalist framework, leading many researchers to attempt an explanation of its effects by independently motivated mechanisms. One of the primary goals of the Minimalist program is to reduce the mechanisms of grammar to those which are conceptually necessary. Unlike most of the other 'unnecessary' machinery of Government and Binding, however, the EPP is still around and as stipulative as ever, after over two decades of attempts to explain it or get rid of it. Over those two decades, it has taken on several new meanings and functions, many of which are just as

problematic as the original, such as a diacritic feature on any other feature that triggers many different kinds of movement. In many proposals, an appeal to the mysterious EPP is used as a way to explain the unexplainable, a back door used to explain why something moves when no one knows why it moves. It clearly falls short of the standard of explanatory adequacy.

As a result, some researchers have attempted to explain the effects of the EPP by independently required mechanisms, most notably Case (Bošković 2002) and labeling (Chomsky 2013). Unfortunately, these proposals fall short of descriptive adequacy, as they only consider the EPP effects of a small number of languages. Extending those analyses to languages where the EPP has different properties is sometimes problematic. One might argue that what occurs in these other languages is not the EPP. However, these processes are in complementary distribution with processes which are generally accepted as EPP effects, which indicates that they are varieties of the same rule. Furthermore, these other processes in other languages are, in many ways, just as mysterious as the traditional EPP.

In this dissertation, I perform a survey of the EPP effects that occur cross-linguistically, and then investigate what these processes have in common in an attempt to uncover the underlying purpose for the EPP. This is one of the first comparative studies of the EPP that considers EPP effects from multiple different language families and typological classes.[1] I defend the following four hypotheses:

1. **Universality.** The EPP is universal. That is, it exists in all natural human languages.

2. **Variation.** The EPP has a variety of attested types cross-linguistically, based on the type of element that checks it.

3. **Predictability.** The type of EPP that a particular language exhibits is a direct result of other properties of the language, such as the structure of the clausal spine.

4. **Anchoring.** The EPP is a requirement for anchoring. That is, the EPP functions to connect the utterance to the real-world context by tracking links to referential elements in a grammatically formalized way.

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[1]Biberauer (2010) also presents an insightful typology of EPP types; however, her typology is based mostly on an analysis of Germanic languages. The extensions to other language families is fairly tentative. Another typology of note is Richards's (2016) Contiguity Theory, which attempts to explain cross-linguistic EPP effects through a phonological constraint requiring T to be adjacent to a metrical boundary.

These hypotheses have broad implications for our understanding of grammar. For example, the anchoring hypothesis addresses the broad question of how formal, abstract grammatical rules are related to general human cognition and why such grammatical rules are necessary in the first place. Taken together, these four hypotheses also address the question of how to explain and constrain both the universals and the variation found in language. While undertaking this research, I have also uncovered a typological class that cuts across genetic and geographic classification; languages as diverse as Inuktitut (Eskimo-Aleut, North America), Irish (Indo-European, Europe), Niuean (Austronesian, Oceania), and Gitksan (Tsimshianic, North America) seem to pattern together with regards to several properties, including EPP type, as discussed in Chapter 5.

1.1 Background

1.1.1 What is the EPP?

The Extended Projection Principle, or EPP, was first proposed by Chomsky (1981) (at which point it was named Principle P) and named in Chomsky (1982) to explain why subjects are obligatory in English, during the transition to X-bar theory from phrase structure rules. Under phrase structure rules, the requirement for arguments was built into the rules directly (Stowell 1981). Part of the innovation of X-bar was to remove the redundancy of phrase structure rules, since both the rules and the lexicon specified subcategorization. Under X-bar, the obligatoriness of arguments was replaced with the Projection Principle, as stated in (1).

(1)   The Projection Principle (Chomsky 1981: 29)

        Representations at each syntactic level (i.e., LF, and D- and S-structure) are projected from the lexicon, in that they observe the subcategorization properties of lexical items.

However, the Projection Principle could not account for such cases where an expletive was required, since expletives, by definition, are not selected for. Hence Chomsky proposed an *extension* to the Projection Principle, as described by Chomsky in (2).

(2)   Principle P (Chomsky 1981: 26-27)

Obligatory insertion of the NP α follows from the fact that the constructions illustrated require subjects for some structural reason; call it the principle P. Clearly, P does not derive from θ-theory; the italicized elements bear no θ-roles. Nor does P derive from considerations of subcategorization. [...] The principle P, plainly, is the structural requirement that certain configurations—infinitivals and gerunds—must have subjects...

Chomsky (1982) further implies that the EPP is a requirement of Universal Grammar (UG), and that it, therefore, applies cross-linguistically. He argues that, even when there is no overt linguistic object, the empty slot behaves analogously to its overt counterpart. He states that if there is no overt element in a theta-position or a subject position, then there must be an empty category there, as required by the Projection Principle and the Extended Projection Principle, respectively.

At the outset of the Minimalist Program, Chomsky (1995) modifies the EPP, now describing it as a strong D feature on I°, where a strong feature is defined as a feature which forces overt movement. Under this characterization, then, the EPP is simply a property of a lexical item, and, therefore, cross-linguistic variation is expected. He speculates that the necessity of the specifier of I° may be due to predication or some morphological requirement. Again, he argues that the specifier is required throughout the course of the entire derivation. Finally, Chomsky (2000) drops the analysis of the EPP as a strong feature, and instead proposes that it is simply some requirement that a certain functional head have a specifier.

The term EPP is now sometimes used simply as a synonym for strong, as a diacritic on a feature, indicating that that feature must be checked by means of overt Move or Merge. In this dissertation, however, I am considering the EPP in its more traditional sense, that of a requirement for a structural subject in every clause. However, I am also widening the definition to include cross-linguistic cases where it is not the thematic subject that moves. From such a cross-linguistic perspective, the EPP appears to have the following properties, all of which will be discussed more thoroughly throughout this dissertation.

- It is obligatory.

- It is satisfied by movement.

- Cross-linguistically, it can be satisfied by a variety of elements, from DPs to predicates to adverbials.

- There is some evidence that it can even be satisfied by null elements (e.g., Holmberg 2005).

- It usually targets the inflectional domain.

As such, I define the EPP as in (3).

(3)   *Definition of the EPP*

    The obligatory movement of some element into the inflectional domain.

The EPP should not be dismissed. Rather, it can be shown that there is an empirical phenomenon that cannot be adequately explained without positing some sort of EPP or equivalent that occurs cross-linguistically. This phenomenon has unique properties; for example (a) failure to check the EPP does not cause the derivation to crash and (b) a left branch is required (or a right branch word-internally, as per the Mirror Principle, Baker 1985). These two properties are discussed in turn below.

When the EPP fails to get checked in a particular language, it triggers an alternative way of checking the EPP, rather than a derivation crash. For example, it can trigger the insertion of an expletive, as occurs in English, or an alternation in EPP type. For example, in Italian, the second person singular subjunctive has defective agreement and requires an overt subject pronoun (Cardinaletti 2004), indicating that the verb does not bear a [D] feature, and therefore verb-raising cannot check the EPP in this context; an alternative strategy, the merger of the overt pronoun, is triggered instead (Doner 2012). In a restricted set of contexts, the EPP remains unchecked when the clause is truncated, lacking the head that bears the EPP feature and all heads that dominate it (this occurs in Finnish for example, as described in Doner 2015). This can only occur when extra-linguistic cues make the context of the event under description clear (cf. Haegeman 2013 for truncation in English diary drop, discussed in Section 3.6.2.2.)

The EPP is always satisfied through movement; even when it is satisfied by expletive insertion, the expletive is merged low and then raises (Richards and Biberauer 2005, Richards 2007, Deal 2009, Bjorkman and Cowper 2015). As a result, the EPP always results in a left branch (except word-internally,

as in Greek, where it is a right branch, as per the Mirror Principle of Baker 1985). This makes it unlike

other syntactic requirements, which can normally be satisfied by either Internal or External Merge, or,

in other words, by either second or first merge.

1.1.2   The EPP from a cross-linguistic perspective

Several different cross-linguistic varieties of the EPP have been proposed over the years. For example,

the EPP can be checked by either a phrase or a head (Alexiadou and Anagnostopoulou 1998), and by

either a nominal or a verbal element (Massam and Smallwood 1997, Davies and Dubinsky 2001). Addi-

tionally, the EPP can be checked by pied-piping the entire vP (Richards and Biberauer 2005). Evidence

that these are all varieties of one and the same process or perform analogous roles comes from the fact

that they are in complementary distribution both in synchrony and diachrony (Doner 2014). However,

as stated above, the different varieties of the EPP can be generalized as the obligatory movement of

some element into the inflectional domain. Describing and categorizing the range of variation of EPP

types is the main goal of Chapter 2. Each of these varieties will be described in detail there.

1.1.3   Problems with the EPP

1.1.3.1   Why does the EPP exist?

There is an empirical phenomenon attested across languages, commonly known as the EPP, where

some element must move to the inflectional domain. However, the EPP does not meet the explanatory

requirements of the Minimalist Program, since the requirement for a subject is stipulative and not

conceptually necessary. Furthermore, the existence of null subject languages seems to demonstrate that

the requirement for a subject is also not communicatively necessary. Therefore, there have been many

attempts to explain the EPP using existing mechanisms; however, these attempts fail to cover the

full range of attested properties cross-linguistically. Generally, such attempts have mostly focused on

languages where the EPP targets nominal constituents, and the various problems of such approaches are

discussed in Section 1.1.4. However, verb-initial languages are also problematic. Clemens and Polinsky

(2017) describe how verb-initial word orders are often explained through V° or VP-raising, triggered by

the EPP, but they also discuss how the feature which triggers this movement is never independently visible, and so what it is, in some sense, is unknown. They say: "from the perspective of V1 languages, the EPP is a rather unwieldy, opaque, theory-internal device that formalizes cross-linguistic variation according to the major constituent that surfaces in initial position. This is hardly explanatory. While the evidence for the different accounts of V1 [...] is sound, their motivation is only as solid as the motivation for the EPP." They then go on to say that the real mystery of V1 languages is not the fact that the verb appears in the initial position instead of the subject, but rather why the verb or VP raises at all. Thus, the EPP is just as mysterious and problematic in verb-EPP languages as in nominal-EPP languages. However, the empirical phenomena that led to the formulation and adoption of the EPP still remain to be explained by those who seek a systematic account for all cases in which movement is triggered.

1.1.3.2 Does it exist in all languages?

Cable (2012) notes that the generalization in (4), about the universality of the EPP, is the null hypothesis; that is, that unless a clear counter-example is found, it must be assumed that it holds.

(4)   The Universality of the EPP (Cable 2012: 652)

For all human languages, in a finite main clause, the specifier of some verbal functional projection (IP, TP, AgrP, AspP, etc.) must be filled.

However, many languages, at first glance, do not appear to have an EPP. In fact, Cable (2012) notes that, although many have challenged the generalization in (4), the argumentation of most of these approaches is indirect. Finding a counter-example is surprisingly difficult. And yet, researchers continuously seek counter-examples, motivated in part by the undesirability of assuming a theoretically unmotivated universal. Two such counter-examples, Irish and Dholuo, will be discussed in Section 1.2.1. However, when researchers broaden their characterization of the EPP, they tend to find an equivalent of some sort (e.g., Massam and Smallwood 1997, Alexiadou and Anagnostopoulou 1998, Davies and Dubinsky 2001). In fact, Cable (2012) himself notes that the generalization in (4) might need to be expanded to allow verb movement to the functional projection to be able to check the EPP (i.e., V-to-T movement OR a filled specifier is obligatory).

In light of this controversy, it must be asked what constitutes necessary and sufficient evidence about either the universality of the EPP or the opposite hypothesis. All that is needed to disprove the universality of the EPP is to demonstrate that one language conclusively does not have it, as Cable (2012) attempts to do for Dholuo. It is impossible, on the other hand, to prove conclusively that the EPP is universal—which is precisely why it is the null hypothesis.

	The EPP is Universal	The EPP is not Universal
Necessary Evidence	Every language investigated has some sort of EPP	One language with no EPP
Sufficient Evidence	n/a	One language with no EPP

Table 1.1: Necessary and Sufficient Evidence for the Universality of the EPP

As for Dholuo, Cable (2012) argues that Dholuo provides the first clear case of a language falsifying the hypothesis in (4), due to its 'passive' construction, as shown in (5). He argues that the EPP is *optional* in Dholuo.

(5) Ne   ok   one   Onyango gi Ochieng'.
     PAST NEG see.PASS   Onyango by Ochieng'
     'Onyango was not seen by Ochieng'.'   [Dholuo, Cable 2012: 654]

According to Cable's (2012) analysis, Dholuo provides a clear case for the optionality of the EPP because the passive subject may remain in a post-verbal, VP-internal position; expletive subjects and *pro*-drop are not generally possible, and there is no evidence for V-to-T movement in Dholuo (Cable 2012: 673). However, Hamlaoui (2013: 1) counters Cable's analysis stating, "The structural passive [analysis] assumed by Cable contrasts with the functional passive analysis found in the existing literature on Dholuo." Under her analysis, which is more in line with traditional accounts, the verb in constructions like (5) is in the active voice. The prefix or proclitic 'o-/i-' (perfect/imperfect) is the grammatical subject. It is an indefinite subject, similar to Standard French *on*. On the other hand, the argument analyzed by Cable as a 'post-verbal passive subject' is in fact a direct object. If the patient appears preverbally, it is because it has been topicalized. According to Hamlaoui (2013), all of the components of her analysis are consistent with, or have been explicitly defended by, previous accounts in the literature.

Cable (2012: 671) does discuss the possibility of the impersonal passive analysis described by Hamlaoui (2013). He argues against it, saying that there is no motivation for the aspect-induced allomorphy

between 'o-' and 'i-' on the clitic; rather, this should be analyzed as allomorphy of the voice morpheme. He also points out that *by* phrases are possible in this construction, as shown in (5), and argues that this indicates that they are in the active voice. However, Hamlaoui (2013) presents a number of additional facts of Dholuo that make the impersonal passive analysis seem more likely. First of all, Dholuo has two sets of personal pronouns, emphatic and non-emphatic clitic pronouns. The non-emphatic clitics exhibit an aspect-conditioned alternation: they are marked with a high tone in the imperfective and a low tone in the perfective. Thus, aspect-conditional allomorphy is attested in Dholuo. Secondly, the subject proclitic is optional in the presence of a nominal subject, but is obligatory when the subject is absent, as shown in (6). The obligatoriness of the proclitic in the absence of another overt subject nominal provides evidence that a subject of some kind is necessary.

(6)   a.   (Musa) .ónyámó   niang'.
                 Musa   3SG-IPFV-chew sugarcane
                 'Musa is chewing sugarcane.'

           b.   Musa .nyámó   niang'.
                 Musa IPFV-chew sugarcane
                 'Musa is chewing sugarcane.'

[Dholuo; Omondi 1982, as cited in Hamlaoui 2013: 3]

Thirdly, similar impersonal passive constructions are attested in a number of related Southern Luo languages, and the expression of an oblique agent in a *by* phrase in active clauses occurs in several nearby Bantu languages. Finally, the post-verbal argument analyzed by Cable as the 'passive subject' is indexed by the object agreement suffix, providing evidence that it is a grammatical direct object. Although Cable argues that a V-to-T raising analysis of Dholuo is not possible, if the indefinite morpheme is indeed a proclitic, then it is possible to analyze it as having undergone phrasal movement to spec-TP, and then post-syntactic dislocation to cliticize to the verb.

Whether or not you find Hamlaoui's (2013) analysis convincing, Dholuo is at the very least not an *unambiguous* example of optional EPP-checking, as claimed by Cable (2012: 653): "...a rather transparent argument against [the universality of the EPP] can be found in the variable position of subjects in Dholuo..."

1.1.4 Alternative Proposals

Since the advent of the Minimalist Program, the EPP has come under scrutiny as a stipulative requirement. As such, there has been some research attempting to get rid of the EPP or explain its effects through other, independently required mechanisms. However, most accounts focus on English, and do not adequately account for the full range of cross-linguistic effects attributed to the EPP, most notably the EPP in French and Finnish.[2]

Although these linguists were right to point out that the EPP, as it is currently understood, is stipulative, any analysis needs to be consistent with the data. As yet, the full cross-linguistic empirical range of EPP effects has not been adequately accounted for. I must therefore conclude that the EPP exists, and seek some theoretical motivation for its existence, which I attempt to do with the Anchoring Hypothesis in Chapter 3.

In the next few subsections, I show where various alternative proposals have fallen short of descriptive adequacy from a cross-linguistic perspective of the EPP.

1.1.4.1 Replacing the EPP with Case Theory

Bošković (2002) attempts to replace the EPP with an Inverse Case Filter and restrictions on successive cyclic movement. He argues that these two constraints explain intermediate and final EPP effects, respectively. According to Bošković (2002), final EPP, when the final landing site of the subject is in the specifier of I°, can be accounted for by the θ-criterion or by the Inverse Case Filter, which requires every Case-assigning head to assign case in a spec-head configuration. On the other hand, intermediate EPP, when the subject passes through the specifier of I° on the way to some higher position, can be accounted for under successive cyclicity, by arguing that a DP undergoing movement cannot skip any intermediate steps, as per the Head Movement Constraint. He argues that these intermediate steps, including the specifier of I°, do not need to be independently motivated.

However, there is evidence that the EPP is independent from both Case and subject-verb agreement at least some of the time, in contrast to Bošković's (2002) analysis of final EPP. For example, in the

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[2]In Section 1.5, I provide my diagnostics for identifying whether a phenomenon in some language can be classified as EPP-related.

Finnish examples in (7) below, the EPP checker (in bold) is not marked with nominative case, nor does it trigger subject-verb agreement.

(7) a. **Minulla** särke-e   usein pää-tä
         I.ADE   ache-3SG often head-PAR
         'I often have a headache.'

     b. **Minua** laula-tta-a   aina   aamu-lla.
         I.PAR   sing-CAUS-3SG always morning-ABL
         'I always feel like singing in the morning.'   [Finnish; Koskinen 1998]

Likewise, in English locative inversion structures, Bruno (2016) shows that the locative PP stops in the specifier of IP to check the EPP, before moving on to the specifier of CP, although the thematic subject still controls agreement and receives nominative case.

It has been speculated that the EPP is a property of phase heads (Uriagareka 2011), functioning as a type of "escape hatch." However, just as with Bošković's analysis, this type of account requires either look-ahead or some sort of happy accident, as well as being in danger of over-generating structures. Without constraints on what can move to the edge of a phase and be available in the next phase, there wouldn't really be many phase effects at all. The use of the EPP to escape phases, then, is more likely a secondary result of the EPP, rather than its cause.

1.1.4.2 The EPP as a phonological constraint

The next family of proposals attempt to explain away the EPP by attributing its effects to some phonological constraint. For example, many analyses have posited a requirement for an overt element of any kind in T. These include Landau's (2007) argument that the EPP is the result of a constraint prohibiting functional elements from being null due to phonological selectional requirements; Sigurðsson's (2010) Filled Left Edge Effect (FLEE), which requires finite declarative clauses to have a spelled-out left edge; McFadden and Sundaresan's (2015) proposal that EPP effects are the result of An's (2007) Intonational Phrase Edge Generalization, whereby the left edge of an intonational phrase must be overt; Abe's (2015) hypothesis, building on Hasegawa (2005), that the EPP must be morpho-phonologically materialized; and Richards's (2016) Affix Support, which requires heads which are suffixes to be supported by

a metrical boundary; . While there may be such a constraint at play in at least some languages, such constraints cannot explain the full attested range of variation in EPP type.

There are two main issues with attributing the EPP to a phonological constraint. First, in a subset of cases, the EPP can be satisfied by a null element. The role of overtness in EPP satisfaction is a recurring theme in this dissertation. Evidence that null subjects can check the EPP in non-finite clauses, for example, is discussed in Section 1.5.2; in Section 3.4, I propose that null EPP checkers are systematically involved in dependent anchoring operations; and in Chapter 4, I discuss the relationship between null subject type and EPP type cross-linguistically. Second, although analyses that attribute the EPP to a phonological constraint are able to explain *when* and *why* an element is required, they are not really able to offer an explanation as to *which* element is required. As we will see throughout this dissertation, the question of which element checks the EPP in a particular context cross-linguistically is constrained, and subject to a great deal of variation cross-linguistically. This variation seems to be governed primarily by syntactic considerations, such as clausal structure and locality, as discussed in Section 5.1, and, furthermore, has syntactic and interpretational consequences. This suggests, then, that there is a syntactic operation at play. There may be a phonological operation as well. In fact, both Kučerová (2012) and É. Kiss (2002) suggest that what has been traditionally described as the EPP is actually two different requirements that happen to both be satisfied simultaneously by the same element in English. In this dissertation, I focus on the syntactic requirement.

However, before I move on, I think it is important to discuss Richards's (2016) Affix Support in a little bit more depth. Affix Support is a generalized pattern that includes the notion of T-Support, described in (8), which is particularly relevant for his analysis of the EPP.

(8)   T-Support (Richards 2016: 17)

       If T is an affix, there must be a metrical boundary in the direction in which it attaches.

According to Richards (2016), T-Support is consistent with 97% of the languages in WALS (Dryer and Haspelmath 2013) for which relevant data is provided, allowing for the variation described in (9). A summary of the different attested forms of T-support discussed by Richards (2016) is shown in Table

1.2.[3]

(9)   Typology of T-support (Richards 2016: 15)

    a.   Tense may be head-initial (H°1) or head-final (H°-final).[4]

    b.   Tense may be an affix or not; if it is an affix, it may be a prefix or a suffix.[5]

    c.   Tense may be reliably separated from the verb by a metrical boundary (as in Spanish) or

       not (as in English).

Language Properties	T-Support Satisfaction	Example Language(s)
(a) Tense is not an affix	not needed	
(b) H°1 T as prefix	constrains material following T	
(c) H°1 T as suffix with metrical boundary	T preceded by foot-boundary	Italian, Spanish, Catalan
(d) H°1 T as suffix with no metrical boundary	T preceded by specifier	English, French, Finnish
(e) (Untethered) H°-final T as suffix	T preceded by specifier	Japanese
(f) (Untethered) H°-final T as prefix	verb stem is its own stress domain	Athabaskan

Table 1.2: Satisfaction of T-Support across Typological Classes

Richards (2016) employs a much bigger empirical sample than I do in this dissertation, as he surveys the nearly 500 languages with relevant data in WALS. However, although Richards is able to predict quite accurately where a metrical boundary may be found, he does not predict what kind of metrical boundary (e.g., a foot boundary or prosodic word) is acceptable when, let alone provide a systematic account of the semantic and syntactic properties of the constituent that hosts the metrical boundary.[6] Nonetheless, as I show in this dissertation, these constituents do exhibit patterns and restrictions beyond what Richards discusses. Furthermore, some of Richards' (2016) observations follow from the analysis presented here. For example, in Chapter 3, I argue that the EPP-checking element must be a phase. Assuming that individual phases are assigned metrical structure independently, it is unsurprising that a metrical boundary should align with a phase edge, and, therefore, that the head bearing the EPP feature should be adjacent to a metrical boundary. Additionally, the typological classes suggested by

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[3]Richards (2016) does not systematically distinguish cases (a) and (b). Example languages include Tongan, Chol, Irish, St'at'imcets, Greek, San Lucas Quiaviní Zapotec, and Tagalog.

[4]Based on Miyagawa's (2001) analysis of Japanese, Richards (2016) proposes that head-final languages can also exhibit EPP effects. Richards (2016) proposes an operation called *untethering* which deletes all ordering statements between two sisters. T-support cannot be satisfied by its sister if untethering has occurred.

[5]Richards also notes that there are also a variety of other kinds of affixes it may be, but focuses on these two. Clitics behave like independent T.

[6]However, he does present an argument explaining why English allows only the subject in the specifier of TP, while Japanese is more permissive.

Richards seem to align with mine to some extent, as both of our approaches seem to create a major division between verb-initial languages (cases (a) and (b) and perhaps (f) in Table 1.2) and non-verb-initial languages. Furthermore, in both of our approaches, the category of verb-initial languages share the property of having a preverbal T.

1.1.4.3 Explaining the EPP through the Labeling Algorithm

Chomsky (2013) argues that the labeling of syntactic objects is not part of the Merge operation, but is an independent operation. He argues that labels are necessary for interpretation, not for the syntactic computation, and that, consequently, labels are added to the representation at spell-out. He proposes a labeling algorithm which determines systematically which label a syntactic object will be assigned in the computation. Chomsky (2013, 2015) attempts to explain EPP effects through labeling, by proposing that some element of the complement of T (roughly the vP) must raise in order to create asymmetry, in order to determine which member is used as vP's label. Additionally, Gallego (2017) has presented a modification of Chomsky's proposal and its consquences for the EPP. I discuss each of these proposals in turn, as they are somewhat different. However, in all three analyses, the EPP movement is triggered in order to solve an issue with labeling.

In his 2013 paper, Chomsky proposes that some element of the object in (10) must raise in order to create asymmetry, so that there is a way to determine which member is used as the label of β.

(10)   T [$_\beta$ (EA) [v* [V IA]]]

If the external argument (EA) raises, then β would be labeled v* as the EA would be invisible to the labeling algorithm. If the internal argument (IA) raises, then there would be an asymmetry between a phrase (the EA) and a head (v*), and thus β would be labeled v*. Languages with a verb-raising EPP, on the other hand, would create asymmetry by raising the v* head, and then β would get its label from the EA. However, this approach cannot account for languages where both the verb and the argument can raise in the same clause, as in Finnish or French. In these cases, the labeling algorithm now has two symmetric structures to deal with, as both the base and surface positions of the verb and argument will be symmetrical. Additionally, the second element that moves, after the asymmetry has been created,

has no motivation to move. Chomsky also points out that this approach is also problematic for German, where the structure in β remains unchanged or can even move as a unit.

In his 2015 paper, on the other hand, Chomsky proposes that T° is deficient and is unable to provide a label, without first moving the subject to be its sister and agreeing with it. The resulting set would then be labeled as a ϕP. This approach assumes that the EPP-checking element has ϕ-features, besides stipulating that T° is deficient. Furthermore, his analysis is problematic because it is unclear whether the EPP-checking element has ϕ-features in all the languages I have considered thus far. For example, the non-nominal referential adverbs of Finnish and the predicates of Niuean do not necessarily bear ϕ-features. It also cannot explain Finnish, for the following two reasons:

- Chomsky's analysis requires an overt subject in the specifier of T, but Holmberg (2005) shows that null subjects can check the EPP in Finnish.[7]

- Chomsky proposes that the EPP does not hold in null subject languages because the rich agreement on the verb can provide the ϕ label. However, Finnish both has rich agreement and requires the subject to raise.

Finally, Gallego (2017) modifies Chomsky's (2013, 2015) proposals by arguing that T is not defective per se, but rather that T and C are bundled into a single head in some languages, including English. He proposes that the reason T cannot be labeled is because T is only a copy; T raises and merges internally with itself to begin its second life as 'C.' Gallego's approach makes some strides towards incorporating partial NSLs such as Finnish into the labeling approach by proposing that, in partial NSLs, only third person T is defective and unable to label, and so only third person subjects are obligatorily overt. However, his analysis does not explain why third person subjects may be null when controlled by an antecedent (Holmberg, Nayudu, and Sheehan 2009), or languages where any third person subject may be dropped, such as Shipibo (Bilgin 2017), or topic-drop languages. Additionally, there is a theoretical issue with this approach. It is unclear what the difference is between a head that moves (without merging with another head, as he proposes) and a single head that projects a second specifier under Bare Phrase Structure.

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[7]Chomsky (2015) also does not discuss why PRO can be null.

1.2 Four Hypotheses

1.2.1 Universality of the EPP

One of my hypotheses is that the EPP is a universal property of language. First and foremost, I assume that the EPP is universal because that is the falsifiable hypothesis. If I were to assume that the existence of the EPP is parametrized, appearing in some languages but not others, I would never find evidence to the contrary. Thus, adopting the universality hypothesis makes more sense methodologically. One might not necessarily expect there to be positive evidence supporting the universality of the EPP; however, there does appear to be some such evidence.

First of all, as will be discussed in section 2.2 of Chapter 2, different varieties of EPP appear to be in complementary distribution both within and across languages. Thus, when the EPP cannot be checked in its usual way in some language, there is normally an alternation in EPP-type, and the EPP is still checked, albeit in some other way. These alternations not only provide evidence that these phenomena are all functionally equivalent on some level, but also that the EPP is a fundamental requirement. If the EPP were a lexically specified feature, we might expect a lexical item bearing an EPP feature to alternate with one which does not bear one. Rather, we see lexical items which trigger a certain type of EPP alternating with ones that trigger another type.

Secondly, the EPP is different from other syntactic requirements in that, when it cannot be checked, it triggers rescue operations rather than causing the derivation to crash. This can be explained if the EPP is not a language-specific feature, but a universal requirement of human language which functions to provide deictic anchoring. For example, in some languages, expletives are inserted if there is no possible EPP-checker (e.g., *It's raining*). This is especially striking in Inuktitut, which has an EPP checked by a root. In this language, there is a root expletive (Johns 2007).

(11)   Pi-   qa-   nngit- tuq.
        EXPL- have- NEG- INTR.PART.3SG
        'He has nothing.' Lit. 'He does not have something.'

                                            [Inuktitut (South Baffin); Johns 2007]

In other languages, such as Finnish, clausal truncation can occur in clauses without any eligible EPP-

checking elements, removing the head that bears the EPP feature and all heads that dominate it, as discussed in Section 3.6 of Chapter 3. Finally, sometimes there is evidence of extra functional material in a given constituent just in case it checks the EPP. For example, Davies and Dubinsky (2001) show that English non-nominal subjects are contained within a DP-shell that checks the EPP, based on their nominal properties, including the ability to bind anaphors, as in (12).

(12)　　[That I saw the girl]$_i$ itself$_i$ was unexpected.

Most strikingly, they have these properties only in subject position.

(13)　　*It was unexpected that I saw the girl itself.

Furthermore, I take the fact that it is so hard to explain why the EPP exists as further evidence for its universality. That it is so difficult to pin down might be because it is in fact the result of a deeper property of human language, rather than some surface phenomenon, which, in turn, would indicate that it is universal. Being difficult to explain is obviously not proof of universality, however.

Over the years, many researchers have proposed that specific languages lack an EPP; however, most of these have not considered the full range of possible EPP variation. For example, McCloskey (1996b) considers only DP-EPP (as in English) for Irish, although it can be shown that Irish has the properties of a predicate-sensitive EPP (Doner 2017), parallel to Niuean (Massam and Smallwood 1997) and Inuktitut (Johns 2007). Likewise, Cable (2012) argues that there is no EPP in Dholuo, based on constructions in which there appears to be no DP-raising. However, this analysis is based on a particular morphological analysis, which Hamlaoui (2013) notes differs from the typical analysis. Normally, Dholuo is analyzed as having an overt impersonal subject pronoun cliticized to the verb, and Hamlaoui (2013) argues that this clitic pronoun checks the EPP. In fact, she argues that Dholuo provides evidence for an even more restrictive EPP type, where only the thematically highest argument may check the EPP. Finally, Biberauer (2010) does a comparative survey of EPP effects across languages and fails to find a language with neither a verbal- nor a nominal-sensitive EPP.

1.2.2 Variation

I also hypothesize that the EPP has a variety of attested types cross-linguistically, based on the type of element that checks it. This is not a new idea; throughout the years, a variety of EPP types have been proposed cross-linguistically. For example, Massam and Smallwood (1997) argue that the EPP in Niuean is checked by VPs. Alexiadou and Anagnostopoulou (1998) argue that the EPP can vary in the size (X° or XP) of the element that checks it by considering Greek and Romance. Davies and Dubinsky (2001) argue for a contrast between D- and V-prominent EPP. Richards and Biberauer (2005) propose that the EPP pied-pipes the entire vP in several Germanic languages. Finally, Johns (2007) argues for a √-EPP in Inuktitut.

I present a typology of EPP in Chapter 2. Although several variations in EPP type have been proposed, the only two typologies of EPP type to date that take into account multiple language families and typological classes to date are found in Biberauer (2010) and in Richards (2016). This dissertation goes beyond Biberauer's typology by considering over two dozen languages from over ten different language families, and differs from Richards' by approaching the EPP as a syntactic, rather than a phonological, requirement.

1.2.3 Predictability

My third hypothesis is that the type of EPP that a particular language exhibits is a direct result of other properties of the language, such as which head the EPP feature appears on, and the other features it is bundled with. This is addressed primarily in Chapter 5, where I describe a bundle of properties associated with predicate-sensitive EPP. However, I also address predictability in Chapter 4, where I show that the null subject properties of a language are *not* coextensive with EPP type.

1.2.4 Anchoring

My final hypothesis is that the EPP is an anchoring operation; that is, that it creates a formal link between the contents of the utterance and the world (real or possible). I argue that the EPP is one of many anchoring operations, as anchoring is a general property of the inflectional domain (cf. Ritter

and Wiltschko 2014). The anchoring hypothesis addresses the broad questions of how formal, abstract grammatical rules are related to general human cognition and why such grammatical rules are necessary in the first place. I present my arguments for the anchoring hypothesis in Chapter 3.

1.3 Framework

This research is based in the Minimalist Program (Chomsky 1995 and following), including the hypothesis that there is some innately endowed genetic component to the human capacity for language, known as Universal Grammar. However, the theory of Universal Grammar raises the question of why and how languages are so diverse. Although many solutions have been proposed, it is still an area of open debate and research. This research fits in with the idea that an underlying property of languages (the need for an anchor) can be satisfied in a variety of ways in different languages, thus accounting for both the similarities and variation found across languages.

1.3.1 Assumptions about null subjects

In this dissertation, I assume that both *pro* and PRO exist, and are able to check the EPP. This is based primarily on Holmberg's (2005) analysis of Finnish, as discussed further throughout this dissertation. However, I do not assume that there must always be a null subject if no overt subject is present. For example, I predict that null expletives, which have neither semantic nor syntactic effects, do not exist. Rather, I assume that the presence of a null element of any kind should have empirical consequences that can be detected through the right diagnostics. Furthermore, I adopt the approach in this dissertation that null subjects need to be licensed, often by a coindexed antecedent. Licensing varies language by language and can depend on several factors, including richness of agreement, clause type, the presence of a null or overt antecedent, the structure of the left periphery, information structure, and register. Elements with dependent reference are often null. In contrast, licensing does not depend on EPP type, as discussed in Chapter 4. For more discussion about how the EPP interacts with overtness, see Section 3.4, and Chapter 4.

1.3.2 Assumptions about rich agreement

I also assume, following Alexiadou and Anagnostopoulou (1998) that rich agreement is also able to check the EPP in some contexts. However, what constitutes 'rich' agreement has been a matter of some debate for some time (Jaeggli and Safir 1989, Speas 1995), as both languages with little or no agreement which allow null subjects (e.g., Japanese) and languages with rich agreement which do not allow null subjects (e.g., Finnish) are both attested. There must, therefore, be some sort of language-specific lexical contrast between 'strong' and 'weak' agreement (Speas 1995). In Chapter 3, I suggest that this idiosyncratic difference is related to whether the agreement is associated with a referential index or not.

1.4 Methods

I investigated the cross-linguistic properties of the EPP by independently determining how it is satisfied in a variety of languages, and then by looking for patterns across languages. There are two main kinds of patterns that I looked for. First, I looked for properties common to the EPP types of all the languages I have investigated, and second, when the properties of the EPP vary from one language to the next, I looked for other properties that co-vary with it. I considered languages which have distinct or noteworthy properties in relation to the EPP, while also intentionally seeking out genetically, typologically, and geographically diverse languages. The analysis presented here is not based on surface typological patterns, but rather, on the underlying structure of each language. As such, it was impossible to survey a very large number of languages. Because of this tension between surveying a large number of languages and the in-depth analysis of particular languages, I adopted the analyses of experts in the languages I discuss, for the most part. Data was collected primarily from published sources, with additional elicitation when necessary.

1.5 Diagnostics for EPP Type

In order to have a meaningful discussion of what does or does not check the EPP cross-linguistically, it is first necessary to have a principled way of identifying EPP-related phenomena across languages

that is independent of language-particular phenomena. This section, then, discusses the diagnostics that I have used throughout this dissertation. In general, the EPP can be described as the obligatory movement of some element into the inflectional domain of every clause.

1.5.1 Obligatoriness

The first criterion is that the EPP must be obligatorily checked in every instance of the head that bears the EPP feature. In the languages I've looked at, the EPP head seems to be the highest head of the inflectional domain. I hypothesize that this is a universal pattern, as discussed further in Section 5.1.1.[8] For example, in English, either a DP must raise to check the EPP (14-a), or an expletive must be inserted (14-b), but, crucially, at least one or the other must occur (14-c).

(14) a. A monster is under my bed.

      b. There is a monster under my bed.

      c. *Is a monster under my bed.

However, obligatoriness is evaluated with respect to every instance of the EPP head. Therefore, if it can be shown that the head that bears the EPP feature is missing for some reason, then we should also expect that the movement would be optional, or even ungrammatical.[9] For example, overt subjects are optional (15-a), and expletives are disallowed (15-b) in English POSS-*ing* gerunds, which have reduced verbal functional structure (Abney 1987).

(15) a. (His) breaking the speed skating record isn't possible.

      b. *There's being a riot didn't seem to be of concern to the police.

                                                              [Harley 2000: 32 (modified)]

This contrasts with the ACC-*ing* gerunds which have more structure, projecting up at least to TP (Pires 2006), as shown in (16), where the expletive is once again required.[10]

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[8]See also Cowper (2010) who independently hypothesized that the EPP is found on the highest head of the inflectional domain.

[9]For a discussion about the pragmatic consequences of the lack of EPP in such clauses, see Section 3.6.

[10]I assume that the accusative subject in (16-a) alternates with an arbitrary PRO. Elizabeth Cowper (p.c.) points out that (16-a) could actually require an overt subject, since there would be no way to distinguish between POSS-*ing* and

(16)   a.   (Him) breaking the speed skating record isn't possible.

     b.   There being a riot didn't seem to be of concern to the police.

This is explained if we assume that gerunds (sometimes) lack an inflectional domain, and thus an EPP.

    Likewise, I have also argued that some clauses appear without an EPP in Finnish due to clausal truncation (Doner 2015).[11] Normally, in Finnish, either an expletive must be inserted (17-a), or an EPP-checking element, such as the adverb *nyt* 'now', must raise to the initial position (17-b). However, it is ungrammatical to do neither and leave the EPP unchecked (17-c). These examples show a pattern parallel the English examples in (14).

(17)   a.   Sitä   meni nyt hullusti.
         3SG.PAR go.PST now crazily
         'Now things went wrong.'

     b.   Nyt meni   hullusti.
         Now go.PST crazily
         'Now things went wrong.'

     c.   *Meni   nyt hullusti.
         go.PST now crazily
         'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

On the other hand, if there is no DP or referential adverb[12] in the clause, as in (18), below, then the expletive is not required, but is rather optional.

(18)   (Sitä)   meni hullusti.
      3SG.PAR go.PST crazily
      'Things went wrong.'   [Finnish; Holmberg 2005: 542, 543]

However, these cases of optional EPP can be easily explained as truncated clauses, which lack the EPP head, and everything above it. Evidence of this truncation comes from the fact that the EPP is enforced when the higher structure is syntactically active, such as when the clause is embedded (19), the clause is

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ACC-*ing* gerunds if the subject is null.

[11]Note that not all native speakers agree with the judgments about the Finnish truncation data discussed below. I suspect that there is understudied sociolinguistic variation in Finnish which interacts with EPP type, leading to variations in judgment. It is fairly clear from judgments presented in the literature that not all speakers have an expletive, for example, although some do (e.g., compare Koskinen 1998 and Holmberg and Nikanne 2002). The Finnish speaker I consulted, however, has consistent judgments on these issues for different contexts and lexical items, across multiple sessions. The one context that she gives an inconsistent judgment is with the use of the focus marker.

[12]That is, adverbials such as *nyt* 'now' which are *not* case marked, and refer to a location or time. These are discussed in more detail in Section 2.2.2.3.

modified by a sentential adverb (20), or the clause is a question (21). In such contexts, an overt subject such as the pronoun *se* or the DP *asiat* 'things' is necessary.

(19) a. Kuulin että asiat menivät huonosti.
hear.PST.1SG that thing.PL go.PST.3PL wrongly
'I heard that things went wrong.'

    b. *Kuulin että meni huonosti.
hear.PST.1SG that go.PST wrongly
'I heard that things went wrong.' [Finnish]

(20) a. Selvästi asiat meni huonosti.
clearly thing.PL go.PST wrongly
'Clearly, things went wrong.'

    b. *Selvästi meni huonosti.
clearly go.PST wrongly
'Clearly, things went wrong.' [Finnish]

(21) a. Meni-kö se huonosti?
go.PST-Q 3SG.NOM wrongly
'Did things go wrong?'

    b. *Meni-kö huonosti?
go.PST-Q wrongly
'Did things go wrong?' [Finnish]

Finally, in Doner (2012), I also argued that the EPP is lacking in Irish non-finite clauses based on Carnie's (2011) claim that Irish non-finite clauses, as well, lack an inflectional domain. Thus, English gerunds, Finnish truncated clauses, and Irish non-finite clauses all lack the EPP-bearing head, and, as a result, lack EPP effects. However, clausal truncation is the *only* context in which the EPP may be lacking.

1.5.2 All Clause Types

I assume that the EPP must be checked in clauses of all types, including non-finite clauses, provided that the head that bears the EPP feature is present in the clause. This is supported by the contrast found in the distribution of verb-raising in languages such as French and Italian, as discussed in Doner (2012, 2014). In phrasal EPP languages such as French, Finnish, and English, the EPP is often checked by a null element in non-finite contexts, such as PRO or a trace. However, ECM contexts allow us

to see that raising is still obligatory in non-finite clauses (22-a). The sentence in (22-c) is scrambled, allowing us to see that this raising process is independent of case. Although *avaimeni* 'keys' raises to the preverbal position, the postverbal first person subject *minun* still receives genitive case as the subject.

(22)   a.   *Kerttu käsk-i   [löytä-ä   minun   avaime-ni].
            Kerttu order-PST.3SG find-NFIN 1SG.GEN key-1SG.POS
            'Kerttu ordered me to the find my keys.'   [Finnish; Koskinen 1998: 266]

          b.   Kerttu käsk-i   [minun   löytä-ä   avaime-ni].
            Kerttu order-PST.3SG 1SG.GEN find-NFIN key-1SG.POS
            'Kerttu ordered me to the find my keys.'   [Finnish; Koskinen 1998: 266]

          c.   Kerttu käsk-i   [avaime-ni   löytä-ä   MINUN].
            Kerttu order-PST.3SG key-POS.1SG find-NFIN 1SG.GEN
            'As for the keys, Kerttu told me to find them.'   [Finnish; Koskinen 1998: 267]

Likewise, in head-EPP languages like Italian, verb-raising occurs even in non-finite clauses. This is shown in (23), as both finite (23-a) and non-finite (23-b) clauses share the same word order.

(23)   a.   Gianni non mangia   più.
            John   NEG eat.3SG.PRES no more
            'John no longer eats.'

          b.   per non mangiare più...
            for   NEG eat.NFIN no more
            'in order to no longer eat...'   [Italian; Pollock 1989: 412]

Again, we see that the EPP is obligatorily checked in clauses of all types, including non-finite clauses. However, I do assume, following Holmberg (2005), that null elements are able to check the EPP in some contexts. In fact, there seems to even be contexts where a null element is specifically required. This is discussed in more detail in Section 3.4.2.

1.5.3   Independence from Other Processes

Other evidence that a movement is EPP-related is if it can be shown to be independent from other potential motivators for movement. For example, in Doner (2015), I argue that the DP-raising exhibited in Finnish is independent of case assignment, subject-verb agreement, and topic focus, and argued that

the raising process is triggered by the EPP. For example, in (24), a variety of different elements are raised to pre-verbal position, as shown below in bold. However, all bear different case features, and none trigger subject-verb agreement on the verb.

(24) a. **Jarko-n** täyty-y aina luke-a sanomalehti ensimmäisenä.
          J-GEN must-3SG always read-NFIN newspaper first.ESS
          'Jarkko always has to be the first to read the newspaper.'

      b. **Minulla** särke-e usein pää-tä
          I.ADE ache-3SG often head-PAR
          'I often have a headache.'

      c. **Minusta** tule-e vielä kuuluisa tutkimusmatkailija
          I.ELA come-3SG yet famous explorer
          'I will yet become a famous explorer.'

      d. **Minua** laula-tta-a aina aamu-lla.
          I.PAR sing-CAUS-3SG always morning-ABL
          'I always feel like singing in the morning.'   [Finnish; Koskinen 1998: 34]

Likewise, Holmberg (2005) uses the sentence in (25) to argue that the raising process is independent from topichood by showing that non-specific indefinites such as *kukaan* 'anybody' are able to raise to preverbal position to check the EPP.[13]

(25) Annalle kukaan ei anta-isi kukkia.
      A.ALL anybody.NOM NEG.3SG give-COND flower.PL.PAR
      'Nobody would give flowers to ANNA.   [Finnish; Holmberg 2005: 547]

However, this does not mean that all EPP movements must be entirely independent from other movements. Instead, a single movement can simultaneously check the EPP and another feature. In fact, that a single movement should be preferred in contexts where it is possible follows from Richards's (2016) Multitasking generalization, shown in (26) (see also Pesetsky and Torrego's 2001 Economy Condition).

(26) *Multitasking* (Richards 2016: 135)

      At every step in a derivation, if two operations A and B are possible, and the conditions satisfied by A are a superset of those satisfied by B, the grammar prefers A.

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[13]The example here is presented as in Holmberg (2005). It is not entirely clear from the text whether *Anna* is a contrastive focus or topic. Regardless, what is crucial here is that the non-specific indefinite *kukaan* 'anybody' *cannot* be either topic or focus; instead, it must be in the subject position.

However, it should be the case that when these other processes are controlled for, the EPP movement must still occur.

Note that optional processes tend to have an interpretive effect (Biberauer and Richards 2006, Chomsky 1999), which means that they are excluded on two counts by my diagnostics, as they are both optional, rather than obligatory, and cannot be shown to be independent from other factors. For example, I assume that DP-movement with information structure effects would be triggered by some topic or focus feature rather than by the EPP.

1.5.4 Occurs in the Narrow Syntax

I am also, by hypothesis, only considering operations that occur in the narrow syntax.[14] That is, I am excluding post-syntactic reordering processes. The vast majority of proposed EPP operations appear to occur in the narrow syntax, and it seems unlikely that some varieties of EPP would be syntactic requirements, while others would be morphological requirements. Of course, this kind of hypothesis has been made before, such as Jelinek's (1984) proposal that polysynthetic languages are only configurational at the morphological level. However, such distinctions are more surprising in a framework like Distributed Morphology, which lack a rich morphological structure independent of syntax. This hypothesis allows me to exclude Malagasy N-bonding (Travis 2006b), a post-syntactic operation, from the category of EPP operations, as discussed in Section 2.1.4.

1.5.5 Complementary Distribution

If, in a particular language, an operation is in complementary distribution with another, known, EPP-checking process, then it can be concluded that they both function to check the EPP. For example, in (27-a), we can assume that the insertion of the expletive *sitä* functions to check the EPP. In (27-b), we see that raising the adverb *nyt* can occur instead of expletive insertion, fulfilling the same function. Finally, (27-c) demonstrates that one of these two operations must occur in order for the sentence to be

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[14]Note that, in Section 3.1.3, I argue that the EPP is counter-cyclic, and discuss the interaction between PF requirements and the EPP. However, I still maintain that the EPP occurs in the narrow syntax in that the movement it triggers occurs in the narrow syntax, and that the EPP requirement is encoded in the narrow syntax.

grammatical.[15]

(27)   a.   Sitä   meni nyt hullusti.
              3SG.PAR go.PST now crazily
              'Now things went wrong.'

         b.   Nyt meni   hullusti.
              Now go.PST crazily
              'Now things went wrong.'

         c.   *Meni   nyt hullusti.
              go.PST now crazily
              'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

Other alternations in EPP-type will be discussed in more depth in section 2.2.

1.5.6 Diagnostics Specific to Type

There are also some diagnostics that are specific to certain EPP-types. For example, the presence of nominal expletives normally indicates that a language has a DP-EPP. Additionally, Jouitteau (2005) diagnoses EPP phenomena in a variety of languages by showing that the movement targets an A-position, although these diagnostics can only be used for a phrasal EPP. A number of additional diagnostics will be discussed throughout this dissertation, as I introduce the relevant types.

1.6 Overview

This dissertation is structured as follows. In Chapter 2, I present an overview of the types of EPP attested cross-linguistically, developing a cross-linguistic typology characterized, broadly, by a division between predicate- and argument-EPP languages.

Next, in Chapter 3, I argue that the function of the EPP is to formally anchor the clause, creating links between the utterance and the event or situation in the world. I present my analysis of the properties of this anchoring relationship in Section 3.1, and show how the various EPP-checking elements discussed in Chapter 2 can each function as an anchor in Section 3.2, and show how the anchoring function is

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[15]A full paradigm would include an example where both the expletive is inserted and the adverb raises, which is predicted to be ungrammatical. Holmberg (2005) does not provide this example, and I was unable to elicit it, since the speaker I worked with does not have expletives in her grammar. However, there is necessarily complementarity given that one of my diagnostics in accessing which elements check the EPP in Finnish was that it had to be the element which immediately precedes the verb, and only one element can immediately precede the verb.

not specific to the EPP, but is also the general purpose of the entire inflection domain in Section 3.3. I also argue in Section 3.5 that anchoring is a general property of human languages that allows for the unique property of displacement. Finally, I also discuss two exceptional types of anchoring, dependent anchoring and unanchored clauses, in Sections 3.4 and 3.6, respectively.

Chapters 4 and 5 both address the question of how the EPP type of a language is correlated with other properties of the language. In Chapter 4, I show that the null subject type of a language can vary independently from the EPP type of a language, both synchronically and diachronically. I propose that null subjects are licensed by properties of the left periphery, rather than by the EPP, through a type of dependent anchoring. In Chapter 5, I discuss how the EPP is influenced by the structure of the clausal spine, through the ordering of heads in the spine, through processes that affect locality, and through the order of operations. In particular, I show how a set of genetically and geographically diverse languages pattern together, forming a typological class which I refer to as predicate-EPP languages. I propose that these languages pattern together because of the properties of a defective T head that they share, alongside the order of operations between tense marking and EPP checking.

Finally, Chapter 6 concludes with a discussion of some recurring themes throughout this dissertation, such as the role of overtness and the nature of agreement, among others, and of some implications of this dissertation, such as the nature of movement and of universals and parameters.

Chapter 2

A Survey of EPP Types

I am among those who think that science has great beauty. A scientist in his laboratory is not only a technician: he is also a child placed before natural phenomena which impress him like a fairy tale. — Marie Curie

In this chapter, I present an overview of the various types of EPP that are attested cross-linguistically. I begin, in Section 2.1, by arguing that the EPP varies across three dimensions: (a) it can be satisfied by either head or phrase movement, following Alexiadou and Anagnostopoulou (1998), (b) it can be satisfied with or without pied-piping, following Richards and Biberauer (2005), and (c) it can be satisfied by either nominal or predicate features. In Section 2.2, I discuss intra-linguistic alternations in EPP type. Finally, in Section 2.3, I show that the EPP typology can be divided into two broad categories: predicate- and argument-sensitive EPP.

2.1 A Typology of EPP-Checking

The EPP can vary in three different ways. Alexiadou and Anagnostopoulou (1998) propose that the EPP can be checked either by phrases, as in English, or by heads, as in Greek and *pro*-drop Romance. Massam and Smallwood (1997) and Davies and Dubinsky (2001) both propose a contrast between languages that check the EPP by nominal elements and languages that check it by verbal elements. I

argue in Section 2.1.2 that verbal-sensitive EPP languages are in fact sensitive to predicate features, and

I suggest in Section 2.3 that the nominal-sensitive EPP languages are sensitive to arguments. Finally,

Richards and Biberauer (2005) propose that some languages can check the EPP through nominal features

by pied-piping the entire vP. If we combine these three dimensions of variation, we get a total of eight

different logically possible EPP types, of which seven are attested, as shown below in Table 2.1. Each

of these types are discussed in turn throughout this chapter, as well as a few types that extend beyond

the confines of this table.

	Pied-Piping	No Pied-Piping
D°-EPP	German, Icelandic	Greek, Italian
DP-EPP	Dutch, Afrikaans	English, French, Finnish
v°-EPP	Celtic (except Breton)	Inuktitut
vP-EPP	n/a	Niuean

Table 2.1: The EPP Typology

Please note that these varieties of EPP type are not discrete categories. For example, the Finnish

EPP is normally checked by DPs, similar to English, however it also allows the EPP to be checked

by referential adverbs (see section 2.2.2.3).[1] I cannot claim that the Finnish EPP is underspecified for

syntactic category, as that would predict that Finnish would allow variation across both the DP-EPP

and vP-EPP rows in Table 2.1. Yet, I found no evidence that the Finnish EPP could be checked by

verbal constituents. As such, Table 2.1 is meant to give a broad overview of the variety of EPP types that

are possible, but is not exhaustive. Crucially, I argue that the EPP properties of a particular language

are predictable based on other properties of the language. This is the subject of Chapters 4 and 5.

2.1.1 Nominal EPP

The original formulation of the EPP by Chomsky (1981, 1982) was used to explain expletive insertion

in English. Chomsky (1995) proposes that the EPP is an uninterpretable [D] feature on the verb that

can be checked by being in a local configuration with a DP. The nominal EPP type was expanded by

Alexiadou and Anagnostopoulou (1998) to include the subject agreement features that appear on the

verb and by Richards and Biberauer (2005) to include cases where the entire vP is pied-piped. In all

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[1] Although many adverbials in Finnish are Case-marked, and therefore have nominal properties, even referential adverbs which are *not* Case-marked can check the EPP.

three cases, it is unclear whether it is a D-feature that checks the EPP, as in Chomsky (1995), or ϕ-features, or still some other nominal features. In Chapter 3, I argue that the 'feature' that unites these is an index.

In the remainder of this section, I discuss the three varieties of EPP that are checked by nominal features. In Section 2.1.1.1, I discuss the type that is checked by phrasal movement of a DP, as occurs in French and English. In Section 2.1.1.2, I discuss the type proposed by Alexiadou and Anagnostopoulou (1998), where the EPP is checked by a [D] feature on the verb. Finally, I discuss in Section 2.1.1.3 the EPP types proposed by Richards and Biberauer (2005), whereby the EPP is checked by nominal features in either the specifier or the head of the vP, by pied-piping the entire vP.

2.1.1.1   DP-EPP

The DP-EPP languages require phrasal movement of some DP to the specifier of the head bearing the EPP feature, as occurs in English. The DP-EPP languages are often characterized by the use of DP-expletives, such as *there* or *it* in English, although this is not always the case. In at least some dialects of Finnish, there is no expletive, and yet the EPP is still systematically checked by the raising of DPs (Doner 2015). While some languages, such as Finnish, allow any DP to check the EPP, others require the subject. Similarly, some languages require a nominative-case marked DP, while others are more flexible. I assume this has to do with independent properties of the language, for example, if the arguments are scrambled lower down in the structure, and the highest one raises, or if the EPP is parasitic on some sort of topic feature, as discussed further in Section 5.1.2. Following Holmberg (2005), I assume null DPs can check the EPP; however, the overtness of DPs is constrained; I discuss this further in Section 3.4.2.

Davies and Dubinsky (2001) discuss several properties of DP-EPP languages (which they term D-prominent languages) by demonstrating that non-nominal subjects in languages like French and English have nominal features. They argue that all non-nominal subjects in English are contained within a null DP shell. Their evidence, summarized below, indicates that non-nominal subjects have at least ϕ-features, a D°-head, and reference.

That non-nominal subjects in English have ϕ-features can be shown by the fact that they can trigger plural subject agreement (1) and license plural adverbs (2) when conjoined. These cannot be default features, as the plural marking for conjoined constituents alternates with singular marking otherwise.

(1)   a.   [CP [CP That the march should go ahead] and [CP that it should be cancelled]] have been
              argued by the same people at different times.

              [McCloskey 1991: 564, as cited in Davies and Dubinsky 2001: 249]

        b.   [PP [PP Under the bed] and [PP in the fireplace]] are not the best (combination of) places
              to leave your toys.

              [Levine 1989: 1015, as cited in Davies and Dubinsky 2001: 249]

        c.   [AP [AP very brawny] and [AP very studious]] are what Cindy aspires to be.

              [Davies and Dubinsky 2001: 249]

(2)   a.   That he'll resign and that he'll stay in office seem at this point equally possible.

              [McCloskey 1991: 564, as cited in Davies and Dubinsky 2001: 250]

        b.   Under the bed and in the closet equally remind me of that game of hide-and-seek we played.
              [Davies and Dubinsky 2001: 251]

        c.   Very tall and quaintly studious equally bring to mind my sixth grade science teacher. [Davies
              and Dubinsky 2001: 251]

Likewise, in French, plural subject agreement can be triggered in some contexts, as in (3).

(3)   a.   Que le   défilé continue   ou qu'il   soit   annulé   a   /
              that the.M march continue.PRES.SUBJ or that.the.M be.PRES.SUBJ cancelled has.3SG /
              ont   été discuté par les   mêmes gens à différentes   occasions.
              has.3PL been discussed by the.PL same.PL people at different.F.PL time.PL
              'That the march should go ahead or that it should be cancelled has/have been argued by the

              same people at different times.'   [French; Davies and Dubinsky 2001: 259]

b. Sous le   lit ou dans le   placard   ne   sont   pas de   bons   endroits
under the.M bed or in   the.M cupboard NEG be.PRES.3PL not of.the good.PL place.PL
pour se   cacher.
for   REFL hide.NFIN
'Under the bed and in the closet are not good places to hide oneself.'

[French; Davies and Dubinsky 2001: 259]

As well as ϕ-features, non-nominal subjects also seem to have a D°-head. First, when non-nominal

subjects are merged in the external argument position of a non-finite clause, they must undergo raising,

indicating that they require Case licensing, as shown below.

(4)   a.   [CP That Shelby lost it]i appears [ti to be true].

b. *It appears [[CP that Shelby lost it] to be true].   [Davies and Dubinsky 2001: 248]

(5)   a.   [PP Under the bed]i appears [ti to be a good place to hide].

b. *It appears [[PP under the bed] to be a good place to hide].

[Davies and Dubinsky 2001: 248]

(6)   a.   [AP Very tall]i appears [ti to be just how he likes his bodyguards].

b. *It appears [[AP very tall] to be just how he likes his bodyguards].

[Davies and Dubinsky 2001: 248]

The same occurs in French, shown for PPs in (7).

(7)   a.   [PP Sous le lit] ne   me   semble pas être   un bon   endroit pour se
under the bed NEG 1SG.DAT seems not be.NFIN a.M good.M place   to   REFL
cacher.
hide.NFIN
'Under the bed doesn't seem to me to be a good place to hide oneself.'

[French; Davies and Dubinsky 2001: 259]

b. *Il ne   me   semble pas [PP sous le   lit] être   un bon   endroit pour se
it NEG 1SG.DAT seems not   under the bed be.NFIN a.M good.M place   to   REFL
cacher.
hide.NFIN
'It doesn't seem to me under the bed to be a good place to hide oneself.'

[French; Davies and Dubinsky 2001: 259]

As well, the well-known subject-island constraint (Ross 1967), as shown in (8)-(9) can be explained if we assume the presence of a phase head, namely D°.

(8)   *What$_i$ did [$_{IP}$ [$_{CP}$ t_i that John bought] upset Jack]?   [Davies and Dubinsky 2001: 262]

(9)   *[Quelle auto]$_i$ pensez-   vous   [$_{IP}$ [$_{CP}$ que Marie a   achetée t_i] l'   énervera]?
       which.F car   think.2PL you.PL   that Mary has bought.F   3SG anger.FUT
       '*Which car do you think that Mary bought will make him angry?'

                                                                    [French; Davies and Dubinsky 2001: 263]

Finally, non-nominal subjects in both English and French can license emphatic reflexives. Since reflexives in both languages agree in gender and number with their antecedent, as shown in (10-b), this provides further evidence that they have ϕ-features. Furthermore, the ability of non-nominal subjects to license reflexives indicates that they have some sort of reference, through being marked with an index or some equivalent.[2] This is shown for English in (10) and for French in (11).

(10)   a.   [That Leslie arrived drunk]$_i$ itself$_i$ put Kelly in a foul mood.

        b.   [Under the bed and in the closet]$_i$ are themselves$_i$ reasonable places to stash the cash.
                                                                    [Davies and Dubinsky 2001: 250]

(11)   a.   [Qu' il y   avait 25 kilomètres à traverser]$_i$ était, par/de lui-même$_i$, assez   pour
              that it there had   25 kilometres to cross   was by/of him-self   enough for
              décourager   Edouard.
              discourage.NFIN Edward.
              'The fact that there were 25 kilometres yet to go, by/of itself, was enough to discourage

              Edward.'   [French; Davies and Dubinsky 2001: 260]

        b.   [Sous le   lit]$_i$ en lui-même$_i$ n'   est pas un bon   endroit pour se   cacher.
              under the.M bed in him-self   NEG is not a.M good.M place   for REFL hide.NFIN
              'Under the bed in itself is not a good place to hide oneself.'

                                                                    [French; Davies and Dubinsky 2001: 261]

Note especially that emphatic reflexives are only licensed by a non-nominal constituent in subject position, as demonstrated by the contrast between (10) and (12).

(12)   a.   Kelly was angry [that Leslie arrived drunk]$_i$ (*itself$_i$).

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[2]The relevance of bearing an index is discussed in more detail in Section 3.1.1.

    b.   We stashed the cash [under the bed and in the closet]$_i$ (*themselves$_i$).

                                               [Davies and Dubinsky 2001: 250]

Davies and Dubinsky (2001) also show that these patterns contrast with verb-initial languages like Niuean, Irish, and Malagasy, and 'V-prominent languages,' including Bulgarian and Russian, where non-nominal subjects do not share these nominal properties.

2.1.1.2 D-on-V EPP

Alexiadou and Anagnostopoulou (1998) first proposed the idea of D-on-V EPP languages. According to their proposal, alongside the move-XP variety of EPP-checking found in English, there are languages parametrized as move-X°.[3] Under their analysis, the well-known properties of consistent null subject languages, such as the ability to drop subjects, the lack of expletives, the availability of free inversion, and the presence of rich agreement, are all explained by an alternative EPP-checking strategy, which I will refer to as D-on-V EPP. This corresponds to D°-EPP in Table 2.1.

In D-on-V EPP languages, the EPP is checked by rich agreement features on the verb, which are specified with a [D] feature.[4] This [D] feature is able to check the EPP since the verb undergoes head movement to T. Rich agreement is correlated with this type of language, since the [D] feature is morphologically realized as agreement. Phrasal subjects are not needed to check the EPP, and so they are freely able to remain in a VP-internal or other low position, allowing for the possibility of free inversion structures, and, in fact, the subject is not realized at all in certain discourse conditions. Alexiadou and Anagnostopoulou (1998) argue, furthermore, that all preverbal subjects in D-on-V languages are in an A'-position through Clitic Left Dislocation (CLLD). This is demonstrated below for Greek, and contrasted with French, a DP-EPP language with verb-raising.

Alexiadou and Anagnostopoulou (1998) show that adverbs may intervene between the preverbal subject and the verb, as in (13-a), unlike in French (13-b), suggesting that the verb and the subject are

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[3]Alexiadou and Anagnostopoulou (1998) also note that Svenonius (1996) and Pollock (1996) both also proposed head-movement EPP analyses of two other phenomena.

[4]They propose that the agreement morphemes are specified with a [D] feature to parallel Chomsky's (1995) characterization of the EPP as a strong [D] feature on T. There is, as far as I am aware, no direct evidence of a [D] feature. Thus, the agreement morphemes could just as easily be analyzed as having ϕ-features that are able to check the EPP, which might be appropriate under different characterizations of the EPP. In Section 3.1.1, I argue that the EPP is in fact checked by an index, and I discuss the possible feature structures involving ϕ-features and indices in Section 6.1.1.

not in the same projection.

(13)   a.   O Petros xtes   meta apo poles prospathies sinandise ti Maria.
             Peter   yesterday after from many efforts   met   Mary
             'After many efforts, Peter met Mary yesterday.'

                                                    [Greek; Alexiadou and Anagnostopoulou 1998 502]

       b.   *Jean probablement/ hier   a   rencontré Marie.
             John probably   yesterday has met   Mary
             'John (probably) met Mary (yesterday).'

                                                    [French; Alexiadou and Anagnostopoulou 1998: 503]

In fact, subjects can even precede entire *if*-clauses.

(14)   Epidi   o Petros [an erthi   i Maria] tha figi.
        because Peter   if comes Mary   FUT leave
        'Because if Mary comes, Peter will leave.'   [Greek; Alexiadou and Anagnostopoulou 1998: 503]

Besides the distributional facts presented above, Alexiadou and Anagnostopoulou (1998) also demonstrate that preverbal subjects have unambiguous wide scope, as expected if they had raised as a result of A'-movement.

Derivationally, I assume that the T head triggers V-to-T raising and subject agreement, independently of the EPP. These operations also incidentally check the EPP. In other words, the EPP is parasitic on V-to-T movement and on agreement operations which are independently required in the language. When they do not occur, as happens in the Italian subjunctive, as discussed in Section 2.2.2.4, another EPP-checking mechanism is triggered. In this way, the EPP properties of a language are determined (in part) by the properties of T.

Alexiadou and Anagnostopoulou (1998) also argue that *pro*-drop Romance languages share the same EPP type as Greek, using data from Spanish as their main source of evidence. However, there have been objections raised with regards to their analysis of the properties of preverbal subjects in Spanish (e.g., Goodall 2001). Their arguments regarding Greek, on the other hand, seem much stronger, and as far as I am aware, have not been contested. Furthermore, as I discuss in Section 2.2.2.4, there is evidence that rich agreement on the verb does seem to be a crucial characteristic of the EPP in Italian, as well. However, Schifano (2018) shows that verb-raising does not always target the same height across

Romance varieties, and even that there is variation intra-linguistically, which suggests that the triggers for verb-raising are not uniform. In Section 4.1.2, I adopt the analysis of Goodall (2001) and others of Spanish as a DP-EPP language, which raises the question of why the verb does not check the EPP in Spanish, as it undergoes raising and bears rich inflection. I discuss Spanish and other languages with verb-raising that nonetheless seem to require the raising of a phrasal DP in Section 2.1.3.

2.1.1.3 Nominal Pied-Piping

Richards and Biberauer (2005) and Biberauer and Richards (2006) argue that pied-piping the entire vP to check the EPP should be as economical as raising either the $v°$-head or the specifier of vP,[5] and they demonstrate that many Germanic languages employ this option. Allowing for pied-piping creates two more EPP-types: DP-EPP with pied-piping, which occurs in Dutch and Afrikaans, and D-on-V EPP with pied-piping, which occurs in German and Icelandic. I summarize their findings below.

First, let us consider DP-EPP with pied-piping. Just as described in section 2.1.1.1, these languages require a phrasal subject, resulting in the insertion of an expletive, if necessary. However, the phrasal subject must be in the specifier of vP instead of TP, and the entire vP, in turn, is in the specifier of TP, as illustrated by the trees in (16). Consider the Afrikaans example in (15). The expletive *daar* must be inserted when the subject *'n skip* 'a ship' has not raised, as in (15-a), and, in fact, *cannot* be inserted when subject-raising has occurred, as in (15-b).

(15) a. ... dat *(daar) gister   [_{DP} 'n skip] gesink het.
              that EXPL   yesterday   a ship   sunk   has

      b. ... dat (*daar) [_{DP} 'n skip] gister   gesink het.
              that EXPL   a ship   yesterday sunk   has
              '...that a ship sank yesterday.'   [Afrikaans; Richards and Biberauer 2005: 142]

This is shown in the trees below.

---

[5]See also Müller (2004) who argues that a vP that has been reduced to its edge domain (that is, the specifier and head of v) raises first to spec, TP and then to spec, CP in German, resulting in V2 word order.

(16)   a.

```
                              CP
                          /        \
                       dat          TP
                                 /      \
                              vP          \
                          /      \      het   <vP>
                       daar     /    \
                              v      <VP,VP>
                                    /      \
                                gister      VP
                                          /    \
                                        DP     gesink
                                       /  \
                                     'n   skip
```

        b.

```
                              CP
                          /        \
                       dat          TP
                                 /      \
                              vP          \
                          /      \      het   <vP>
                        DP      /    \
                       /  \   v      <VP,VP>
                     'n   skip      /      \
                                gister      VP
                                          /    \
                                      <DP>     gesink
```
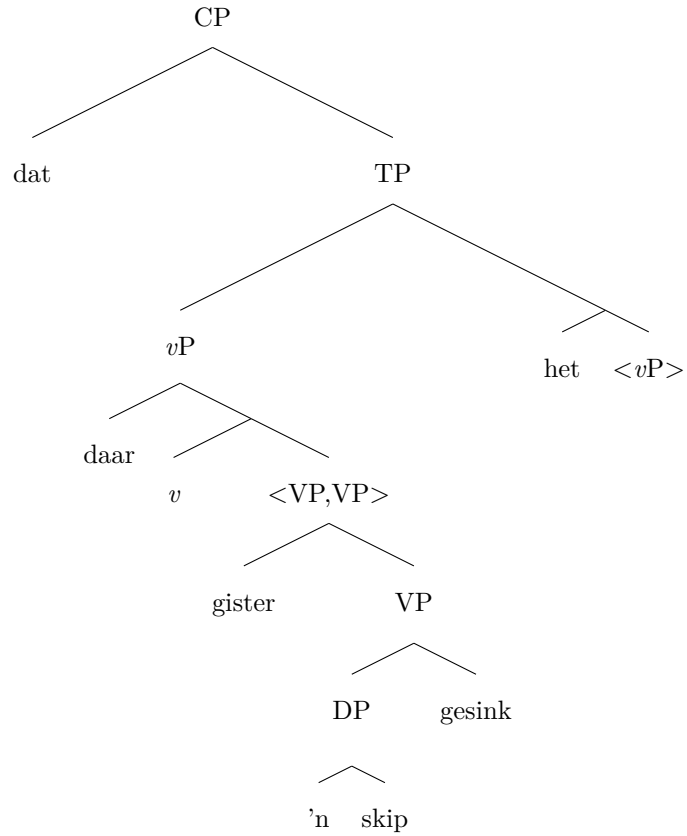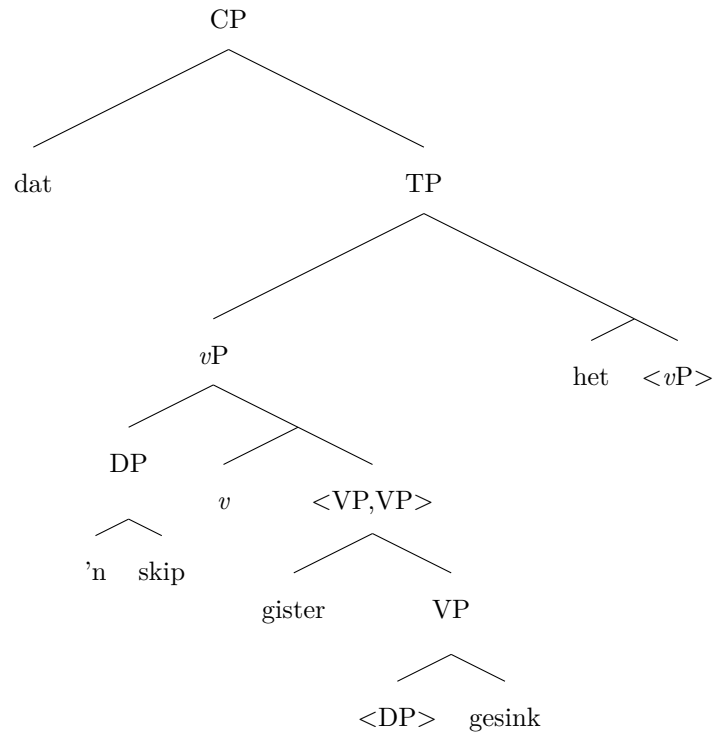
On the other hand, D-on-V EPP languages with pied-piping are also characterized by raising the

entire *v*P to the specifier of TP. However, in these languages, there must not necessarily be a subject, but rather, rich verbal inflection is required, much as it is required in Greek, as described in section 2.1.1.2. Richards and Biberauer (2005) argue that this type of EPP satisfaction occurs in both German and Icelandic.[6] Both German and Icelandic in fact seem to bar expletive insertion in spec,TP, allowing expletives only in spec,CP, as shown in (17)-(18). In both of the (a) examples, the expletive is shown in the preverbal position in a V2 clause, presumably spec,CP. In the (b) examples, another constituent is raised to the preverbal position; in these contexts, the expletive cannot appear in spec,TP.

(17) a. Es   wurde getanzt.
        EXPL became danced
        'There was dancing.'

     b. Gestern   wurde (*es) getanzt.
        yesterday became EXPL danced
        'Yesterday there was dancing.'   [German; Richards and Biberauer 2005: 126]

(18) a. Það   hefur komið strákur.
        EXPL has   come   boy
        'There came a boy.'

     b. Í gær   hefur (*það) komið strákur.
        yesterday has   EXPL come   boy
        'Yesterday there came a boy.'   [Icelandic; Richards and Biberauer 2005: 126]

A tree that illustrates the proposed structure for German is shown in (19).[7]

(19) a. ... daß dem   Mann ein   Buch geschenkt wurde.
        ... that the.DAT man a.NOM book presented became
        '...that the man was given a book as a present.'

---

[6]There have been a variety of EPP types proposed for Icelandic over the years, in Davies and Dubinsky (2001), in Alexiadou and Anagnostopoulou (1998), Holmberg's (2000) stylistic fronting approach, and more. The analysis I've adopted here fits into my typology, but more research comparing the various approaches is needed. Rosengren (2002) shows that there are quite a few differences between Icelandic and German and attributes these differences to differing EPP properties. Her analysis of German seems to corroborate Richards and Biberauer's (2005), but her analysis of Icelandic is contrary to it (although the data she presents may be compatible with Richards and Biberauer). One key difference is that there is no V-to-T raising in German (Vikner 2005).

[7]Note that V-to-T movement cannot satisfy the EPP in these cases, as it is verb-raising, not predicate raising, as shown by the fact that auxiliaries raise. This is discussed in more detail in Section 2.1.3.

b.

```
                              CP
                    _____/    _____
                   /                      \
                  C                        TP
                 daß               _____/  _____
                                  /                  \
                                 vP                   T'
                         _____/   _____          /  \
                        /                 \         T    t_vP
                       VP                   v      wurde
                   ___/  \___          <wurde>
                  /          \
                 DP           V'
              dem Mann       /  \
                            DP   V
```

ein Buch   geschenkt
[German; Richards and Biberauer 2005: 131-132]
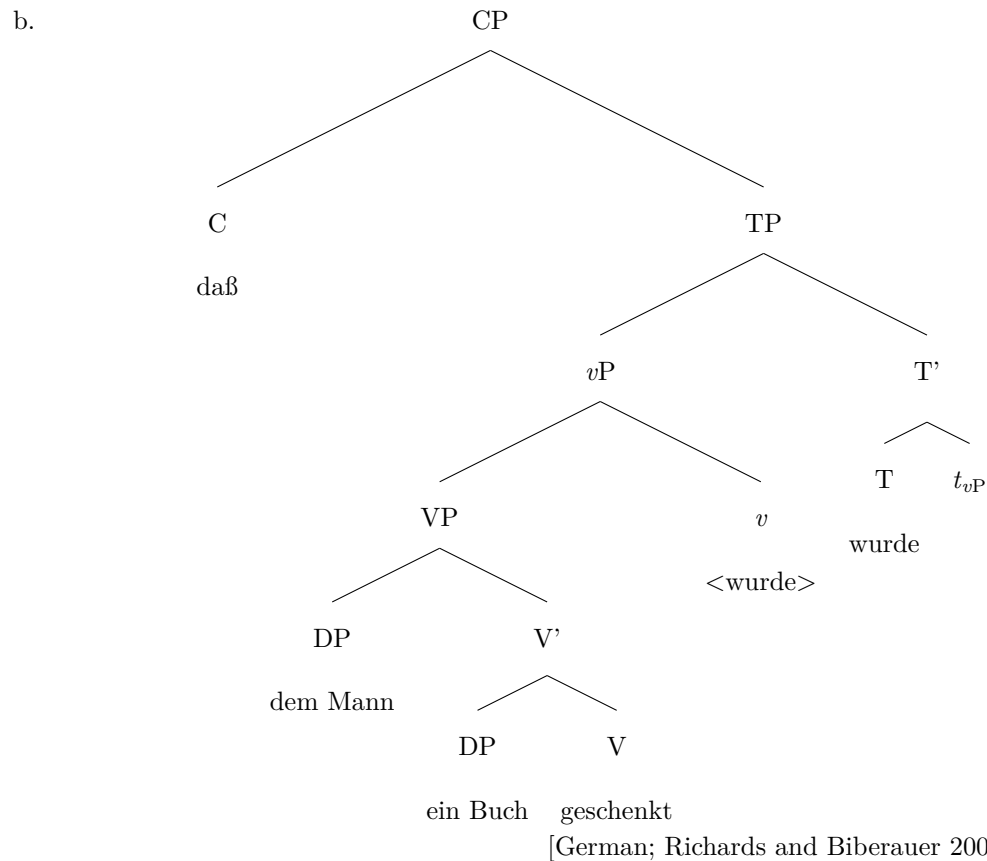
Richards and Biberauer (2005) demonstrate that the loss of rich inflection coincides with the start of systematic use of the expletive in a variety of Germanic languages, including Dutch and Afrikaans, providing further evidence that rich inflection was necessary for checking the EPP, and was replaced with a requirement for overt phrasal subjects.

2.1.2 Predicate EPP

In contrast to the *v*P pied-piping languages proposed by Richards and Biberauer (2005), a verb-raising EPP has also been proposed for several languages, including Niuean, Irish, and Inuktitut, in which the raised constituent does not necessarily contain any nominal features. I argue that these constitute another form of EPP movement, where the EPP probes for the predicate. That is, non-verbal predicates raise and check the EPP, but verbal functional elements, such as auxiliaries, do not. For example, phrasal predicate-raising occurs in Niuean and checks the EPP (Massam and Smallwood 1997), although the verbs do not agree with the subject, nor is there always a nominal in the fronted

constituent (20-b).

(20)   a.   [$_{v}$P Takafaga ika] tūmau nī   a   ia.
                hunt   fish always EMP ABS he
            'He is always fishing.'

       b.   Takafaga tūmau nī   e   ia e   tau ika.
            hunt   always EMP ERG he ABS PL fish
            'He is always fishing.'   [Niuean; Massam 2001: 157]

Likewise, Biberauer (2010) suggests that verbs in Celtic languages (except Breton), which raise to T, also likely check the EPP. However, verbs in Irish appear without subject agreement in a variety of contexts, as in (21), demonstrating that this cannot be a case of D-on-V EPP.

(21)   Leanann   an t-ainmní an briathar i   nGaeilge
       follow.PRES the subject   the verb   in Irish
       'The subject follows the verb in Irish.'   [Irish; Harley and Carnie 1997]

Finally, Johns (2007) proposes a √-EPP for Inuktitut, which is most often manifested by the verb root appearing initially in the verbal complex through syntactic movement, as in (22). Although Inuktitut has rich agreement, the nominal features of the suffix are not part of the constituent that raises, and do not participate in EPP-checking.

(22)   Niri- gaju-   lau-   nngit- tunga.
       eat- always- DIST.PST- NEG- DEC.1SG
       'I wasn't always eating.'   [Inuktitut (North Baffin); Compton and Pittman 2010: 2172]

In all three of these languages, it can be shown that these are in fact predicates which raise, rather than specifically verbs. For example, in the Niuean example in (23-a), a locative predicate may front to initial position instead of a verbal constituent, while in the Niuean example in (23-b) or the Irish example in (24), a nominal predicate fronts. Note that Carnie argues that the *is* particle in Irish is in C.[8]

(23)   a.   [Hā   he fale   gagao] a   ia.
            PRED in house sick   ABS she
            'She is in the hospital.'   [Niuean; Massam 2001: 165]

b. [Ko e fale ke lima aki] e fale i ko.
PRED ABS house SBJ five INST ABS house LOC there
'That house over there is the fifth house.' [Niuean; Massam 2005]

(24) Is [fear mór] Seán
C man big John
'John is a big man.' [Irish; Carnie 1995: 203]

It is even clearer in Inuktitut that non-verbal predicates can check the EPP, albeit in a different way. Johns (2007) demonstrates that light verbs are unable to check the EPP in Inuktitut. In clauses with light verbs, a noun root must take the initial position in the verbal complex instead, resulting in constructions such as (26-a) or even in the insertion of the √-expletive *pi* in (26-b). This demonstrates that it is the root material and not the verbal functional material that is crucial for EPP-checking in Inuktitut.

(26) a. Saali ilisaiji- u- juq
Sally teacher- be- INTR.PART.3S
'Sally is a teacher.' [Inuktitut (Mittimatalingmiutitut); Johns 2007: 548]

b. pi- qa- nngit- tuq
EXPL- have- NEG- INTR.PART.3S
'He has nothing.' [Inuktitut (South Baffin); Johns 2007: 559]

Davies and Dubinsky (2001) provide evidence for a contrast between D-prominent languages like French and English and V-prominent languages such as Bulgarian and Russian, showing that non-nominal subjects (such as subject CPs) of V-prominent languages do not necessarily have nominal properties, in contrast to French and English (cf. Section 2.1.1.1), as shown in Table 2.2. This seems similar to the contrast I propose between nominal- and predicate- sensitive EPP.[9]

Likewise, they show that non-nominal subjects in verb-initial languages such as Malagasy also do not

---

[8]Note that Irish differs from Niuean in that the locative PP does not front, as shown in (25).

(25) Tá máthair an fhir san otherlann.
be.PRES mother the man.GEN in.the hospital
'The man's mother is in the hospital.' [Irish; Carnie 1995: 193]

I assume that this has to do with the differing pied-piping properties of Irish, as discussed in Section 2.1.2.1.
[9]Or alternatively, the contrast between DP-EPP and everything else.
[10]Davies and Dubinsky (2001) note that if their proposed contrast between D- and V-prominent languages is right, then it is not surprising that Bulgarian and Russian lack raising structures. It would be interesting if they lack non-finite structures altogether, because it would fit with the generalizations I make in Chapter 5 based on Irish, Inuktitut, and Niuean about finiteness, including the fact that predicate-EPP languages lack non-finite clauses.

Properties of non-NP subjects	D-prominent (English/French)	V-prominent (Bulgarian/Russian)
obligatory raising of non-NP subjects	YES	n/a[10]
agreement with coordinated non-NP subjects	YES	NO
non-NP subjects license emphatic reflexives	YES	NO
non-NP subjects license plural adverbs	YES	n/a
non-NP (clausal) subjects are extraction islands	YES	NO

Table 2.2: Properties of D- and V-prominent languages (Davies and Dubinsky 2001: 268)

have nominal properties. For example, conjoined non-nominal subjects do not license the plural adverb *samy*, as shown in (27).

(27) *Samy mahasosotra an'i Soa [CP fa   nihira   mafy i   Bozy ary (fa)   nitabataba
       each annoy   ACC Soa   COMP PST.sing hard DET Bozy and COMP PST.make.noise
       i   Be].
       DET Be
       'Both that Bozy sang loudly and that Be made a lot of noise annoyed Soa.'

[Malagasy; Davies and Dubinsky 2001: 270]

Furthermore, subjects in Malagasy are not islands for extraction, as shown in (28), where *oviano* 'when' has scope over either the matrix or the embedded predicate.

(28) Oviano no nolazain -dRabe   fa   nanasa   lamba Rakoto?
       when   FOC PST.TT.say -GEN.Rabe COMP PST.wash cloth Rakoto
       'When was that Rakoto washed clothes said by Rabe?'

[Malagasy; Davies and Dubinsky 2001: 270]

Davies and Dubinsky (2001) thus propose the typology in Table 2.3, predicting that verb-initial languages which require their subject to be a DP should not be attested.[11] Davies and Dubinsky (2001) propose that D-prominence is caused by the EPP being checked by a D feature, while V-prominence combines two properties: the EPP is checked by a V feature, and T is higher than Agr in the clausal spine. The difference between V-medial and V-initial languages, they argue, occurs because the subject may optionally raise in languages like Russian and Bulgarian. They furthermore show that the subject may remain low, so that Bulgarian and Russian do allow V-initial orders, and that it can do so without

---

[11]Similarly, Alexiadou and Anagnostopoulou (1998: 516) predict that VSO languages which do not allow subject drop should not be attested.

definiteness restriction effects, parallel to what Alexiadou and Anagnostopoulou (1998) demonstrate for

Greek.

	V-medial	V-initial
All subjects must be DP	English, French	–
Subjects need not be DP	Russian, Bulgarian	Chamorro, Irish, Malagasy, Niuean

Table 2.3: Davies and Dubinsky's Typology (2001: 271)

2.1.2.1 Predicate Pied-Piping

Table 2.1, repeated below as Table 2.4, predicts two kinds of predicate-EPP with pied-piping, however,

only one is attested. In this section, I first demonstrate how Irish can be classified as a $v°$-EPP with pied-

piping language, and then I argue that vP-EPP with pied-piping is indistinguishable from the variant

without pied-piping.

	Pied-Piping	No Pied-Piping
D°-EPP	German, Icelandic	Greek, Italian
DP-EPP	Dutch, Afrikaans	English, French, Finnish
v°-EPP	Celtic (except Breton)	Inuktitut
vP-EPP	n/a	Niuean

Table 2.4: The EPP Typology

Carnie (1995) notes that, although there is reason to believe the VSO word order in Irish is derived by

means of head-movement of the verb, it appears as though a phrasal constituent is raised in constructions

with non-verbal predicates, as shown in (29).

(29) a. Is [amhrán aL   bhuailfidh an píobaire] "Yellow Submarine."
          COP song   COMP play.FUT the bagpiper   "Yellow Submarine"
          "'Yellow Submarine" is a song which the bagpiper is going to play.'

    b. Is   [dochtúir capall   ] é.
          COP   doctor horses.GEN   him
          'He is a doctor of horses.'   [Irish; Carnie 1995: 183]

Carnie (1995) argues that this is because, under bare phrase structure, there is no fundamental distinction

between a head and a phrase, and so a phrase should be able to undergo head-movement, and presents

evidence that these phrasal non-verbal predicates have some properties of heads. Regardless of the

particulars of the analysis, raising of phrasal material is in complementary distribution with raising

the verb head in Irish, and, thus, it appears that the EPP-triggered movements of Irish incorporate pied-piping at least some of the time.

In contrast, I predict phrasal pied-piping to be indistinguishable from *v*P-EPP because *v*P-EPP is already targeting the largest possible constituent of the predicate. In short, assuming the basic structure in (30) (with all arguments in their merge position), there is simply no constituent larger than the *v*P available to raise.

(30)

```
                    TP
                   /  \
                  T    vP
                      /  \
               SUBJECT    \
                         v   VP
                            /  \
                           V  OBJECT
```
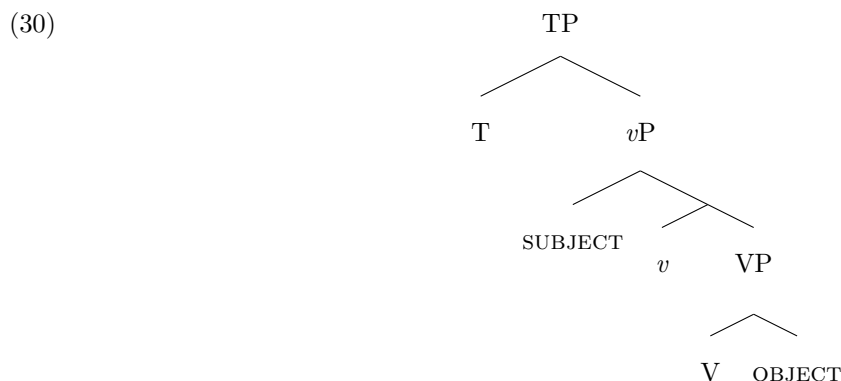
Of course, there is reason to believe that, in many languages, including Niuean, there are projections intervening between the *v*P and the TP, and a pied-piping operation could perhaps target one of those. However, I predict that targeting those larger constituents should be unattested because the *v*P is a phase, and the goal is the *v*P itself. For example, let's compare predicate-raising for the EPP to pied-piping in English questions, as in (31). In (31-a), there is a complex recursive PP,[12] which consists of multiple phases. It is possible to question the first or second phase, as in (31-b),[13] but it is not possible to target a more deeply embedded constituent within the phase, with or without pied-piping, as shown in (31-c)-(31-e).

(31) a. He slept [on the bed in the spare room at my sister's house].

      b. Where/On what did he sleep?

      c. *Where did he sleep on the bed (in)?

      d. On the bed (in) *where/?what did he sleep?

---

[12]Note that I'm assuming, following Abels (2012), that PP is a phase.

[13]The second phase can be questioned only because the DP can exceptionally escape out of a PP phase in English (Abels 2012).

e. *On the bed where did he sleep (in)?

Furthermore, if we add material outside of the PP phase, such as the adverb *right*, such material cannot be raised with the *wh*-word.[14]

(32) a. He slept right [on the floor in the spare room at my sister's house].

b. *Right where did he sleep?

c. ?Right on what did he sleep?

Thus, I hypothesize that it is not possible to pied-pipe a constituent larger than a phase. As such, *v*P-EPP with pied-piping should be indistinguishable from $v°$-EPP with pied-piping on the one hand and plain *v*P-EPP on the other hand. We are able to distinguish Irish as $v°$-EPP with pied-piping from plain *v*P-EPP simply because Irish only has pied-piping in some contexts, for non-verbal predicates. However, in the case of phrasal movement, no alternation with a bigger constituent is possible.

2.1.3 When Verb-Raising does not Check the EPP

We have now seen three varieties of EPP which are satisfied by the raising of a verbal constituent: (a) the head movement of a verb which bears nominal features, discussed in section 2.1.1.2, (b) the pied-piping of a *v*P that contains nominal features in either its specifier or its head, as discussed in section 2.1.1.3, and (c) the movement of a predicate, as in section 2.1.2. However, there are languages such as French and Finnish, which require a DP subject, much like English, although they also exhibit verb-raising. In this section, I discuss why verb-raising might be insufficient for checking the EPP in these languages.

This section is structured as follows. First, I demonstrate that French and Finnish have both verb-raising and a DP-EPP type. Then, I show that a crucial difference between French and Finnish on the one hand, and predicate-EPP languages on the other hand, is that verb-raising in French and Finnish targets *verbal* elements, while in predicate-EPP languages, it targets *predicates*. Although these two categories overlap substantially, they differ with regard to light verbs, auxiliaries, and non-verbal

---

[14]Note that *Right on what did he sleep?* is acceptable as an echo question. I set that aside as an exceptional case, because it likely has a different structure.

predicates. Finally, I discuss another property which seems to be correlated with this division, which is the presence or absence of non-finite clauses in the language.

In the French and Finnish examples below, we see that the verb raises to a position above adverbs such as *souvent* 'often,' or *ehkä* 'perhaps' in the (a) examples, and in the (b) examples, we see that the insertion of an expletive is obligatory, indicating a requirement for a DP subject.[15] Furthermore, as previously mentioned in Section 2.1.1.1, Davies and Dubinsky (2001) demonstrate that, in French, non-nominal subjects have many properties of DPs, indicating that, in French, the EPP is checked by a DP.

(33)   a.   Jean embrasse   souvent Marie.
               John kiss.3SG.PRES often   Mary
               'John often kisses Mary.'   [French; Pollock 1989: 367]

        b.   Il   est arrivé trois filles.
               EXPL is   arrived three girls
               'There have arrived three girls.'   [French; Burzio 1986: 85]

(34)   a.   Jussi (?ehkä) osta-a   (ehkä)   sen   kirja-n.
               Jussi   buy-3SG perhaps 3SG.GEN book-GEN
               'Jussi will perhaps buy that book.'

                        [Finnish; Holmberg, Nikanne, Oraviita, Reime, and Trosterud 1993: 194, KP 6.12]

        b.   Sitä meni   nyt hullusti.
               EXPL go.PST.3SG now crazily
               'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

Thus, either these languages require two separate EPP-triggered movements, for some reason, or verb-raising is insufficient for checking the EPP. I argue for the latter.

Unlike Irish, Inuktitut, and Niuean, the French and Finnish requirement for verb raising is truly a requirement for verbs, rather than predicates. In both languages, non-verbal predicates do not raise, but functional verbal elements like light verbs, auxiliaries, and modals do. For example, in the Finnish examples in (35), BE (35-a), the negative auxiliary *ei* (35-b), and the light verb *alkaa* 'to begin' (35-c) can raise. In all three examples, that the functional verb raises is apparent because it appears before the adverbs *kyllä* 'indeed' in (35-a) or *ehkä* 'perhaps' in (35-b&c).

---

[15]Not all dialects of Finnish have DP expletives; however, there is evidence even in those varieties that DP-raising is required. See Doner (2015) for more details.

(35)   a.   Nyt on   kyllä mennyt   hullusti.
              now be.3SG indeed go.PST.PTPL.SG crazily
              'Things have indeed gone wrong.'   [Finnish]

        b.   Jussi ei   ehkä   osta sitä   kirjaa.
              Jussi NEG.3SG perhaps buy 3SG.PAR book.PAR
              'Jussi won't maybe buy that book.'   [Finnish]

        c.   Nyt alkoi   ehkä   mennä huonosti.
              now begin.PST.3SG perhaps be.NFIN wrongly
              'Maybe things began to go wrong now.'   [Finnish]

Likewise, the auxiliary HAVE raises in the French example in (36-a), while the light verb *lancer* 'to

throw' raises in (36-b).

(36)   a.   Il a   souvent mangé des   pommes.
              he has often   eaten of.the apples
              'He has often eaten apples.'

        b.   Les   États-Unis lanceront   toujours des   attaques contre les   pays
              the.PL US   throw.FUT.3PL always of.the attack.PL against the.PL country.PL
              soupçonnés   de soutenir   le   terrorisme.
              suspect.PAST.PTPL.PL of support.NFIN the.M terrorism
              'The United States will always start attacks against the countries suspected of supporting

              terrorism.'   [French; J. Carrier, p.c.]

In contrast, non-verbal predicates do not raise in French, as shown below. The (b) examples in

(37)-(38), show that raising the entire *v*P is ungrammatical, while the (c) examples show that raising

the predicative noun or adjective alone is also ungrammatical.

(37)   a.   Jean est   un professeur.
              John is.3SG a.M teacher
              'John is a teacher.'

        b.   *Est   un professeur Jean.
              is.3SG a.M teacher   John

        c.   ?Un professeur est   Jean.
              a.M teacher   is.3SG John   [French; J. Carrier, p.c.]

(38)   a.   Jean est   drôle.
              John is.3SG funny
              'John is funny.'

        b.   *Est   drôle Jean.
              is.3SG funny John

       c. *Drôle est   Jean.
           funny is.3sg John   [French; J. Carrier, p.c.]

Likewise, as shown in (39), non-verbal predicates do not raise in Finnish.

(39)   a.   Olen   onnellinen.
               be.1sg happy.NOM
               'I am happy.'

        b.   Olen   lääkäri.
               be.1sg doctor.NOM
               'I am a/the doctor.'   [Finnish; R. Craioveanu][16]

We can see from examples (37)-(39) that non-verbal predicates do not raise in French and Finnish, but rather, as shown in (35)-(36), a verbal element raises, in contrast to languages like Irish, Inuktitut, and Niuean, where predicates, including non-verbal predicates raise, but functional verbal elements do not.[17]

A crucial distinction between predicate-EPP languages like Irish and Niuean, on the one hand, and Finnish and French, on the other, is related to finiteness. This is discussed in more detail in Chapter 5, but I give an overview of my argument here. In all three of the predicate-EPP languages discussed here (Irish, Inuktitut, and Niuean), non-finite clauses are either completely lacking or are defective in some sense. In Chapter 5, I argue that this is related to the properties of a defective T head in predicate-EPP languages. In contrast, non-finite clauses in French and Finnish are fully verbal. This is seen in part by the possibility of relations between the main and non-finite clause, like control and raising, which indicate that they are not adjuncts or nominalizations, but are fully integrated subcategorized clauses.

Verbs in Niuean have no finiteness, agreement, or tense, but instead function more like a participial or a nominal (Massam 2005). In fact, Massam (2005) argues that verbs in Niuean are really an underspecified syntactic category, showing that verbal constituents occur freely in argument position, as shown in (40).

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[16]Collected as part of Copular Agreement Systems: Locality and Domains research project, supported by S. Béjar's SSHRC grant #435-2013-1756.

[17]David Adger (p.c.) has pointed out to me that an AuxVSO order is possible in Irish. In these cases, the auxiliary appears to raise, which is problematic for this analysis. However, in Irish, the auxiliary raises in addition to the verb, as evidenced by the post-verbal subject, while in French and Finnish, the auxiliary raises instead of the verb. This is a crucial difference, since the predicate still raises.

(40) a. ke   he   tāmate e   Tofua e   kulī
          GOAL   LOC kill   ERG Tofua ABS dog
          '(about) Tofua's killing the dog'

      b. e   tele haaku i   a   ia
          ABS kick 1SG.GEN LOC ART him
          'my kicking him'   [Niuean; Massam 2005]

Even though finiteness and aspectual distinctions are marked in Niuean, the marking is found in the

pre-verbal particles, not part of the predicate that raises. Crucially, verbs do not exhibit any difference

in behaviour across different finiteness contexts.

Verbs in Irish are richer than Niuean verbs, appearing with tense, aspect, and agreement, but they

also lack a finiteness distinction. In Irish non-finite clauses, verbs must be nominalized, and appear

with verbal noun morphology (Carnie 1995: 87) in a construction which Carnie (2011) refers to as a

predicative verbal noun (PVN)[18] (Ó Siadhail 1989, Carnie 2011). Carnie (2011) argues that PVNs are

nominalized clauses that do not have the full functional structure of a clause, lacking tense projections.

His arguments centre mostly on the case marking of the arguments, as he demonstrates that some

arguments in PVNs receive genitive case as a last resort operation due to the lack of functional structure

in these constructions.

Inuktitut does not clearly have a non-finite construction, either, although it is somewhat controversial

(cf. Johns and Smallwood (1999) for a paper arguing that the morpheme -llu is not a non-finite marker).

However, in any case, the EPP movement process seems to target a constituent that does not include

any verbal functional material. Thus, even if a finiteness distinction occurs in Inuktitut, it occurs higher

in the structure than the EPP, and independently from it, just as the finiteness distinction in the C

domain of Niuean occurs independently from the EPP head.

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[18]In this section, I am discussing what, in traditional descriptive Irish linguistics, is termed a verbal noun (cf. Ó Siadhail 1989). Carnie (2011), in turn, terms these constructions predicative verbal nouns (PVNs) to contrast them with argument verbal nouns, illustrated in (41).

(41)   Chuala mé an tseinm.
       heard I   the play.VN
       'I heard the playing.'   [Irish; Carnie 2011: 1209]

Irish PVN constructions function as participles when preceded by auxiliaries or aspectual markers, and as infinitives when in non-finite clauses.

In contrast, both French and Finnish have productive non-finite clauses that are fully integrated into the clausal spine. This is shown by the presence of ECM constructions in Finnish,[19] as in (44), where *minun* in (44-a) and *Sofian* in (44-b) get case from the main clause, and clitic climbing constructions in French, as in (45), where *les* is phonologically dependent on the main clause verb. In both cases, an argument of the embedded clause is dependent on the main clause.

(44)   a.   Kerttu käsk-i   [TP minun   löytä-ä   avaime-ni   ].
            Kerttu order-PST.3SG   1SG.GEN find-NFIN key-POS.1SG
            'Kerttu told me to find my keys.'   [Finnish; Koskinen 1998: 267]

       b.   Minä   anno-i-n   Sofia-n, e-n   syö-dä   koko pussillis-ta karkke-j-a,   mutta
            1SG.NOM let-PST-1SG S-GEN   NEG-1SG eat-NFIN whole bag-PAR   candy-PL-PAR but
            mutustel-la   muutam-i-a.
            munch-NFIN some-PL-PAR
            'I allowed Sofia, not to eat the whole bag of candy, but to munch a few.'

                                                                    [Finnish; Koskinen 1998: 271]

(45)   Je te   les   laisse voir.
       I you them let   see.NFIN
       'I let you see them.'   [French; Martins 2000: 178]

Likewise, raising constructions are also possible in both French and Finnish. In the Finnish example in (46), the the first person singular subject *minä* raises from the embedded clause to the main clause, according to Koskinen (1998), while in the French *tough*-construction in (47), *la vérité* 'the truth' raises from embedded object position to the matrix subject position.

(46)   Minä voisin   [TP <minä> löytää   avaime-ni   ].
       1SG   can.COND.1SG   find.NFIN key-1SG.POS
       'I could find my keys.'   [Finnish; Koskinen 1998: 265; KP 6.60]

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[19]Objects in Finnish normally receive genitive case, as shown in (42).

(42)   (Minä) saa-n   pankista lainan/*laina.
       1SG.NOM get-1SG bank-INE loan-GEN/*NOM
       'I get a loan from a bank.'   [Finnish; Koskinen 1992: 44-45]

Finnish objects can also receive partitive case in unbounded contexts (Craioveanu 2017), as shown in (43).

(43)   Ostin   uusia   kenkiä.
       buy.PST.1SG new.PL.PAR shoe.PL.PAR
       'I bought (some) new shoes.   [Finnish; Craioveanu 2017: 3]

(47) La vérité est toujours difficile à dire   <la vérité>.
      the truth is always   hard   to say.NFIN
      'The truth is always hard to say.'   [French; Legendre 1986: 137]

Finally, both Finnish and French have control constructions, as shown in (48)-(49).

(48) Sofia_i halua-a   [_TP PRO_i syö-dä   usein jäätelö-ä   ].
      Sofia want-3SG   eat-NFIN often ice.cream-PAR
      'Sofia wants to eat ice cream often.'   [Finnish; Koskinen 1998: 240; KP 8.11]

(49) Je_i veux [_TP PRO_i manger une pomme].
      I   want   eat.NFIN a   apple
      'I want to eat an apple.'   [French; J. Carrier, p.c.]

The above constructions all illustrate that non-finite clauses are verbal in French and Finnish. Besides having a morphological non-finite marker on the verb, we see that the non-finite clause is not an island, as might be expected for a nominalized clause, and its arguments are assigned structural case from verbal functional elements, not from nominal functional elements. Furthermore, nominalized clauses have different behaviour in both Finnish and French. In Finnish, nominalized verbs receive case, as shown in (50), while arguments of French nominalized verbs are marked with *de* (allomorph *du*) (Meinschaefer 2003), as shown in (51).

(50) Pekka näki [Merja-n   nopea-n lähte-misen].
      Pekka saw Merja-GEN fast-GEN leave-N.GEN
      'Pekka saw Merja's fast leaving.'   [Finnish; Brattico and Leinonen 2009: 9]

(51) a. La   fascination   du   livre m'a   surpris.
          SG.DEF.F fascinate.NMLZR of.the book 1SG.ACC.have suprise
          'The fascination of the book surprised me.'   [French; Meinschaefer 2003: 231]

      b. le   regret de Max
          SG.DEF.M regret of Max
          'the regret of Max'   [French; Meinschaefer 2003: 234]

That finiteness appears to be the crucial feature here is particularly noteworthy since the EPP is associated with T, where finiteness features are traditionally theorized to be.

A summary is shown below in Table 2.5. The three predicate-EPP languages, Niuean, Inuktitut, and Irish, all pattern together in allowing non-verbal predicates to raise, but disallowing light verbs and

auxiliaries from raising, as well as lacking verbal non-finite clauses. The two DP-EPP languages, French and Finnish, exhibit the opposite pattern. They allow light verbs and auxiliaries to raise rather than non-verbal predicates, and they have fully productive, subcategorized, verbal non-finite clauses.

	Niuean	Inuktitut	Irish	French	Finnish
EPP Type	vP-predicate	root-predicate	v°-predicate	DP-EPP	DP-EPP
Non-Verbal Predicate Raising	✓	✓	✓	×	×
Light v-Raising	×	×	×	✓	✓
Non-Finite Clauses	×	×	nominalized	✓	✓

Table 2.5: Summary: Verb-Raising Languages

Although the finiteness distinction seems to be correlated with the contrast between predicate- and nominal-sensitive EPP, it cannot explain the distinction between DP-EPP and the nominal-sensitive EPP types that target verbal constituents. Traditionally, contrasts between consistent null subject languages (NSLs) and non-NSLs have been correlated with the presence of rich agreement (Taraldsen 1978), and such analyses can also be extended, to a degree, to the contrast between DP-EPP and D-on-V EPP, since it is the rich agreement which checks the EPP in D-on-V EPP languages. However, it is not quite possible to nail down exactly what constitutes 'rich' agreement, leading, for example, Alexiadou and Anagnostopoulou (1998) to claim that the agreement morphemes which are able to check the EPP have an underlying lexical [D] specification that is only imperfectly reflected in the morphology.

In French, most of the agreement distinctions have been lost due to apocope, although they are still represented orthographically, leading many researchers, such as Roberts (2010b), to conclude that French lacks sufficient agreement features for a D-on-V type of EPP. This is shown in the table below.

	Orthography	**Pronunciation**
1SG	dors	/dɔʀ/
2SG	dors	/dɔʀ/
3SG	dort	/dɔʀ/
1PL	dormons	/dɔʀmõ/
2PL	dormez	/dɔʀme/
3PL	dorment	/dɔʀm/

Table 2.6: French Subject-Verb Agreement (adapted from Roberts 2010b: 306-307)

Why the agreement features in Finnish are too defective to check the EPP is more difficult to explain. In Finnish, null subjects are licensed only in restricted contexts (Holmberg 2005), suggesting that the

nominal features on the verb are defective, although every person and number combination is consistently marked. If Goodall (2001) is right about Spanish having a DP-EPP, as I suggest in Chapter 4, then this problem exists for Spanish, as well.

However, there does seem to be at least a one-way condition here. Rich agreement is a *necessary but not sufficient* condition for a D-on-V EPP type. This is reflected by how the loss of rich inflection can possibly act as a trigger for a change in EPP type. For example, Swedish (Falk 1993) seems to have lost its rich inflection and subsequently changed EPP type (see Section 4.2 for more detail). Likewise, Arabic alternates between two EPP types with different agreement properties, as discussed in Section 2.2.1.1. The question that remains, then, is that if rich agreement is a necessary but not sufficient condition for a D-on-V EPP type, what are the remaining conditions?

2.1.4 An Alternative Typology: Biberauer (2010)

Biberauer (2010) proposes an entirely different typology of EPP-checking. For Biberauer, T always agrees with both a D and a V. For her, what varies is whether these features are strong (triggering movement) or weak (agreeing at a distance); if a feature is strong, a further point of variation is how the movement is realized (i.e., whether it pied-pipes anything). Thus, Biberauer has the V-movement and the D-movement parameters operating independently from each other. If either of these features is strong in a particular language, the resulting movement could cause head or phrasal movement to occur, or even, when both the [D] and [V] features are strong (e.g., (e) in Table 2.7), the head movement of a verb bearing a [D] feature. The resulting possible language types are shown in Table 2.7.

	weak V	V°	VP
weak D	(a) *unattested* no movement	(b) *Celtic*[20] V-to-T	(c) *Niuean* vP to spec,TP
D°	(d) *unattested* D-to-T	(e) *NSLs* V_D-to-T	(f) *Malagasy* D-to-T vP to spec,TP
DP	(g) *English* DP to spec,TP	(h) *French* DP to spec,TP V-to-T	(i) *unattested* DP to spec,TP vP to spec,TP

Table 2.7: Biberauer's (2010) Typology of EPP Types

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[20]Except Breton.

Note that the language types predicted by the typology I propose in Table 2.1 are also included in this typology. Setting aside the pied-piping options, the DP-EPP is represented by (g), the D-on-V EPP by (e),[21] and the predicate-sensitive EPP by (b) and (c). However, five other language types, two that she claims are attested (f and h) and three unattested (a, d, and i), are also predicted by this typology. It is unclear why (a) may not exist in this typology, but it is predicted to be impossible in my approach, where the EPP is posited to be universal. Biberauer proposes that (d) could be unattested because it is always realized as (e), with V_D-to-T movement. In this case, however, (f) should be unattested as well, as it also makes use of D-to-T movement, but in an even more complicated fashion. However, as discussed below, Biberauer suggests that Malagasy N-bonding, whereby a determiner or other D-element appears attached to the verb, is an example of D-to-T movement. Finally, Biberauer does not posit (i), but it could exist under a theory with multiple specifiers.[22]

On the one hand, this typology allows for the logical possibility that some languages might have multiple kinds of EPP movement in the same clause (e.g., e, f, h, and i). Of these, (i) is already unattested, and (e) results in only one movement, and so isn't necessarily a multiple-EPP language. This leaves French and Malagasy, both of which I will consider in turn below. On the other hand, the typology also allows for the logical possibility that some languages might have no EPP-triggered movement at all. Again, this is unattested.

French patterns with D-prominent languages according to Davies and Dubinsky's criteria, as discussed in Section 2.1.1.1, and has an expletive *il*, shown in (52), both of which indicate that French has a DP-EPP.

(52)   Il est arrivé   trois filles.
        it is   arrived three girls
        'There have arrived three girls.'   [French; Burzio 1986: 85]

French also has V-to-T movement; the verb appears before negation (53-a), adverbs (53-b), and floating quantifiers (53-c), and the lexical verb raises to C in question formation (53-d). Thus, the EPP could

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[21]Note that both (e) and (h) are possible accounts of the Romance-type of *pro*-drop (depending on the theory of *pro*), although only (h) could explain French. Note furthermore that there is evidence that not all NSLs share a uniform EPP type, as discussed in Chapter 4.

[22]Many thanks to Daniel Currie Hall for suggesting this.

also be arguably checked by V-to-T movement in French.

(53)   a.   Jean (n') aime   pas Marie.
               John NEG like.3SG.PRES not Mary
               'John doesn't like Mary.'

        b.   Jean embrasse   souvent Marie.
               John kiss.3SG.PRES often   Mary
               'John often kisses Mary.'

        c.   Mes   amis   aiment   tous   Marie.
               my.PL friend.M.PL like.3PL.PRES all.M.PL Mary
               'My friends all like Mary.'

        d.   Aime-   t-   il   Marie?
               like.3SG.PRES- EXPL- 3SG.M Mary
               'Does he like Mary?'   [French; Pollock 1989: 367]

At first glance, then, it appears that French may have the EPP checked twice, by verb-raising and by a DP subject, supporting Biberauer's (2010) typology. However, as discussed in Section 2.1.3, verb raising can occur independently of the EPP. In the case of French, there is not rich agreement, and so arguably there is no [D] feature on V to check the EPP. Functional verbal heads can raise, but not non-verbal predicates, indicating that it does not have predicate-sensitive EPP. In addition, one of the criteria of EPP movement is that the movement must occur in clauses of all types, including non-finite clauses, as discussed in Section 1.5.2. However, V-to-T movement does not occur in non-finite clauses in French, as shown in (54), since the lexical verb must appear after negation.

(54)   a.   Ne   pas posséder de voiture
               NEG not own.NFIN a   car
               'Not owning a car...'   [French; Pollock 1989: 374]

        b. *Ne   posséder pas de voiture
               NEG own.NFIN not a   car
               'Not owning a car...'   [French; M. Prevost and J. Carrier, p.c.]

We can conclude that French has only a DP-EPP, and V-to-T movement in French is triggered by a tense feature, not by the EPP.

Malagasy, as well, has two types of movement which, on the surface, are candidates for EPP-checking: predicate fronting and D-to-T movement. Malagasy is a VOS word order language. It has a complicated

voice system, with each voice triggering different morphology on the verb, but in all cases the subject or

topic appears (in boldface) in clause final position.

(55)   a.   *Actor Topic*

        [Manasa   ny   lamba amin- 'ny savony] **ny lehilahy**.
        pres.AT.wash DET clothes with- DET soap   DET man
        'The man washes the clothes with soap.'

    b.   *Theme Topic*

        [Sasan- 'ny lehilahy amin- 'ny savony] **ny lamba**.
        TT.wash- DET man   with- DET soap   DET clothes
        'The clothes are washed with the soap by the man.'

    c.   *Circumstantial Topic*

        [Anasan- 'ny lehilahy ny   lamba] **ny savony**.
        CT.wash- DET man   DET clothes DET soap
        'The man washes the clothes with the soap.'

        (Lit. 'The soap is washed-with the clothes by the man.')

                                                        [Malagasy; Travis 2006b: 132]

Travis (2006b) argues that the VOS word order is derived by means of predicate fronting, similar to

the movement which checks the EPP in Niuean (Massam and Smallwood 1997, Massam 2000, 2001), as

discussed in Section 2.1.2.

Travis also argues on the basis of examples such as (56) that there is D-to-T movement in Malagasy.

Either a determiner (a), a pronoun (b), or a proper name (c) can undergo a process of N-bonding

(Keenan 2000). Travis argues that these morphophonological effects are the result of syntactic D-to-T

movement.

(56)   a.   [Hitan- **'ny** lehilahy] ny   trano.
        TT.see- DET man   DET house
        'The house was seen by the man.'

    b.   [Hitan**ao**] ny   trano.
        TT.see-2SG DET house
        'The house was seen by you.'

    c.   [Hitan- **dRabe**] ny   trano.
        TT.see- Rabe   DET house
        'The house was seen by Rabe.'   [Malagasy; Travis 2006b: 136]

If we combine the two movements, we can represent a sentence like (55-b) with a structure like the one in (57).

(57)

```
                                    XP
                       ┌─────────────┴──────────────┐
                      TP                              │
               ┌──────┴──────┐                ┌──────┴──────┐
               T            vP                X            YP
          ┌────┴────┐   ┌────┴────┐                    ┌────┴────┐
        T+v+V      D   DP         │                  DPᵢ      ┌──┴──┐
        ┌──┐       ny ┌──┴──┐   <v>    VP              ┌─┴─┐  Y  <TP>
       Sasan'  'the' <D>  NP       ┌────┴────┐        ny lamba
       'wash'           lehilahy  proᵢ    ┌──┴──┐    'the clothes'
                         'man'          <V>    PP
                                           ┌────┴────┐
                                          amin'ny savony
                                          'with the soap'
```
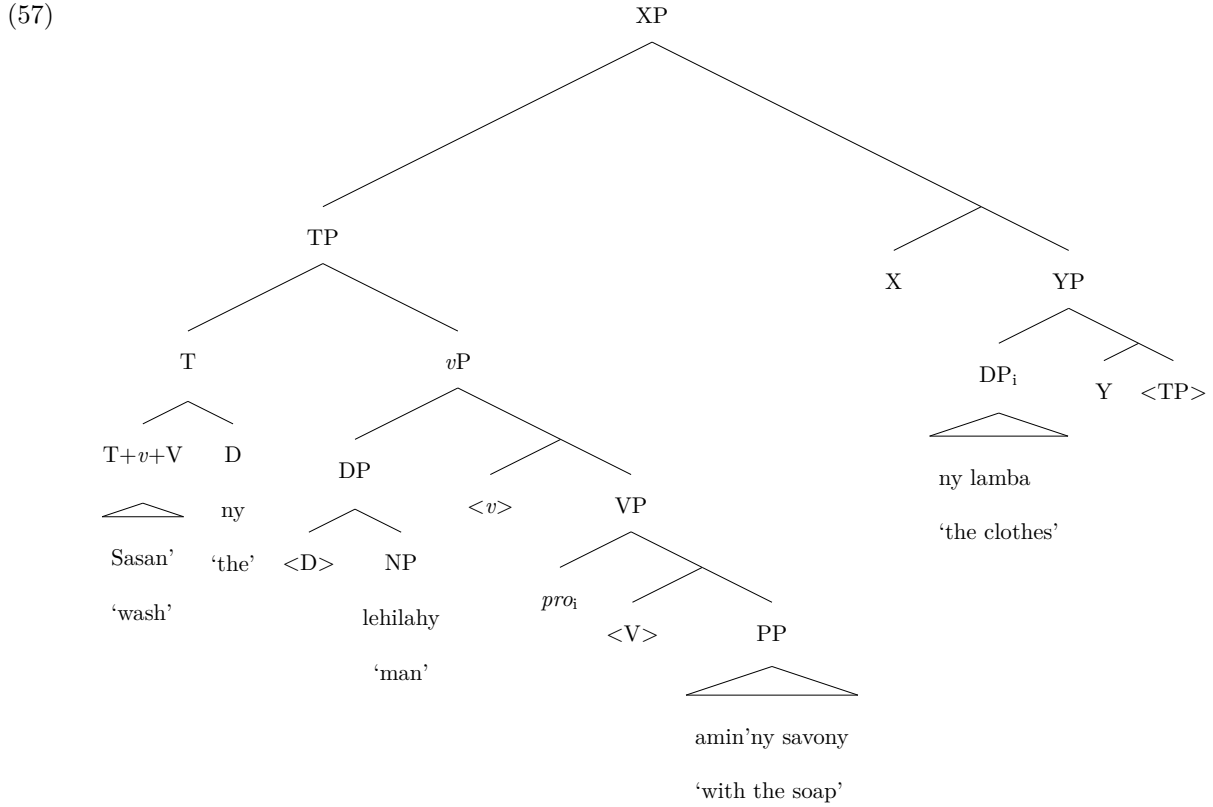
Both D-to-T movement and predicate fronting appear to involve the obligatory movement of some element to the domain of T, and so are likely candidates for EPP-checking operations. However, upon closer inspection, D-to-T movement in Malagasy does not seem to check the EPP. First, it is not limited to verbs in the T position. For example, it occurs with a preposition in (55-a) and (55-b). Second, it is not obligatory in every instance of T, as it does not occur with T in the Actor Topic Voice (see (55-a)). In fact, it may not be a syntactic process at all, since it must always result in vacuous movement, maintaining the same word order (Travis 2006b), and it is not iterative, but instead only able to move once (Travis 2006b). These latter two facts suggest that D-to-T movement may be morphophonological rather than syntactic, occurring after spell-out. Thus, although Biberauer (2010) posits that in Malagasy, the EPP might be checked through both predicate fronting and D-to-T movement, it appears that, rather, the EPP is only checked through a single movement operation: predicate fronting.

Thus, in languages which appear to simultaneously exhibit more than one type of movement which may check the EPP (such as French and Malagasy), only one is EPP-related. This supports a typology where the different EPP types are in complementary distribution, rather than one like Biberauer's, where the different types operate independently.

If we return to Table 2.7, repeated below with some modification as Table 2.8, we see that, once we move Malagasy and French to their correct cells, over half of the language types Biberauer predicted seem to be unattested. The four that remain are exactly those which are predicted by my typology (without pied-piping).

	weak V	V°	VP
weak D	(a) *unattested* no movement	(b) *Celtic*[23] V-to-T	(c) *Niuean, Malagasy* vP to spec,TP
D°	(d) *unattested* D-to-T	(e) *NSLs* V$_D$-to-T	(f) ~~*Malagasy*~~ D-to-T vP to spec,TP
DP	(g) *English, French* DP to spec,TP	(h) ~~*French*~~ DP to spec,TP V-to-T	(i) *unattested* DP to spec,TP vP to spec,TP

Table 2.8: Biberauer's (2010) Typology of EPP Types, Modified

2.2 Alternations in EPP Type

In this section, I show several examples of intra-linguistic alternations between the various EPP types I described above. That the various types alternate with one another indicates that they are indeed functional equivalents. I begin, in section 2.2.1, by demonstrating how Arabic and Afrikaans both exhibit systematic, synchronic intra-linguistic alternations. Next, in section 2.2.2, I discuss several constructions in which the EPP type of a language alternates, albeit in a limited context. Finally, in section 2.2.3, I discuss logically possible alternations in EPP type which appear to be missing. In this section, I discuss primarily synchronic alternations, however, diachronic alternations in EPP type have also been found, and provide similar evidence. For example, Biberauer and Roberts (2005) demonstrate that English lost the pied-piping option in the late Middle English period, a diachronic alternation mirroring the synchronic alternation attested in Afrikaans and discussed in Section 2.2.1.2. Some further

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[23]Except Breton.

diachronic alternations are also discussed in Section 4.2.

I assume that alternations occur because some languages have more than one T° in their lexicon, with different feature specifications (see also Adger 2006). Furthermore, I assume that it is also possible for there to be different subcategorization dependencies between the different flavours of T and other functional heads in a particular languages. Thus, the choice of a C head with certain feature specifications may trigger the choice of a particular T head, which, in turn may have its own subcategorization requirements. Thus, an alternation in EPP type may be correlated with a systematic structural difference in some cases.

2.2.1 Systematic Synchronic Alternations

2.2.1.1 Arabic

There are two different word orders in Arabic, each with two different agreement patterns. In Doner (2012), I argued that each of these different word orders results from a different EPP-checking type.

Aoun, Benmamoun, and Choueiri (2010) argue that the VSO word order, shown in (58), is derived by raising the verb to F°, a position between C° and T°, passing over the subject in the specifier of TP.

(58) Mša   dāk l-ʕabd   ʕndha.
     went-he that the-slave to-her
     'The slave went to her.'   [Standard Arabic; Brustad 2000: 316]

The VSO word order exhibits only partial subject-verb agreement. For human subjects denoted by a full DP, the verb will agree only in gender, surfacing in the singular form regardless of the subject's number features, as shown in (59).[24]

(59) a.   ʔakala   l-muʕallim-uun.
          ate.3M.SG the-teacher-M.PL.NOM

     b. *ʔakal-uu   l-muʕallim-uun.
          ate-3M.PL the-teacher-M.PL.NOM
          'The teachers ate.'   [Standard Arabic; Aoun et al. 2010: 76]

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[24]The agreement patterns are quite complex, depending on several factors (see Aoun, Benmamoun, and Sportiche 1994, Aoun et al. 2010, Brustad 2000, and Holes 2004). What is important to note is that there is not consistent, rich agreement, and thus, the agreement is insufficient for the purposes of checking the EPP.

Subject expletives are possible in this word order, and appear in the specifier of TP, as shown in (60).

(60)   a.   Kaana   hunaaka Taalib-un   fii l-ḥadiiqati.
was.3M.SG there   student-NOM in the-garden
'There was a student in the garden.'   [Standard Arabic; Aoun et al. 2010: 70]

b.
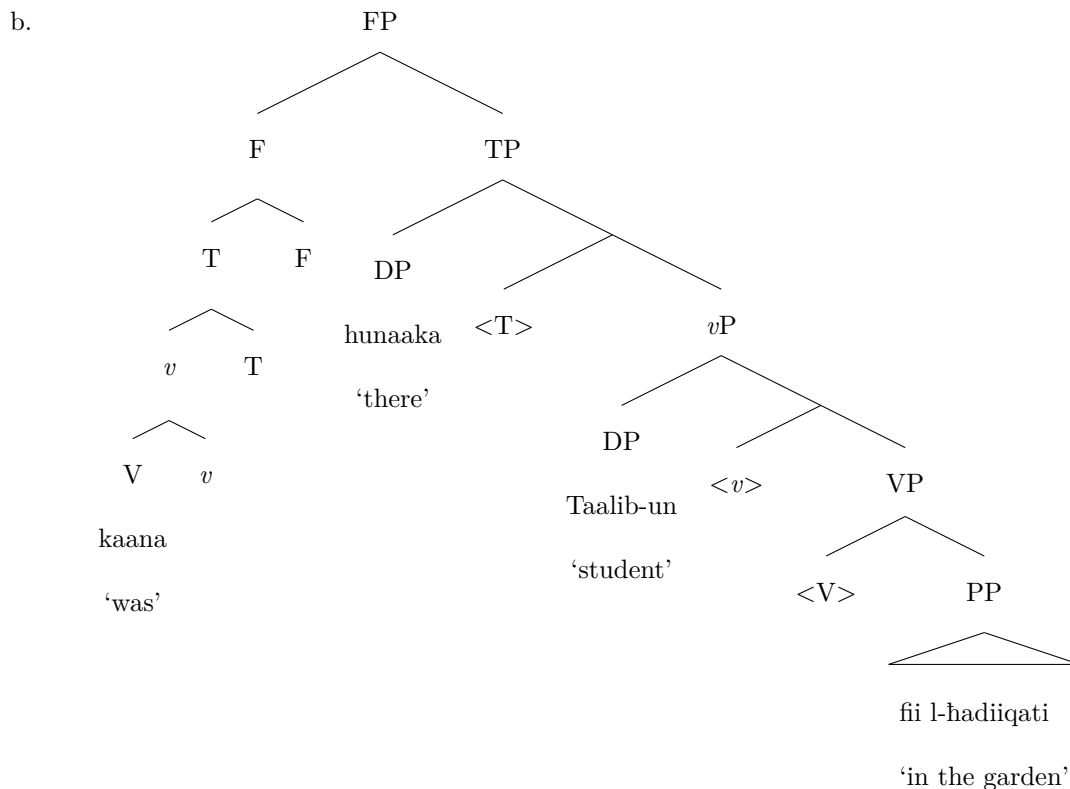
Together, these facts provide two reasons to conclude that the EPP is checked by a phrasal nominal element in Arabic VSO clauses. First, expletives, which are often associated with DP-EPP, are available in this word order. Second, agreement is impoverished, so even if the verb were local to T, there is no reason to propose that it bears a D-feature that could check the EPP. Third, although Arabic has verb-raising, raising targets functional verbal material, rather than predicates, as shown in (60-a), where the copula *kaana* raises. Thus, we can conclude that the EPP is satisfied by a DP in the specifier of TP in the VSO word order in Arabic.

On the other hand, the SVO word order of Arabic appears to have a D°-EPP. First, agreement is much richer. Unlike post-verbal subjects, shown above in (59), pre-verbal human subjects always agree fully, in person, number, and gender (Aoun et al. 1994, Aoun et al. 2010, Brustad 2000, Holes 2004), as

shown in (61).

(61)   a.   L-muʕallim-uun   ʔakal-uu.
             the-teacher-M.PL.NOM ate-3M.PL

        b.   *L-muʕallim-uun   ʔakala.
             the-teacher-M.PL.NOM ate.3M.SG
             'The teachers ate.'   [Standard Arabic; Aoun et al. 2010: 76]

Arabic also allows null subjects in some contexts. These follow the same rich agreement patterns as the

SVO word order, as shown in (62), below.

(62)   a.   Ya-drus-uun.
             3-study-M.PL
             'They study.'

        b.   Ya-drus-na.
             3-study-F.PL
             'They study.'   [Standard Arabic; Aoun et al. 2010: 59]

Thus, the SVO word order has much in common with D°-EPP languages, including a topic-like meaning

attributed to pre-verbal subjects (Holes 2004, Aoun et al. 2010), rich inflection, the optionality of overt

subjects, and a lack of expletives, as expletives only appear post-verbally. As such, I propose that the

SVO word order and the null-subject clauses both have a D°-EPP.

Arabic alternates between a DP-EPP in the VSO word order and a D°-EPP in the SVO word order,

suggesting that they are both varieties of the same rule. In Arabic, the choice of EPP type seems to be

related to discourse factors. According to Brustad (2000), the VSO order is primary in Arabic, based on

prominent VSO word order in narratives, where the topic is more likely to remain constant from sentence

to sentence, and based on typological patterns that are frequently associated with verb-initial languages,

such as left-headedness for a variety of word categories and default VS word order in embedded relative

clauses. On the other hand, the SVO order is used most commonly to provide additional information

about specific entities involved in the event (Holes 2004). I assume that there are two different T heads

in the Arabic lexicon, each with different EPP properties, and that the two different word orders are

caused by functional elements in the left periphery which have different selectional properties, selecting

for one or the other T head. Recall, as discussed in Section 2.1.1.2, that I assume that D-on-V EPP is parasitic on independent V-to-T raising and subject agreement processes, based on the alternation in the Italian subjunctive.

2.2.1.2 Afrikaans

As discussed earlier, in section 2.1.1.3, the EPP in Afrikaans is normally checked by a DP in the specifier of vP, through pied-piping of the entire vP. In this section, I show how the pied-piping variety freely alternates with a non-pied-piping variety.

Modern Spoken Afrikaans allows the word order alternation shown in (63). While having the auxiliary in clause-final position (63-a) is prescriptively correct, native speakers accept and produce the word order in (63-b) as an alternative with no interpretive difference (Biberauer and Richards 2006, Biberauer 2010).

(63)   a.   Ek weet dat sy   dikwels Chopin gespeel **het**.
              I   know that she often   Chopin played has

        b.   Ek weet dat sy   **het** dikwels Chopin gespeel.
              I   know that she has often   Chopin played
              'I know that she often played Chopin.'   [Afrikaans; Biberauer 2010: 171]

Biberauer argues that this word order alternation occurs because different sized constituents raise to the specifier of T in (63-a) and (63-b). In (63-a), the entire vP raises, as shown in the tree in (64-a), while in (63-b), only the subject DP *sy* 'she' raises, as shown in the tree in (64-b). In either case, the phrase that moves raises over the auxiliary in T°, landing in its specifier.

(64)　a.

```
                        CP
                   /         \
                 dat          TP
                          /        \
                        vP          \
                     /     \       het  <vP>
                   DP       \
                    |    v   <VP,VP>
                   sy       /      \
                       dikwels     VP
                              /        \
                            DP        gespeel
                             |
                          Chopin
```

　b.

```
                  CP
               /      \
             dat       TP
                    /       \
                  DP         \
                   |    het   vP
                  sy       /      \
                        <DP>       \
                            v    <VP,VP>
                                 /       \
                             dikwels     VP
                                     /       \
                                 Chopin    gespeel
```
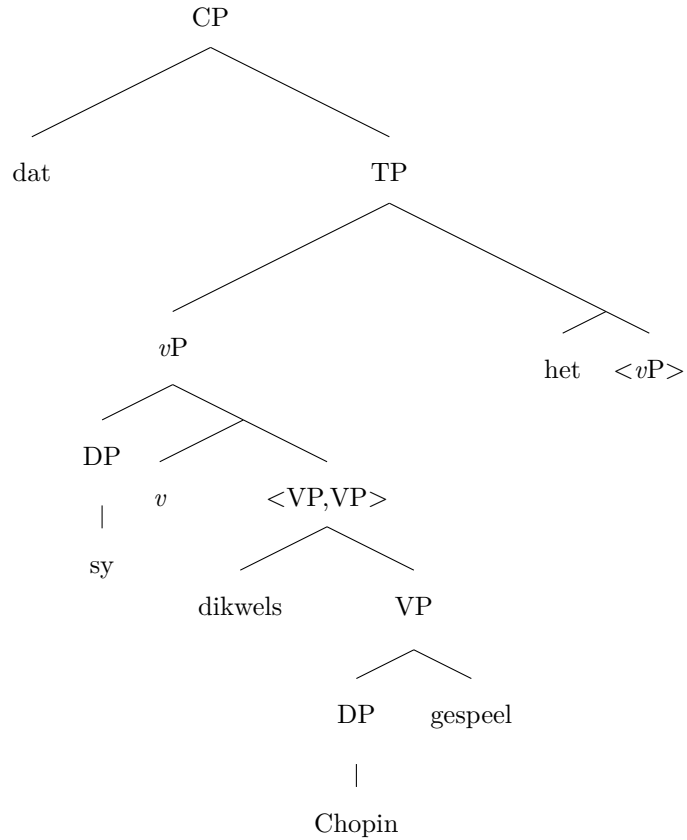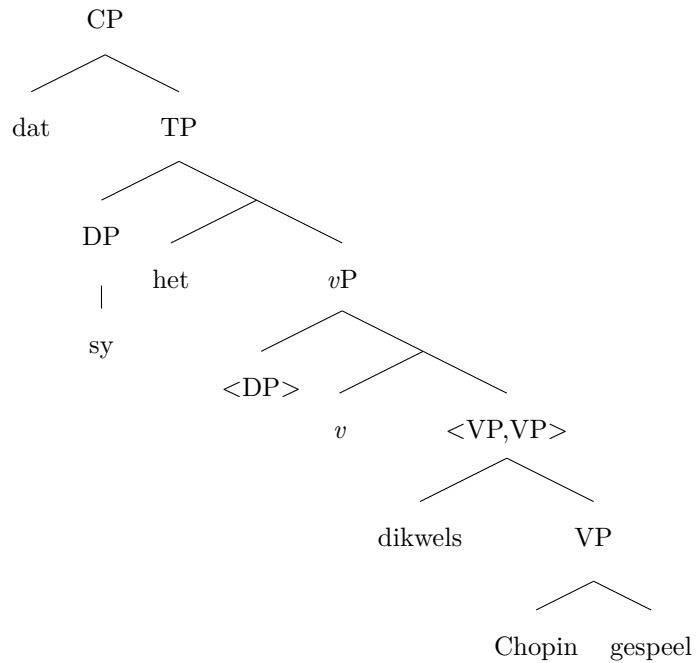
The word order alternation is only possible with auxiliaries, however (Biberauer 2010). Main verbs such as *speel* 'play' must appear clause finally (65-a); the word order in the embedded clause of (65-b)

can only be interpreted as a V2 matrix clause (Biberauer 2010). This is because, since main verbs do not raise, the word order alternation shown in (63)-(64) is vacuous without an auxiliary in T.

(65) a. Ek weet dat sy dikwels Chopin speel.
          I   know that she often   Chopin play

      b. %Ek weet dat sy speel dikwels Chopin.
          I   know that she play often   Chopin
         'I know that she often plays Chopin.'   [Afrikaans; Biberauer 2010: 171]

In Afrikaans, just as in English, lexical verbs do not raise to T (Biberauer 2003, 2009, Vikner 2001, 2005), leaving T empty when there is no auxiliary. Both *v*P- and DP-raising are vacuous when T is empty, causing no difference in word order. On the other hand, since auxiliaries are either merged in or move to T, there is a difference in word order in constructions with auxiliaries.

Biberauer analyzes Afrikaans as having the same type of EPP as English does, with a T bearing a strong [D] feature, and a weak [V] feature. She argues that, in the cases where the entire *v*P raises, T is still probing for [D], and pied-pipes the entire *v*P. Thus, we see an alternation in Afrikaans between an EPP which triggers pied-piping of the entire *v*P and an EPP which does not. Both EPP varieties, however, are satisfied by phrasal movement of an element with nominal features.

2.2.2 Marginal Synchronic Alternations

Alongside the systematic alternations presented above, in Section 2.2.1, there are also cases where there are more minor alternations in EPP type, that occur in quite restricted contexts. Five such alternations are discussed in this section: (a) a null event argument in Hungarian, (b) locative inversion in English, (c) referential adverbs in Finnish, (d) an obligatory pronoun in Italian, and (e) noun roots in Inuktitut.

2.2.2.1 Null Event Arguments in Hungarian

At first glance, Hungarian appears to employ free word order. Either the internal or the external argument may appear in initial position in the clause, or the clause can even be verb-initial, as shown in (66).

(66)   a.   János   meghívta Marit   vacsorára.
                John.NOM invited   Mary.ACC for.dinner

         b.   Marit   meghívta János   vacsorára.
                Mary.ACC invited   John.NOM for.dinner

         c.   Meghívta János   Marit   vacsorára.
                invited   John.NOM Mary.ACC for.dinner
                'John invited Mary for dinner.'   [Hungarian; É. Kiss 2002: 113]

However, É. Kiss (2002) notes that only eventive structures allow verb-initial orders, as shown in (67)-

(68).

(67)   a.   A diákok   utálnak két tantárgyat.
                the students.NOM hate   two subjects.ACC

         b.   Két tantárgyat   utálnak a   diákok
                two subjects.ACC hate   the students

         c. ??Utálnak a   diákok   két tantárgyat
                hate   the students two subjects.ACC
                'The students hate two subjects.'   [Hungarian; É. Kiss 2002: 113]

(68)   a.   János kékszemû volt.
                John blue.eyed was

         b. ??Kékszemû volt János.
                blue.eyed was John
                'John had blue eyes.'   [Hungarian; É. Kiss 2002: 113]

This also causes ambiguity in examples such as (69). When the clause is verb-initial, as in (69-a), it

must receive an eventive interpretation. However, if some element raises to preverbal position, whether

the subject, as in (69-b), or some spatiotemporal element, as in (69-c), the sentence is ambiguous, and

can have an eventive or habitual/kind reading.

(69)   a.   Költöznek a   gólyák.
                migrate   the storks
                'The storks are migrating.'

         b.   A   gólyák költöznek.
                the storks migrate
                'Storks migrate.' or 'The storks are migrating.'

     c.   Szeptemberben költöznek a   gólyák.
           September.in   migrate   the storks
           'Storks migrate in September.' or 'In September, the storks are migrating.'

[Hungarian; É. Kiss 2002: 114]

É. Kiss (2002) explains these facts by arguing that the event argument in eventive structures may also check the EPP, alongside topics and spatiotemporal elements. É. Kiss (2002: 114) proposes that, in contrast to stative verbs, "eventive verbs [...] have an event argument serving for spatiotemporal specification, typically represented by a variable bound by an invisible existential quantifier." Thus, in (69-a), where there is nothing in preverbal position, the only possible structure is for the null event argument to have checked the EPP, resulting in a verb-initial structure. In (69-b-c), when some other element is in preverbal position and able to check the EPP, both the eventive and habitual interpretations are possible, since the event argument is not needed to check the EPP. In fact, É. Kiss (2002) proposes spatiotemporal expressions like that in (69-c) are in fact licensed by the event variable, functioning as a restriction on it.

    É. Kiss (2002) also notes that Greek displays similar properties, noting that Alexiadou and Anagnostopoulou (1998: 495) indicate that "postverbal subjects occur with all eventive predicates," as illustrated in (70).

(70)   a.   Efige o Petros.
           left   Peter
           'Peter left.'

        b.   Epekse o Petros.
           played   Peter
           'Peter played.'

        c.   Ektise i Maria to spiti.
           built   Mary   house
           'Mary built the house.'   [Greek; Alexiadou and Anagnostopoulou 1998: 495]

In Chapter 3, I suggest that predicates might be able to check the EPP by means of their event argument. In that case, this alternation could be considered a case of predicate-EPP alternating with argument-EPP.

2.2.2.2   Locative Inversion in English

The EPP can be checked by locative PPs in English light locative inversion constructions such as
(71), where the PP targets spec,IP (Culicover and Levine 2001, Bruno 2016).[25]

(71)   Into the room walks Robin.

Bruno (2016) argues for three different types of locative preposing, as exemplified in (72) and described
in Table 2.9. Light inversion is the only instance of true inversion and is the one that is relevant here.

(72)   a.   *Locative Topicalization*

              Into the room, Robin walked.

         b.   *Heavy Locative Inversion*

              Into the room, walked (carefully), a very large caterpillar.

         c.   *Light Locative Inversion*

              Into the room walked Robin.   [Bruno 2016: 1-2]

	Characteristics	**Structure**
Locative Topicalization (72-a)	The locative is fronted with no other word order changes.	PP_{loc} moves directly to spec,CP via A'-movement.
Heavy Locative Inversion (72-b)	Subject-verb inversion. Heavy subject. Distinctive intonational contour.	PP_{loc} moves directly to spec,CP via A'-movement. Heavy NP-shift of the subject.
Light Locative Inversion (72-c)	Subject-verb inversion. Light subject.	A-movement to spec,IP for EPP followed by A'-movement to spec,CP.

Table 2.9: Three Kinds of Locative Preposing (Bruno 2016)

According to Bruno (2016), the locative PP in light inversion structures involves raising the PP first
to the specifier of IP to check the EPP, followed by A'-movement to the specifier of CP. The case of the
thematic subject is checked long-distance. Thus, the example in (71) would be structured as in (73).

---

[25]According to Bruno (2016), Culicover and Levine argue for the distinction between heavy and light inversion, proposing
that the locative PP targets the specifier of IP in the latter. Bruno builds on their proposal, by arguing that the locative
PP moves again to spec,CP afterwards, on the basis of incompatibility of light inversion with either wh-movement or
focus-fronting.

(73)

walked Robin <into the room>.
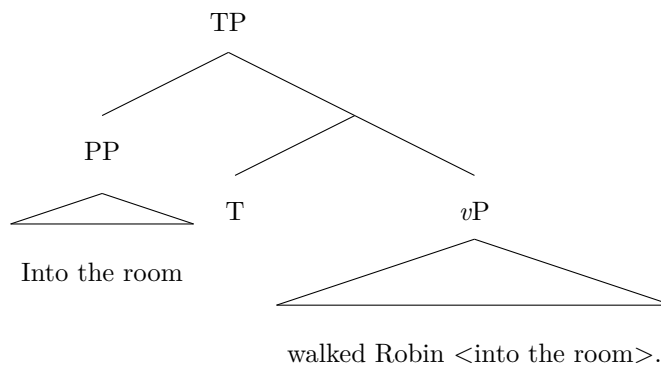
Culicover and Levine (2001) and Bruno (2016) provide the following two pieces of evidence that the PP occupies the specifier of TP at some point in the derivation, while the thematic subject stays in its base position. First, the sentences in (74) provide evidence that the subject-verb inversion in light inversion structures is due to the locative PP raising to spec,IP in place of the subject in the embedded clause. If, for example, inversion was derived by T-to-C movement, we would expect to see subject-verb inversion in the main clause, contrary to fact, as shown in the examples in (74) and the structure in (75). The grammaticality of (73-c) is predicted under Bruno's analysis, as shown in (74). The locative PP first moves to spec,IP for the EPP, followed by A'-movement to the specifier of the embedded CP. At this point, it is free to undergo successive-cyclic movement to the specifier of the matrix CP. There is no subject-verb inversion in the matrix clause because the PP does not stop in the specifier of IP; in fact, it cannot, as that would involve movement from an A'-position to an A-position. Instead, the main clause subject occupies the specifier of IP, creating SV order.

(74)   a.   *Into the room think I (that) John went.

        b.   *Into the room think I (that) went John.

        c.   Into the room, I think went John.   [Bruno 2016: 7]

(75)   [$_{CP}$ [$_{PP}$ Into the room] [C [$_{TP}$ I [T° [think [CP t_{PP} [C [$_{TP}$ t_{PP} [T [went John t_{PP}]]]]]]]]]]

                                                                                   [Bruno 2016: 8]

Furthermore, quantifier stranding is impossible in light inversion structures, as shown in (76), demonstrating that the subject has not moved, but is still in its base position.

(76) *Into the cafeteria have both gone the students. [Culicover and Levine 2001: 301]

This is in contrast to the heavy locative inversion structures, which are derived by topicalizing the PP and moving the subject by means of heavy NP shift. In the heavy locative inversion structures, quantifier float is possible, as shown in (77).

(77) Into the cafeteria have BOTH gone, the students that I was telling you about.

[Culicover and Levine 2001: 301]

Since the locative PP in light locative inversion raises instead of the subject, we can conclude that it checks the EPP in place of the subject, as well.

Furthermore, the preposed locative PPs in these cases do not display nominal properties, unlike the other non-nominal subjects discussed by Davies and Dubinsky (2001), indicating that this is a true EPP-type alternation.

For example, agreement is controlled by the postverbal subject. Thus, conjoined locative PPs do not trigger plural agreement, as shown in (78-a), although a plural post-verbal subject does (78-b).

(78) a. Into the building and down the hall strolls/*stroll Robin.

b. Into the building stroll/*strolls the sidekicks.

The locative PPs are also unable to license emphatic reflexives, as shown in (79).[26]

(79) a. *[Through the streets]$_i$ itself$_i$ walked Robin.

b. *[Into the building and down the hall]$_i$ themselves$_i$ strolls Robin.

Plural adverbs do appear to be licensed, as shown in (80-a); however, this ability is not limited to when the conjoined PP is inverted (80), suggesting that this property is independent of EPP-checking.

(80) a. Through the busy thoroughfares and into dark alleys strolled Robin equally.

b. Robin strolled through the busy thoroughfares and into dark alleys equally.

---

[26]Note that there is intentional number mismatch in these examples between the anaphor and the complement of the preposition, to force the anaphor to corefer with the PP rather than the DP.

Subject-to-subject raising is impossible with EPP-checking locatives, as shown in (81).

(81)   *Into the room appeared to be walking Robin slowly.   [Culicover and Levine 2001: 288]

The final property discussed by Davies and Dubinsky (2001) is that locative subjects are extraction islands. Extraction is also not possible in light locative inversion, as shown in (82).

(82)   *What_i did [_PP into t_i] walk Robin?

This is, however, independently predicted to be impossible in this case, since, under Bruno's (2016) analysis, the locative PP is already in the specifier of CP, and therefore already occupies the site that the *wh*-word would move to.

Another interesting property of light inversion structures that Bruno (2016) notes is that only argument PPs can undergo locative inversion; adjunct PPs are banned, as shown below.

(83)   a.   Into her house danced Mary.

       b. *In her house danced Mary.   [Bruno 2016: 9]

(84)   a.   On the porch were sitting three men.

       b. *On the porch were reading three men.   [Bruno 2016: 9]

In (83-a), *into her house* is a goal argument of *dance*, but in (83-b), *in her house* is not an argument. Likewise, in (84-a), *sit* takes a location argument, in this case, *on the porch*, while the verb *read* does not take a location argument, and the same PP is instead an adjunct. In both examples, only the argument is able to invert; inverting the adjunct results in ungrammaticality.

2.2.2.3   Referential Adverbs in Finnish

In the canonical case, the EPP in Finnish is checked by the raising of a DP, much like in English (Holmberg 2005, Doner 2015), as shown in (85).

(85)   Minä   kerro-n sinu-lle jonkun   tarina-n.
       1SG.NOM tell-1SG you-ALL some.GEN story-GEN
       'I'll tell you a/some story.'   [Finnish; Koskinen 1998: 47]

However, in some cases, the EPP can also be checked in Finnish by referential adverbs (Holmberg 2005), that is, adverbs denoting a time or a place. Many adverbials in Finnish are case-marked, and so presumably bear nominal features. However, temporal adverbials such as *nyt* 'now,' *nykyään* 'nowadays,' and *eilen* 'yesterday' do not bear overt case morphology. It is these latter adverbs that I will be discussing here.

In (86), we see that raising of the adverb *nykyään* 'nowadays' is in complementary distribution with raising a DP which could otherwise check the EPP, indicating that the adverb is indeed a legitimate EPP-checker in Finnish. In (86-a), raising the adverb checks the EPP, while in (86-b) the DP *avaimella* 'with a key' is raised instead. Finally, (86-c) shows that both cannot raise simultaneously, while (86-d) shows that at least one of the two must raise.

(86)   a.   Nykyjään avaat   ovet   avaimella.
            nowadays open.2SG door.PL key.ADE

       b.   Avaimella avaat   nykyjään ovet.
            key.ADE   open.2SG nowadays door.PL

       c.   *Nykyjään avaimella avaat   ovet.
            nowadays key.ADE   open.2SG door.PL

       d.   ?Avaat   nykyjään ovet   avaimella.
            open.2SG nowadays door.PL key.ADE
            'Nowadays, one opens doors with a key.'   [Finnish]

That this phenomenon is limited to referential adverbs is shown by minimal pairs such as (87). In (87-a), the referential adverb *nyt* 'now' raises to check the EPP, but in (87-b), the manner adverb *nopeasti* 'quickly' is unable to raise in the same way.

(87)   a.   Nyt meni   hullusti.
            now go.PST.3SG crazily
            'Things went wrong now.'   [Finnish; KP 2.1]

       b.   *Nopeasti meni   hullusti.
            quickly   go.PST.3SG crazily
            'Things quickly went wrong.'   [Finnish]

Thus, there is an alternation in Finnish between raising DPs and referential adverbs to check the EPP.

2.2.2.4 Pronouns in Italian

As is well-known, Italian is a null-subject language (NSL). Barbosa (2011) classifies it as a consistent NSL, as it has rich subject agreement and allows subjects to be dropped freely under the appropriate discourse conditions. This is illustrated in (88).

(88) a. Ha   parlato.
          have.PRES.3SG spoken
          'He has spoken.'

     b. Sono   arrivate   tre   ragazze.
          be.PRES.3PL arrived.3PL.F three girls
          'There have arrived three girls.'   [Italian; Burzio 1986: 85]

     c. (*Ciò) piove.
          this   rain.PRES.3SG
          'It's raining.'   [Italian; Rizzi 1989: 72]

The status of the EPP in Romance null subject languages like Italian is controversial (see, for example, Chapter 4, where I argue that the EPP type and the null subject properties of a language are not necessarily correlated). However, unlike Spanish, for which dozens of papers have been written refuting Alexiadou and Anagnostopoulou's (1998) claims that rich agreement checks the EPP, there does not appear to be much disagreement among Italianists about the status of the EPP in Standard Italian.[27] Thus, it seems reasonable to classify it as D-on-V EPP language, following Alexiadou and Anagnostopoulou (1998).

However, Cardinaletti (2004) points out that in the present subjunctive, the second person singular subjunctive pronoun is obligatory, even if it is recoverable from context.

(89) a. Spero   che *(tu) vinca.
          hope.1SG.PRES that 2SG   win.PRES.SBJ.SG
          'I hope that you win.'

     b. Spera   che *(tu) vinca.
          hope.3SG.PRES that 2SG   win.PRES.SBJ.SG
          'S/he hopes that you win.'   [Italian; M. Ippolito, p.c.]

The first person singular subjunctive pronoun is also preferred; however, grammaticality judgments

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[27]And yet, Italian notoriously exhibits extensive dialectal variation in subject properties. The pattern I describe here, for instance, only occurs in some dialects. It certainly cannot be assumed that all of these dialects share the same EPP properties. See Manzini and Savoia (2002) for some discussion of variation in EPP type among dialects of Italian.

against sentences where it is omitted, such as in (90), are not quite as strong as for the omission of the second person singular, when it is recoverable from context.

(90) a. Speri   che ??(io) vinca.
          hope.2SG.PRES that 1SG   win.PRES.SBJ.SG
          'You hope that I win.'

      b. Spera   che ??(io) vinca.
          hope.3SG.PRES that 1SG   win.PRES.SBJ.SG
          'S/he hopes that I win.'   [Italian; M. Ippolito, p.c.]

In Doner (2012), I proposed that the second person singular pronoun is obligatory in the present subjunctive because the verb is no longer marked with person features. Due to regular sound change, the forms of all three singular subjunctive forms became homophonous in the first conjugation, which in turn led to paradigm levelling in the other conjugations. I proposed that the paradigm levelling is the result of a reanalysis of the feature specifications of the verbs, whereby the person features were lost. Thus, the verb is unable to check the EPP through verb-raising, and the pronoun is required in order to check the EPP. Italian therefore exhibits an alternation between DP-EPP and D-on-V-EPP.

2.2.2.5 Noun Roots in Inuktitut

Most Inuktitut verbs appear in initial position in the verbal complex, as with *nigi* 'eat' in (91-a). For all lexical verbs, a noun cannot precede the verb in the verbal complex (91-b).

(91) a. Pitsi-mik   nigi-vunga.
          dried.fish-MOD eat-INTR.INDIC.1SG

      b. *Pitsi-nigi-vunga.
          dried.fish-eat-INTR.INDIC.1SG
          'I am eating dried fish.'   [Inuktitut (Labrador); Johns 2007: 541]

However, there is a closed class of verbs, such as *tu* 'consume' in (92), which obligatorily incorporate their object, causing the object to be in the initial position of the verbal complex.

(92)   a.   Pitsi-tu-vunga.
              dried.fish-consume-INTR.INDIC.1SG

        b.   *Pitsi-mik   tu-vunga.
              dried.fish-MOD consume-INTR.INDIC.1SG
              'I'm eating dried fish.'   [Inuktitut (Labrador); Johns 2007: 541]

Johns (2007) shows that this closed class of verbs are all semantically light verbs, and do not contain

any root elements.

   As discussed in Section 2.1.2, Johns 2007 proposes that Inuktitut has an EPP-like feature which is

checked by roots; I proposed that this is a predicate-sensitive EPP. This seems to be a case of an EPP

underspecified for syntactic category, as it can be checked by any number of roots, including verbs (91-a)

and nouns (92-a), *wh*-phrases (93-a), proper names (93-b), and even adjectives (93-c), but is specified

as requiring the root that heads the predicate.

(93)   a.   Suna-   tuq-   pin.
              what/something- consume- Q.2SG
              'What are you eating?'   [Inukttitut (Qamani'tuarmiutat); Johns 2007: 560]

        b.   Sherri Lee- ngujaaq- tuq.
              Sherri Lee- look.like- DEC.3SG
              'She looks like Sherri Lee.'   [Inuktitut (Qamani'tuarmiutat); Johns 2007: 560]

        c.   Qakuqtaq- taaq-   tunga.
              white-   get/buy- DEC.1SG
              'I bought something white.'   [Inuktitut (South Baffin); Johns 2007: 561]

Inuktitut, therefore, exhibits an alternation based on the syntactic category of the element which checks

the EPP; however, in every case, it is the root that heads the predicate.

2.2.3 Gaps

   Richards and Biberauer (2005) argue that head pied-piping languages like German are unable to

employ the [-pied-piping] option because such a movement would violate Chomsky's (1995) Chain Uni-

formity Condition, whereby phrases can only undergo phrasal movement. Thus, $v°$ cannot undergo

movement to the specifier of T. On the other hand, specifier pied-piping languages such as Afrikaans

can alternate with the [-pied-piping] option, as discussed in section 2.2.1.2, since, in that case, it is still

phrasal movement.

2.3 Predicates and Arguments

In Section 2.1.2, I showed that there is a class of languages in which the EPP is checked by the predicate, whereas in Section 2.1.1, I showed that there is a class of languages in which the EPP is checked by a nominal element, either a DP or nominal agreement. However, in section 2.2, I also discussed a few cases in which languages that generally have a nominal EPP are also able to be checked by a non-nominal, and demonstrated that the EPP checkers in at least some of these cases are not covert nominals. These include locative inversion structures in English, in Section 2.2.2.2, and referential adverbs in Finnish, in Section 2.2.2.3. In the case of locative inversion, I also demonstrated that the non-nominals that can check the EPP must be arguments (and not adjuncts). The relevant examples are repeated below (cf. (83)-(84)).

(94) a. Into her house danced Mary.

   b. *In her house danced Mary.   [Bruno 2016: 9]

(95) a. On the porch were sitting three men.

   b. *On the porch were reading three men.   [Bruno 2016: 9]

As mentioned in Section 2.2.2.2, the example in (94-a) demonstrates that a goal argument, such as *into her house*, is able to check the EPP, but a location adjunct such as *in her house* in (94-b) is not able to. Likewise, the verb *to sit* takes a location argument, unlike the verb *to read*; thus, the location argument of *sit* is able to undergo locative inversion in (95-a), but not the location in (95-b), which modifies *read*.

On the other hand, although Finnish is broadly classified as a DP-EPP language, nominals in Finnish are unable to check the EPP when they are predicative, in stark contrast to the predicate-EPP languages discussed above. In (96)-(97) below, for example, we see a contrast between the behaviour of *onnettomuus* 'accident' when it is complement to the verb *olla* 'to be' versus complement to the verb *tapahtua* 'to happen.' I assume that this is because it is predicative when complement to the light verb *olla*, but not

when complement to the lexical verb *tapahtua*.

(96) a. Oli onnettomuus.
        be.PST.3SG accident

    b. *Onnettomuus oli.
        accident be.PST.3SG
        'There was an accident.'   [Finnish]

(97) a. Tapahtui onnettomuus.
        happen.PST.3SG accident

    b. Onnettomuus tapahtui.
        accident happen.PST.3SG
        'There was an accident.'   [Finnish]

There are also other nominals that appear alongside light verbs in a predicate-like capacity, and are also unable to front. For example, fronting *kiire* 'hurry' in (98) is ungrammatical.

(98) a. Tuli kiire.
        come.PST.3SG hurry

    b. ?Kiire tuli.
        hurry come.PST.3SG
        'One is in a hurry.' (lit. 'A hurry came.')   [Finnish]

This contrasts with languages like Inuktitut, where the nominal complement of a light verb fronts obligatorily (cf. (26)).

    Likewise, the fronting of objects of weather predicates, such as *sataa* 'to precipitate' are sometimes unable to front. However, even when fronting does occur, it seems likely that it is independent from the EPP, since it is not obligatory (99-a), has a pragmatic effect (99-b), and is dispreferred in embedded contexts (99-c).

(99) a. Sata-a lunta.
        rain-3SG snow.PAR
        'It's snowing.'

    b. Lunta sata-a.
        snow.PAR rain-3SG
        'It's snowing (surprised).'

    c. ?Kuulin   että lunta   sata-a.
       hear.PST.1SG that snow.PAR rain-3SG
       'I heard that it's snowing.'   [Finnish]

These constructions show a clear contrast between predicative DPs and argument DPs—predicates are unable to check the EPP; only arguments are able to do so.

Based on observations such as these, I propose that the two broad categories of EPP type should be classified as *argument* and predicate EPP, rather than as *nominal* and predicate EPP.

However, there are some apparent problems with this analysis; namely, that there are a few elements that can check the EPP which are sometimes argued to be neither predicates nor arguments, including the preverbal nominal in specification copular clauses and expletives. I discuss each of these in turn.

The following is an example of a specificational copular clause. The problematic element is the preverbal nominal, *the murderer*.

(100)   The murderer is John.

I assume, following Heycock (2012) and Romero (2005), that what raises in specificational copular clauses in English is crucially not a predicate. Heycock (2012) argues that they are intensional objects. However, they are arguably not arguments, either.

As for expletives, I assume, following Deal (2009) and Richards and Biberauer (2005), a.o., that expletives are actually merged in spec,*v*P, and are subsequently moved to spec,TP. Thus, the EPP does not need to explain the existence of expletives, but rather only their position. Under such a view, presumably the expletives are merged under some sort of selectional requirement within the *v*P, and are therefore an argument in some sense. They certainly participate in A-movement (e.g., they undergo subject-to-subject raising).

Both of these elements are normally considered to be nominal, and so it stands that it is at least the case that all non-nominal EPP-checkers in these languages can be shown to be arguments.

I therefore conclude that there is a distinction between predicate-sensitive EPP languages (such as Inuktitut, Irish, and Niuean) and argument-sensitive (or argument/nominal-sensitive) EPP languages (such as English, French, Finnish, Greek, and several other Germanic languages). In predicate-EPP

languages, a predicate must raise. Functional verbal elements like light verbs do not raise. Non-verbal predicates do. In argument-EPP languages, on the other hand, an argument (or a nominal) must raise. Predicative DPs do not raise, but non-nominal arguments do. There is thus a dichotomy here based not on syntactic category, but based on the distinction between *predicates* and *arguments*.

Assuming that the EPP is a syntactic operation, this means that predicates and arguments must each operate as natural classes independent of syntactic category *in the syntax*. Furthermore, since there is this contrast between argument- and predicate-EPP languages, we can infer that, whatever the role of the EPP, moving either the argument or the predicate can satisfy it. In other words, although arguments and predicates are in some sense opposites, in this case, they are somehow equivalent. The only thing that predicates and arguments have in common is the predication relation. This calls to mind the idea that the EPP is a requirement for clausal bifurcation (Massam 2005). That is, that the EPP requires *either* the predicate or an argument to raise. The relationship between predication and the EPP will be discussed further in Section 5.7.

2.4 Conclusion

In this chapter, I considered a variety of languages from several different language families and geographical areas, and, using the diagnostics for EPP checkers laid out in Section 1.5, developed the EPP typology presented in Table 2.1, repeated below as Table 2.10.

		Pied-Piping	No Pied-Piping
Argument-EPP	**X°-EPP**	German, Icelandic	Greek, Italian
	XP-EPP	Dutch, Afrikaans	English, French, Finnish
Predicate-EPP	**X°-EPP**	Celtic (except Breton)	Inuktitut
	XP-EPP	n/a	Niuean

Table 2.10: The EPP Typology, Modified

Again, this table is not meant to be an exhaustive categorization of discrete categories, but rather a way of keeping track of the extent of variation in EPP type possible across languages. In addition to the types mentioned explicitly in Table 2.10, I also showed how adverbs, roots, and PPs could check the EPP in Finnish, Inuktitut, and English, respectively. A potential way of organizing these different

types of EPP in a hierarchical typology is discussed in Section 6.2.2, and a discussion of what unites the various EPP-checking mechanisms is the subject of Chapter 3.

As shown in Table 2.10, the EPP can vary across three different dimensions. First, as proposed by Alexiadou and Anagnostopoulou (1998), it can be checked by either head-movement or phrasal movement. Second, as discussed by Richards and Biberauer (2005), it can be satisfied by moving a minimal constituent, or a larger constituent can be pied-piped, and, finally, I proposed a contrast between predicate-sensitive EPP languages and argument-sensitive EPP languages.

Finally, I showed that different EPP varieties are not the result of independent requirements, but are rather in complementary distribution; only one type is possible in each clause. This can be seen because some languages (such as Arabic, Afrikaans, Inuktitut, etc.) alternate between two varieties. That EPP types are in complementary distribution provides evidence that the various types are functionally equivalent, and that the EPP is universal.

One interesting pattern that emerges when we consider the variety of types is that the EPP movement seems to result in clausal bifurcation, by creating a contrast between argument and predicate, as discussed further in Section 5.6. The nominal-sensitive EPP seems to generally target an argument (note that even locative preposing in English is restricted to argument PPs), while the predicate-sensitive EPP targets predicates. In either case, a contrast is created between argument and predicate by moving one of them. This idea is not new; Rothstein (1983) suggested that the EPP can be subsumed by a theory of predication, and Massam and Smallwood (1997) suggested that predication can be parametrized to target either an argument or the predicate. The additional cross-linguistic evidence presented in this dissertation provides further support to these ideas; however, there must be more to the story. Rothstein (1983) proposes that *every* functional head has a predication relation; in current theories with more articulated clausal spines, this does not seem likely. Furthermore, the nature of EPP movement seems to pattern differently than the movements triggered by other functional heads, as discussed in Section 1.1.1. While Massam and Smallwood's proposal provides a framework that makes sense of predicates and arguments patterning together, the data presented here demonstrates that the cross-linguistic variety of EPP-checking is much more varied than a two-way parameter can account for. I therefore discuss

the possibility that variation in EPP type is in fact dependent on other properties of the language as a

whole. This is discussed in more detail in Chapters 4 and 5.

Chapter 3

The Anchoring Hypothesis
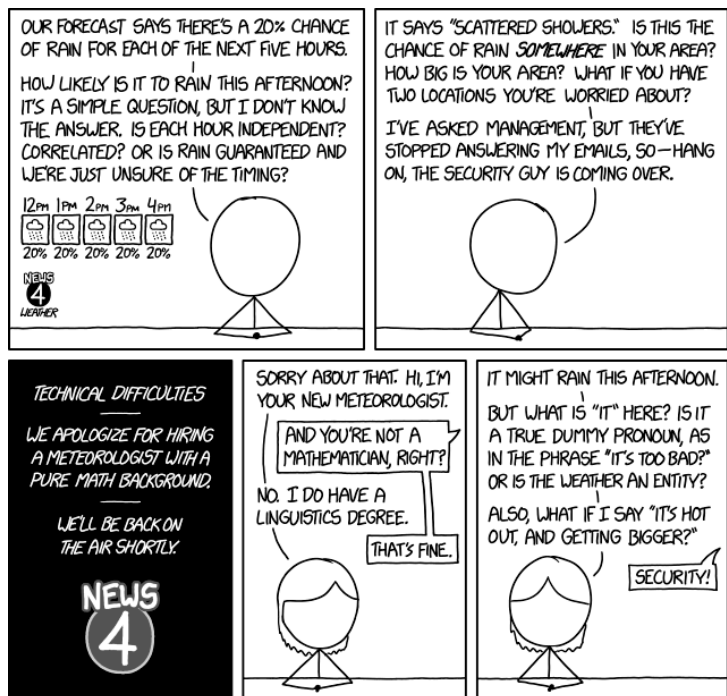
— Randall Munroe, xkcd

Generalizing across the attested forms of EPP cross-linguistically is no simple task, although they seem to be functionally equivalent, as evidenced by their appearance in complementary distribution with one another. And yet, determining what all these EPP-types have in common may reveal what its underlying purpose in grammar is. It is through these two questions — attempting to generalize across

the varying forms of the EPP and attempting to discover the underlying purpose of the EPP — that I have come to formulate the anchoring hypothesis. In short, I propose that the underlying function of the EPP is to formally anchor the clause, by creating grammatically formalized links between the event/situation and the utterance itself. Cross-linguistically, the EPP can be checked by DPs (e.g., English), vPs (e.g., Niuean, Massam and Smallwood 1997), referential adverbs (e.g., Finnish, Holmberg 2005), and roots (e.g., Inuktitut, Johns 2007), as discussed in Chapter 2. All of these have anchoring properties. Anchoring allows the interlocutors to communicate about things outside of the immediate context (displacement, in the sense of Hockett 1960), a characteristic of human language that separates it from other communication systems.

My proposal builds on Ritter and Wiltschko's (2014) analysis, whereby verbal inflection is the manifestation of an anchoring requirement formalized by a [±coin(cidence)] feature indicating whether the event situation and the utterance coincide in tense, person, or location. I extend their proposal by arguing that the EPP, likewise, has an anchoring function. It is my position that anchoring is formalized within the narrow syntax, although it has functional correlates. As such, I do not predict a one-to-one correspondence between function and grammatical operations.

In this chapter, I first present my formalized theory of how the EPP functions as an anchor in Section 3.1. In this section, I argue that the EPP is checked by indices, discuss why the EPP is required in CPs but not DPs, show that the EPP is counter-cyclic, and argue that this can be resolved if the EPP is checked by a phasal element which is spelled out and then re-merged. Next, in Section 3.2, I go through the different elements that are able to check the EPP cross-linguistically and show that (a) they have an index, (b) they belong to the natural class of anchors, and (c) that they are phases. In Section 3.3, I present the hypothesis that *all* operations that occur within the inflectional domain have an anchoring function. I follow this by a discussion in Section 3.4 on dependent anchoring, which is when the anchoring requirement is fulfilled by being dependent on an anchor in another part of the structure, as occurs, for example, in non-finite clauses. I show that dependent anchors are systematically null. In Section 3.5, I argue that anchoring is a general property of human language, followed in Section 3.6 by a discussion of cases where clauses can remain unanchored.

3.1   Formalizing the EPP Anchor

3.1.1   Indices

I propose that there is an unvalued feature, which I will call [*u*Anchor: __]. This feature must be valued by an index in a local relationship. An index represents identity in the syntax or in the semantics (Fiengo and May 1994), including identity with another copy in chain formation and identity as a result of binding. In the case of the EPP, the index serves to formalize identity between an argument and some element in the evaluation situation. In other words, it locates an argument in time, in space, or in worlds in the evaluation situation. Researchers such as Longobardi (2008), Landau (2010), Sudo (2012), and Kučerová (2018) associate indices with the person feature, which is often, in turn, associated with the D head (Ritter 1995). Thus, the idea that the EPP is checked by an index is not so different from the traditional idea that it is checked by D.

Hanink (2017) provides evidence that indices are formally encoded and operative in the syntax. She argues that they take the form of a head, which she labels Idx, that occurs between D and N. According to Hanink, this Idx head is present in anaphoric DPs and formally encodes identity. This head has phonological consequences in that (a) it can be realized as *selb*- 'same' in German or (b) it can block contraction of the determiner and a preceding preposition because the D lowers to Idx. My approach crucially differs from Hanink's in that I argue that *all* EPP-checking elements, whether or not they are anaphoric, bear some sort of index; however, I am agnostic as to the structural status of the index (e.g., whether it is a head or a diacritic feature).[1]

In many languages, a person index is used to check the EPP. That this is common is unsurprising considering that most, if not all, languages track pronoun reference through person indices, and so it is a simple matter to extend the use of these person indices to other contexts, such as EPP anchoring. However, the reference of other grammatically encoded elements can also be tracked through indices, such as times, locations, situations, and even possible worlds, as discussed in Section 3.2. Unlike Ritter and Wiltschko (2009, 2014)'s [±coincidence] anchoring, EPP-anchoring doesn't track simple coincidence.

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[1]Hanink (2017) follows Heim (1998) in assuming a contrast between an inner (bindee) and an outer (binder) index. This contrast may be able to explain the morphological pattern that Hanink discusses for German while still maintaining the existence of some index on all EPP-checking elements.
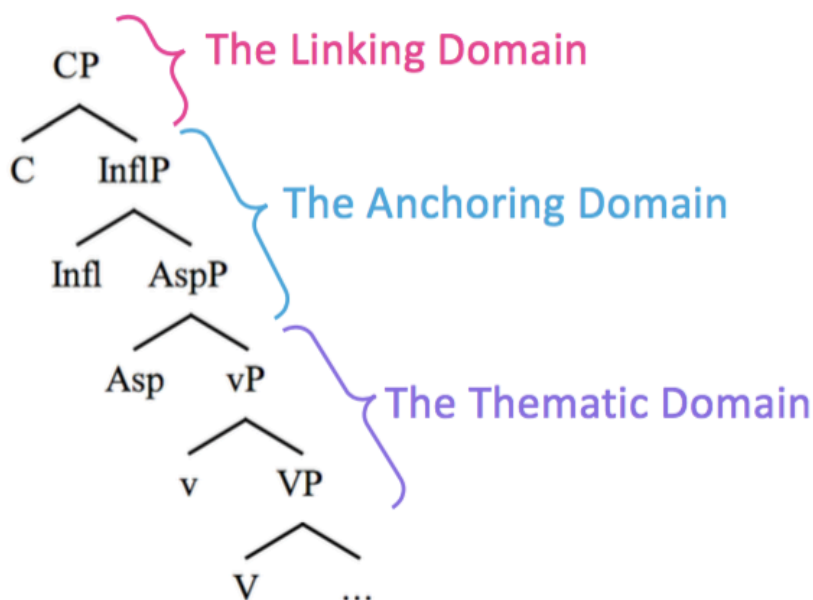
Figure 3.1: The Three Domains (Ritter and Wiltschko 2014)

Instead, it picks out a landmark — an element in the real or irrealis world that is being tracked. The grammatical way to track particular elements in the discourse is through indices.

3.1.2 Reference in the Clause

Ritter and Wiltschko (2014) claim that the structure of nominals is parallel to the structure of clauses in having the following three domains: the linking domain (CP or KP), the anchoring domain (InflP or DP), and the thematic domain (vP or nP), as shown in Figure 3.1.[2] Sheehan and Hinzen (2011) likewise demonstrate that nominals and clauses can have three parallel kinds of reference: (a) indefinite reference, mediated by a quantifier binding a variable, and restricted by its complement (e.g., a QP or a proposition); (b) direct reference, which is determined directly by the value of the phase head (e.g., a proper name or a truth value of 1); and (c) definite reference, which has direct reference in the phase head that is also restricted by its complement (e.g., a definite DP or a fact). Anchoring in the inflectional domain creates the restriction in the complement of C (IP) which determines the reference of the clause in (a) and (c) and is crucial to computing the reference of the clause in (b).

---

[2]Note that Wiltschko (2014) adds a Point-of-View domain to host aspect, between the vP and the CP. For now, I am assuming the three domains of Ritter and Wiltschko (2014).

However, although nominals can have 'subjects,' they do not appear to be obligatory, unlike subjects of clauses. Consider (1) below.

(1)   a.   Rome's destruction of Carthage...

       b.   The destruction of Carthage...

       c.   Destruction of cities is an unfortunate consequence of war.

Assuming that D is the nominal equivalent to T, (following Ritter and Wiltschko 2014), the possessor *Rome* in (1-a) is in a similar structural position to that of a clausal subject and plays a similar role semantically. In terms of anchoring, it selects a particular event (i.e., the destruction by Rome in 146 BCE, as opposed to the destruction during the Muslim conquest in 698 CE). In (1-b), on the other hand, there is no 'subject,' but there is a D head, which likewise selects a unique contextually salient event; however, unlike in clauses, there appears to be only a single (coincidence) anchor, and no 'landmark' anchor. Finally, in the generic nominal in (1-c), there is no overt anchor at all. In contrast, clauses appear to have at least two obligatory anchors (the EPP and verbal inflection in the sense of Ritter and Wiltschko 2014).

I propose that there is an obligatory EPP in clauses but not in nominals because reference in a clause is more complex than nominal reference. In the computation of clausal reference, the reference of multiple elements (the reference of each of the arguments, as well as the locative and temporal structure of the event) must be tracked and evaluated, while nominals often only track the reference of a single argument.

3.1.3 The Cyclicity of the EPP

The EPP seems to be a syntactic requirement, as it manipulates hierarchical structure and syntactic features. However, the EPP also manipulates the overtness of the elements that check it. Under a Y-model of grammar with Late Insertion, the syntax should not be able to know whether an element is overt or not. In this section, I first discuss evidence that the EPP is a syntactic operation and then discuss the relation between the EPP and overtness. Finally, in order to accommodate both the empirical

evidence that the EPP is syntactic and the sensitivity to overtness, I propose that the EPP is *cyclic*; that is, that the EPP is checked by elements that have been spelled out and re-merged into the syntactic structure.

The first piece of evidence that the EPP is syntactic is the fact that it targets syntactic constituents, not prosodic constituents. This can be seen when there is a complex subject, as in (2). In this sentence, it is the entire complex DP, including the relative clause, that raises from the embedded infinitival clause to the subject position of the matrix clause.

(2)   [$_{CP}$ [$_{DP}$ The woman [$_{CP}$ who everyone was watching]]$_i$ was likely t_i to be embarrassed].

However, under Selkirk's (2011) matching theory, the prosodic constituency of such a phrase is as in (3).

(3)   [$_\iota$ The woman] [$_\iota$ who everyone was watching]...

In (3), the edges of every clause are matched to the edge of an intonational phrases (ι). However, unlike syntactic constituents, these are not recursive, so the head of the relative clause belongs to a different prosodic constituent than the relative clause itself. If a prosodic constituent were targeted by the EPP, we would expect either one or the other intonational phrase to move, but not both, contrary to fact, as shown in (4).

(4)   a. *[The woman] was likely [who everyone was watching] to be embarrassed.

       b. *[Who everyone was watching] was likely [the woman] to be embarrassed.

Secondly, the EPP targets hierarchical structure, not linear order. In other words, the closest DP in terms of hierarchichal structure must move, not the closest in terms of linear order. In (5), for example, 'John' raises to spec,TP even though the DP 'me' is closer in terms of linear order.

(5)   a.   John seems to me to be the kind of person who gets up early in the morning.

b.

```
                              TP
                      ┌───────┴───────┐
                    John            vP
                             ┌───────┴───────┐
                          seems            VP
                                   ┌─────────┴─────────┐
                                 PP                    │
                              ┌──┴──┐   <seems>       TP
                             to   me              ┌────┴────┐
                                              <John>        │
                                                      ┌──────┴──────┐
                                                     to            vP
                                                             ┌──────┴──────┐
                                                        be the kind of person...
```
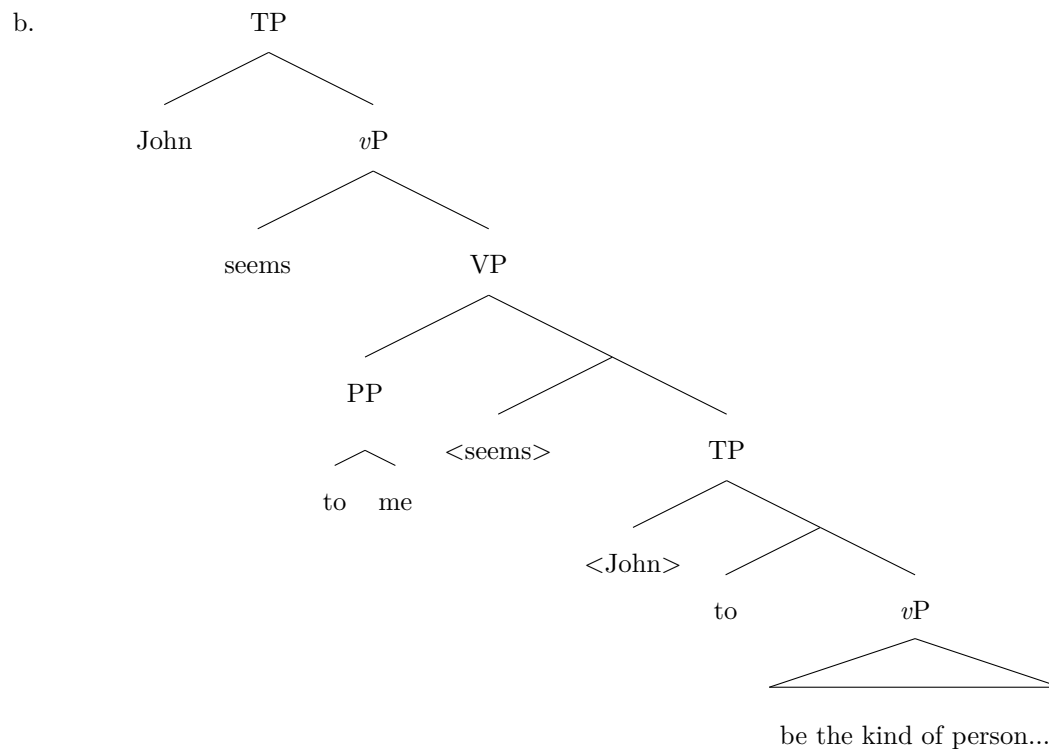
The EPP is also subject to syntactic constraints, such as minimality and locality. In (6), the highest DP must move to subject position. Moving the lower DP results in ungrammaticality (6-b).

(6)   a.   [DP The hungry man]i will ti devour [DP the soup].

       b.   *[DP The soup]i will [DP the hungry man] devour ti.

[McFadden and Sundaresan 2015: 8]

Another minimality violation is shown in (7). Although both DPs in the example have the properties that should enable them to check the EPP, only the higher DP is able to move to check it, as it is closer in terms of hierarchical structure.

(7)   a.   [DP A relative of [DP Matilda]]i arrived ti.

       b.   *[DP Matilda]i arrived [DP a relative of ti].   [McFadden and Sundaresan 2015: 8]

The example in (7-b) is also a violation of locality, as extracting 'Matilda' from inside a DP violates the Phase Impenetrability Constraint Chomsky (2000). The same type of violation, but out of a CP phase,

occurs in (8).

(8)   a.   [$_{DP}$ Matilda]$_i$ seems [$_{TP}$ t_i to be lazy].

       b.   *[$_{DP}$ Matilda]$_i$ seems [$_{CP}$ that t_i is lazy].   [McFadden and Sundaresan 2015: 8]

The EPP also arguably interacts with other syntactic operations, such as Case assignment and topichood. For example, in English, nominative case-checking and the EPP appear to be correlated, as shown in (9), while in Finnish, a non-agent which raises to check the EPP tends to get interpreted as a topic (Koskinen 1998).

(9)   a.   She/*her believed him.

       b.   He/*him was believed.

It thus appears that EPP-driven movement interacts with other syntactic processes. Taken alone, this could be interpreted as meaning that the EPP operates on the output of these syntactic processes, and thus could be operative post-syntactically. However, McFadden and Sundaresan (2015) also point out that the EPP has interpretive effects. EPP-driven movement affects binding possibilities, as shown in (10), and can affect scope relations, shown in (11).

(10)   a.   *It seems to herself$_i$ [$_{CP}$ that [every girl]$_i$ is silly].

        b.   [Every girl]$_i$ seems to herself$_i$ [$_{TP}$ t_i to be silly].

[McFadden and Sundaresan 2015: 9]

(11)   a.   It seems to some girl [$_{CP}$ that every boy stinks]. ($\exists > \forall$; *$\forall > \exists$)

        b.   [Every boy]$_i$ seems to some girl [$_{TP}$ t_i to stink]. ($\exists > \forall$; $\forall > \exists$)

[McFadden and Sundaresan 2015: 9]

This indicates that EPP-driven movement must have occurred before spell-out, in order for the derived position to be available at LF.

However, the EPP also seems to be sensitive to the overtness of the element that checks it, as will be discussed further in Section 3.4. This is problematic, since the narrow syntax should not be able to

distinguish the overtness of elements. Many approaches to the EPP implicate overtness in their analysis. Some posit a requirement for an overt element of any kind in T. For example, Sigurðsson (2010) proposes the Filled Left Edge Effect (FLEE), which requires finite declarative clauses to have a spelled-out left edge, and McFadden and Sundaresan (2015) propose that EPP effects are the result of An's (2007) Intonational Phrase Edge Generalization, whereby the left edge of an intonational phrase must be overt. Some have even posited a parameterized diacritic feature on the EPP that controls its overtness (Harley and Carnie 1997, Harley 2000, Holmberg 2005). In Section 3.4, I also argue that covert EPP anchors systematically have dependent reference.

Therefore, I propose that the EPP is cyclic, and follows the following order of operations:

1. A phase is constructed.

2. The phase is spelled out.

3. The phase, as it is referential, receives an index at LF.

4. The phase is re-merged as a unit in the next phase.

This approach is consistent with Kučerová's (2018) proposal that DPs receive their index during the labeling process at the semantic interface. It also predicts that only phases (or perhaps phase heads) should be able to check the EPP. This is essentially borne out. In some languages (English, Finnish, French), the EPP is checked by DPs, which are often assumed to be phases. Davies and Dubinsky (2001) show that even non-nominal subjects in English are extraction islands (Section 2.1.1.1). In other languages (Niuean and several Germanic languages), the EPP is checked by the vP, which is also often assumed to be a phase. In Section 3.2, I will show that other attested EPP checking elements are also phases.[3]

A cyclic approach provides an explanation of the sensitivity of the EPP to overtness. As Borer (2014) notes, the only requirement that roots have is that they be phonologically overt. As such, once a phase has been remerged in its derived position, it functions as a root, and thus shares the requirement for phonological overtness.

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[3]One problem with this approach is that these elements that can check the EPP are mostly equivalent to phases, when in standard phase theory, they should be equivalent to the complements of phases, instead.

On the other hand, Arsenijević and Hinzen (2012) and Sheehan and Hinzen (2011) propose that all phases—CPs, *v*Ps, and DPs—are referential. Based on their proposal, I predict that all phases should also be able to bear indices (although they may not all be able to check the EPP in all contexts).

3.2   EPP Elements as Anchors

As discussed in Section 3.1.1, all anchors must have an index in order to check the [*u*Anchor: __] feature. What can have a grammatically formalized index may vary from language to language. In general, anchors can create links through times, locations, grammatical person, events and situations, or possible worlds. This list is probably not encoded in Universal Grammar; rather, these are the things that are formally represented in the grammar that also have links to entities in the evaluation situation. I propose that these are a natural class of elements that function as a group in other ways in language. For example, Ritter and Wiltschko (2009) argue that verbs can inflect for grammatical person and location, as well as for tense. If we consider that in some languages, including English, modal marking is in complementary distribution with tense marking, we could also include possible worlds in the class of possible forms of verbal inflection. Ritter and Wiltschko (2014) also analyze counterfactuals in English as being anchored to an abstract evaluation situation in the C domain, providing further evidence that worlds or situations should be added to the class of anchoring elements.

On one extreme, sign languages appear to allow a wide variety of elements to take an overt index, from situations to possible worlds to interlocutors to times (Schlenker 2015), providing further evidence that these elements function as a class. Many sign languages, including American Sign Language (ASL), assign various referents to loci in the signing space. Signing at or toward these loci can be used as verbal agreement or as pronouns (Lillo-Martin 1986). Schlenker (2011) suggests that words such as *former* and *latter* in spoken languages have a similar function, marked in time rather than space, although they are used much less extensively. Loci can track the reference of people, times, locations, and possible worlds (Schlenker 2015), and thus also belong to the natural class of anchors. Since the number of loci that can be used in an utterance is limited only by perceptual and memory constraints, it has been proposed that loci in sign languages are overt referential indices, rather than personal pronouns (Lillo-Martin 1986).

I propose two diagnostics that can be used to identify whether a given element is able to bear an index. First, if the element is able to be coreferential with another element, then I assume that both elements are able to bear an index. Second, if the element is overtly indexed in sign languages by being marked with a locus, then I assume that such an element is in principle able to bear an index.[4]

Additionally, as discussed in Section 3.1.3, I propose that all potential EPP-checking elements are phases, in order to explain the cyclic properties of the EPP. Furthermore, Arsenijević and Hinzen (2012) and Sheehan and Hinzen (2011) both argue that all phases are referential. As such, it should be possible to show that all EPP anchors are also phases, or are phases in at least some contexts.

In this section, I will go through the possible EPP-checkers introduced in Chapter 2, and show that (a) they bear indices, (b) that they are (or can be) phases, and (c) that there is evidence that they function as part of the natural class of anchors.

3.2.1   Nominals

It is fairly uncontroversial to assume that DPs, in a general sense, are phases, on the one hand, and that they are able to bear indices, on the other. Sheehan and Hinzen (2011) and Arsenijević and Hinzen (2012) argue that these two facts are connected; that DPs are phases and that all phases are referential. Interestingly, as discussed in Section 2.1.1.1, Davies and Dubinsky (2001) provide evidence that even non-nominal subjects in English and French show island properties, providing further evidence that *all* subjects in these two languages are phases. Additionally, it is rather uncontroversial that nominals in general are able to bear indices and participate in binding; this is the case for both spoken and signed languages.

In several of the sections that follow, I discuss some particular kinds of nominals which are somewhat controversial with regard to these claims, alongside EPP-checking elements of other syntactic categories. These include quantifier phrases in Section 3.2.2, expletives in Section 3.2.3, and subject-verb agreement in Section 3.2.5.

Another type of DP which has unusual properties, and which I will not discuss in depth here, is the class of generics, which seem to be able to check the EPP in English but not in Finnish or Brazilian

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[4]Whether it bears an index in all languages is a matter left for future research.

Portuguese. This may be because generics have different structures in different languages. Kaiser (2019) provides an analysis of generics in Finnish, arguing that there are two kinds, as follows:

(12)   a.   Type 1 zero: Inference from the first person

Features: [GENERIC], [ARB], [HUMAN], and [DE SE] or [2ND]

b.   Type 2: zero: Inference to the first person

Features: [GENERIC], [ARB], and [HUMAN]   [Kaiser 2019: 12]

The type 1 zero generic pronoun either has a [DE SE] feature, which is bound by either the speaker or by the attitude holder of the matrix clause, or a [2ND] feature. It seems likely that these features are related in some sense to an index, and so are predicted to check the EPP, as indeed they do. In contrast, the type 2 zero generic pronoun cannot check the EPP.

3.2.2   QPs

QPs are unlike other DPs in that they are typically not taken to be referential, and so their inclusion in the class of anchoring elements is, at first glance, a bit of a problem. However, QPs are able to bind anaphors, indicating that they are able to bear indices. Thus, in the first part of this section, I present an argument supporting the analysis that QPs bear indices in the syntax. Afterwards, I discuss data from Finnish that indicates that, although QPs are in principle able to check the EPP, the contexts in which they do so is restricted compared to other DPs.

3.2.2.1   QPs bear indices

Quantifiers are not normally considered to be referential because they do not refer to a particular entity, but rather denote a set; this set may even be empty, as in the case of negative quantifiers such as *nobody*. Thus, the fact that quantifier phrases appear to be able to enter into a binding relation has been a puzzle of much debate. Constructions where a QP appears to enter into a binding relation are known as *donkey anaphora*, and are illustrated below. As Schlenker (2011) points out, the formal coreference between anaphor and variable occurs even when a c-command relationship cannot be established, as in

(13-b), where they are in different sentences, and in (13-c), where the antecedent is in an island.

(13)   a.   Every farmer who owns [a donkey]$_i$ feeds it$_i$.

         b.   John owns [a donkey]$_i$. He feeds it$_i$.

         c.   If Mary owns [a donkey]$_i$, she feeds it$_i$.

Schlenker (2011) discusses two approaches to donkey anaphora: (a) E-type analyses, which assume that QPs quantify over situations and that pronouns are covert definite descriptions, and not variables after all, and (b) dynamic analyses, which assume that QPs quantify over assignment functions and that pronouns are variables. Under the former analysis, QPs do not actually bear indices, but instead corefer with their antecedent because they (covertly) repeat it. Schlenker (2011) discusses the use of loci in American Sign Language (ASL) and Langue des signes française (LSF, French Sign Language) and concludes that the dynamic analysis is needed in order to account for the attested coindexation possibilities, and thus that QPs do indeed bear indices.

The crucial examples are those such as (14), where there are two possible antecedents which are very similar but must necessarily be distinct.

(14)   a.   A bishop met a bishop. He blesses him.

         b.   If a bishop meets a bishop, he blesses him.

The two pronouns, *he* and *him*, must be distinct, since the sentence cannot mean that a bishop blesses himself. This distinction is obligatorily formally marked in sign languages, as shown in (15). In the sign language examples, the symbol 'IX-a' indicates a pointing sign indicating locus *a*, which functions as a pronoun, while letter subscripts before a sign indicate that it is signed in the locus indicated by that letter.

(15)   WHEN $_a$SOMEONE LIVE WITH $_b$SOMEONE,

         'When someone lives with someone,'

         a.   IX-a LOVE IX-b

         'the former loves the latter.'

b. ?IX-b LOVE IX-a

'the latter loves the former.'

c. #IX-a LOVE IX-a

d. #IX-b LOVE IX-b   [ASL; Schlenker 2011: 355]

From such data, we can conclude that (a) quantifiers have indices and can be coindexed with other syntactic objects and (b) the indices are present at LF, since they have interpretive consequences, and, (c) at least in SLs, indices are also present before spellout, and therefore in the syntax, since they are pronounced. Further corroborating evidence comes from Moulton and Han (2018), who provide experimental data that demonstrate that pronouns with a covarying QP antecedent are sensitive to the c-command relation, which suggests that the relation between a pronoun and its QP antecedent is computed structurally, and likely syntactically, at least some of the time.

Schlenker (2011) notes that it is possible to modify an E-type analysis in order to account for this data, but the end result would be in essence a notational variant of the dynamic approach. Furthermore, Schlenker notes that sign languages use the same overt indexing strategies for both definites and indefinites, which suggests that they share the same underlying structure.

Thus, we can conclude that, although QPs might not refer to particular entities in the world, their identity with other elements in the discourse is formally tracked. Furthermore, in the dynamic analyses, QPs quantify over assignment functions; and since an assignment function itself is a way of keeping track of the relation between elements in the discourse and in the world, QPs do function as anchors, albeit in a more complicated way.

3.2.2.2 QPs are restricted

It is still more difficult for a QP to check the EPP than a referential DP, at least some of the time, in some languages. For example, in Finnish, a QP can only check the EPP when it is the external argument, even when intervention effects are controlled for. The sentences in (16) show that quantifiers of a variety of types can occupy initial position in Finnish when they bear the external theta-role.

(16) a. Jokainen poika suuteli   Annaa.
          every   boy kiss.PST.3SG Anna.PAR
          'Every boy kissed Anna.'

      b. Jotkut   pojat suutelivat   Annaa.
          some.PL boy.PL kiss.PST.3PL Anna.PAR
          'Some boys kissed Anna.'

      c. Kukaan   ei   suudellut   Annaa.
          anybody NEG.3SG kiss.PST.PTPL A.PAR
          Nobody kissed Anna.

These QPs must immediately precede the inflected verb, indicating that they are in the EPP position,

and are not topicalized.

(17) a. Kaikki pojat (*ehkä) suutelivat   (ehkä) Annaa.
          all   boy.PL maybe kiss.PST.3PL maybe Anna.PAR
          'Maybe all the boys kissed Anna.'

      b. (Ehkä) kukaan (*ehkä) ei   suudellut   Annaa.
          maybe anybody maybe NEG.3SG kiss.PST.PTPL Anna.PAR
          'Maybe nobody kissed Anna.'

Thus, we can conclude that QPs can check the EPP, at least when they are the external argument.

On the other hand, like regular DPs, object QPs cannot front across an intervening external argument.

(18) a. Anna ei   suudellut   ketään.
          Anna NEG.3SG kiss.PST.PTPL anybody.PAR

      b. *Ketään   ei   suudellut   Anna.
          anybody.PAR NEG.3SG kiss.PST.PTPL Anna
          'Anna kissed nobody.'

(19) a. Anna suuteli   kaikkia   poikia.
          Anna kiss.PST.3SG all.PL.PAR boy.PL.PAR

      b. *Kaikkia   poikia   suuteli   Anna.
          all.PL.PAR boy.PL.PAR kiss.PST.3SG Anna

      c. *Kaikkia   poikia   Anna suuteli.
          all.PL.PAR boy.PL.PAR Anna kiss.PST.3SG
          'Anna kissed all the boys.'

Note that, unlike the object QPs shown in (18)-(19), adjunct QPs can front (20-b), but not instead of

the external argument (20-c).

(20) a. Anna suutele-e joka päivä hänen   mies-tä-än.
          Anna kiss-3SG every day 3SG.H.GEN man-PAR-POS3

      b. Joka päivä Anna suutele-e hänen   mies-tä-än.
          every day   Anna kiss-3SG 3SG.H.GEN man-PAR-POS3

      c. *Joka päivä suutele-e Anna hänen   mies-tä-än.
          every day   kiss-3SG Anna 3SG.H.GEN man-PAR-POS3
          'Anna kisses her husband every day.'

In these cases, presumably the external argument satisfies the EPP, and the QP is fronting for independent reasons. In further support of this hypothesis, *joka päivä* 'every day' does not undergo raising from an embedded non-finite clause, as is expected if it is unable to check the EPP.

(21) *Joka päivä alkoi   [mennä huonosti].
       every day   begin.PST.3SG   go.NFIN wrongly
       'Things began to go wrong every day.'

Interestingly, in an embedded clause without an overt external argument, the QP can front; however, in this case, it is interpreted as the external argument. This supports the generalization that a QP can only check the EPP when it is also the external argument.

(22) Kuulin   [että joka päivä meni   huonosti].
       hear.PST.1SG   that every day   go.PST.3SG wrongly
       'I heard that every day was a bad day.' ($\neq$ I heard that things went wrong every day.)

It seems that Finnish QPs have different properties when in subject position than otherwise. External argument QPs are able to check the EPP, but non-subject QPs are not. This restriction applies only to QPs. Object and adjunct DPs are sometimes able to check the EPP, although they are not subjects. Furthermore, QP objects of unaccusatives can check the EPP, illustrating that it is not the theta-role or the merge position that matters.

(23) a. Kaikki putket meni-vät   rikki.
          all   pipe.PL go.PST-3PL broken
          'Every pipe broke.'

      b. Kaikki tytöt   saapuivat.
          all   girl.PL arrive.PAST.3PL
          'All the girls arrived.'

They can even undergo raising, as in (24).

(24)   Kaikki putket alka-vat   mennä rikki.
        all   pipe.PL begin-3PL go.NFIN broken
        'Every pipe begins to break.'

We can thus conclude that, with the exception of existential constructions, the subject of a clause has

special properties which permit QPs to check the EPP.

3.2.3   Expletives

In some languages, expletives are inserted if there is no possible EPP-checker (e.g., *It's raining*). This

is not limited to DPs; there is a root expletive *pi-* in Inuktitut (Johns 2007), where the EPP is checked

by a root. Here, again, expletives are inserted as a last resort.

(25)   Pi-   qa-   nngit- tuq.
        EXPL- have- NEG- INTR.PART.3SG
        'He has nothing.' (Lit. 'He does not have something.')

                                                                    [Inuktitut (South Baffin); Johns 2007: 559]

Expletive insertion is particularly problematic with respect to the anchoring hypothesis, since expletives

are generally regarded as not having semantic content. It is thus difficult to imagine how they could be

involved in an anchoring process. However, although they may be lacking in lexical meaning, they do

have a function. In fact, in the example in (25) above, we see that the Inuktitut expletive takes the place

of a lexical root, performing a function that is normally reserved for an element with lexical content.

If expletives check the EPP and the EPP is checked by indices, it follows that expletives bear indices.

I propose that these indices are variables which may receive a value from the linguistic or paralinguistic

context, as Hartmann (2008) argues for *there*, or which may instead pick out an arbitrary point, as I

propose occurs for *it*. That the expletive is also a phase is fairly uncontroversial under the assumption

that expletives are DPs and that DPs are phases.

In this section, I will discuss the following points. First, I present Richards and Biberauer's (2005)

evidence that expletive insertion is independent of the EPP. Please note, however, that this does not

mean that expletives cannot then *subsequently* be used to check the EPP, as indeed they are, but rather that their initial function is independent of EPP-checking. Then, I will show how both expletives *there* and *it* are able to check the EPP.

3.2.3.1 Expletive insertion is independent of the EPP

Both Deal (2009) and Richards and Biberauer (2005) propose that expletives can only merge in the specifier of a phase head (specifically, C or v), mostly for theoretical reasons. They argue that, when an expletive appears in T, as in (26), it has raised from v. It is thus only the vP-expletive that may check the EPP.

(26)   [$_{TP}$ There T [$_{v}$P <there> arrived a man]]

An example of a CP-expletive occurs in Icelandic. Richards and Biberauer (2005) argue that the Icelandic expletive *það* is merged directly into the specifier of CP as an 'expletive topic,' to ensure the V2 requirement is met.

(27)   [$_{CP}$ það   klaruðu [$_{TP}$ margar mýs ostinn   alveg   [$_{v}$P t_{subj} [$_{VP}$ t_V t_{obj}]]]]
              there finished   many   mice cheese-the completely
         'Many mice finished the cheese completely.'
              [Icelandic; Alexiadou and Anagnostopoulou 2001, as in Richards and Biberauer 2005: 117]

Likewise, German allows *wh*-expletives, as shown in (28), which also likely merge in the specifier of C.

(28)   Was glaubst du, welchen Mann sie liebt?
         what believe you which   man   she loves
         'Which man do you believe she loves?'
                        [German; Felser 2003: (17), as cited in Richards and Biberauer 2005: 117]

Richards and Biberauer (2005) furthermore show that in languages that have both a vP- and a CP-expletive in their lexicon, the two can co-occur in the same clause. For example, German has both a CP-expletive *es* and a vP expletive *da*, as shown in (29).[5]

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[5]Rosengren (2002) argues that *da* is not an expletive. However, I think her arguments simply exclude it from being an existential expletive, which is unsurprising if it does not raise to T to check the EPP.

(29) Es   hat da   jemand einen   Apfel gegessen.
      EXPL has EXPL someone an.ACC apple eaten.
      'Someone ate an apple there.'
         [German; Koeneman and Neeleman 2001: 229, as cited in Richards and Biberauer 2005: 145]

According to Richards and Biberauer (2005), in the Probe-Goal-Agree system of Chomsky (1999, 2000, 2001) expletives are taken to be "a simple head with a defective and uninterpretable ϕ-set, perhaps simply [uPerson] ([Chomsky 2000]: 125, [Chomsky 2001]: 12)" (Richards and Biberauer 2005: 121). In contrast, Richards and Biberauer (2005) propose that expletives are merged in the specifier of little v, are active as goals through having a Case feature, and are specified with default third-person features. They are subsequently probed by T and move to the specifier of TP in the usual way.

Of course, if Richards and Biberauer (2005) are right in that expletives are only inserted in the specifiers of C or v, it thus follows that they must not function *only* or even primarily to satisfy the EPP in the specifier of TP. If their only function was to satisfy the EPP, we would expect them to be merged directly where they are first needed, that is, in the specifier of TP.

Additional evidence that expletive insertion is independent of the EPP comes from dialects of Finnish which do not have expletive insertion, but still have a DP-EPP. Such a dialect was documented in Doner (2015).

If expletives are merged independently of the EPP, and are only subsequently used to check the EPP, then a theory of EPP does not need to explain why expletives exist. However, in languages where expletives are available, they are used to check the EPP. A theory of EPP does need to explain, then, why expletives are able to check the EPP, given that they exist.

3.2.3.2 Locative and existential expletives

Hartmann (2008) argues that expletive *there* is a *pro*-form that refers to a situation or a location. This could be a location in the discourse, a PP in the same clause, or, when there is none in the context, it refers by default to the here-and-now. Similarly, Kayne (2018) argues that the homophony between deictic and expletive *there* is not accidental, but rather that expletive *there* is a prepositional element that raises from the associate. Yet again, Rosengren (2002) discusses four different Germanic languages

with expletives (Swedish, Icelandic, German, and Dutch), and provides an analysis that supports the idea that (a) expletives can function as anchors and (b) expletive insertion contrasts with an option that splits the proposition into a predicate and an argument. Rosengren (2002) assumes that the expletive hosts a referential feature [R], which makes the existentially bound event variable *e* (citing Davidson 1980 and Bierwisch 1988) visible; the variable then refers to the event in its entirety. All three of these analyses independently arrive at the conclusion that *there* is referential or deictic in some sense.

Under Rosengren's analysis, German and null subject languages are *not* EPP languages. However, her definition of the EPP requires there to be expletive insertion, a definiteness effect for raised subjects, and an existential reading for low subjects. And this, of course, does not apply to German and the null subject languages. However, Rosengren's definition of the EPP is substantially different from the one I proposed here. I posit that, instead, the class of languages that Rosengren has identified as EPP languages is set apart by their having a particular expletive construction. I propose that this is also the class of languages which happen to have a *v*P-expletive that raises to TP in Richards and Biberauer's (2005) terms. Thus, Rosengren's class of languages is largely co-extensive with the class of DP-EPP languages.[6]

Under Hartmann's, Kayne's, and Rosengren's analyses, the expletive *does* have an anchoring function and is formally linked to another element in the clause. In Hartmann's case, it is a situation or a location; in Kayne's case, it is the associate; and in Rosengren's case, it is the event variable. In all three, it seems plausible that this link is formalized in the form of a bound index, which then entails that the expletive bears an index.

However, all three approaches only discuss the expletive found in existential contexts, that is, the expletive equivalent to English *there*. It still remains to explain the expletive *it*, the subject of the next section.

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[6]There are possibly two exceptions: (a) at least some dialects of Finnish do not have an expletive, but it is a DP-EPP language (see Doner 2015 for more details), and (b) Rosengren (2002) proposes that Icelandic does fall into this class of languages, although Richards and Biberauer (2005) argue that it is *not* a DP-EPP language. In the latter case, it could be that the existential construction is higher up in Icelandic, in the C-domain, and operates independently of the EPP. This is consistent with the fact that Richards and Biberauer (2005) argue that the Icelandic expletive *það* is merged directly into the specifier of CP as an 'expletive topic,' to ensure the V2 requirement is met.

3.2.3.3 Expletive *it*

I propose that the contrast between *there* and *it* is the difference between a bound and a free variable. Expletive *there* is a bound variable, and thus receives its reference internally to the clause, through semantic computation based on the syntactic structure. In contrast, expletive *it* is a free variable which receives reference to an arbitrary point[7] from the assignment function at LF. It is therefore a mental space designator in the sense of Smith (2004), which serves the function of referring to a discourse entity that has yet to be mentioned. However, once its value has been set, it must consistently refer to that value. Thus, a sentence such as (30-a) will have a meaning such as (30-b), where x is *it*.

(30)   a.   It's raining here.

   b. $\exists x$. $\text{rains}(x) \wedge \text{here} \subseteq x$

Expletive *it* does not bear a θ-role. While referential *it* is an argument to the verb, and its referent is involved in some way in the situation or event, expletive *it* is not an argument, but simply denotes a point which the eventuality and its arguments (if any) can be situated with reference to. It is neither an argument nor a predicate, but rather the context in which both are situated.

Overall, expletives are placeholders that indicate that relation has taken place, without spelling out that relation. For *there*, the relation is coreference through binding. For *it*, it is the situating of the event.

3.2.4 Referential Adverbials

There are two kinds of referential adverbials that I will discuss in this section: (a) locative PPs, and (b) the referential adverbs in Finnish. I showed in Chapter 2 that both of these are able to check the EPP.

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[7]It is not quite a 'point,' since in (b), whatever the expletive is, it can contain 'here,' which is larger than a point. However, let's assume that it makes reference to something as if it were a point, similar to the preposition *at* (thanks to M.C. Cuervo for this suggestion.)

3.2.4.1 Locative PPs

That locative PPs are able to bear an index seems obvious, since they pick out a location. Further evidence comes from the fact that they can be referred to later in the discourse with the pronoun *there*, as shown in (31).

(31)   [Into the room]$_i$ walked Robin. He found the Joker there$_i$.

Sign languages also mark locations with indices, as shown in the Inuit Sign Language (IUR) example in (32), where the location 'Ottawa' is marked with an index.

(32)   OTTAWA INDEX-LOC$_{Ottawa}$ CALL-ON-PHONE LONG-AGO

'Long ago, I phoned Ottawa.' (referring to a shop in Ottawa)

[IUR; Schuit, Baker, and Pfau 2011: 20]

Locations also belong to the natural class of anchors, as, for example, verbal inflection can be parametrized to be a location, as argued by Ritter and Wiltschko (2014) for Halkomelem Salish (for more details, see Section 3.3.3).

Abels (2012) furthermore argues that PPs are phasal, as can be evidenced, for example, by the common cross-linguistic ban on preposition stranding, although subparts of a PP may be extracted, and the fact that PPs can undergo pied-piping when either their complement or their specifier is probed. He shows that P shares the same properties with C and *v* in this respect.

3.2.4.2 Adverbs of Time

As mentioned in Section 2.2.2.3 in Chapter 2, Holmberg (2005) observes that referential adverbs are able to check the EPP in Finnish. There are several words which are classified as adverbs in many languages, but which are case-marked in Finnish. Nearly all referential adverbials are case-marked, as there are cases which indicate locations. For example, a Finnish word for 'here,' *tällä*, is in fact the adessive case form of the word *tämä* 'this,' and a Finnish word meaning 'there,' *siellä*, is the superessive form of the inanimate third person singular pronoun. Since these bear nominal morphology, they are considered to be DPs, and are expected to have nominal features, including, quite possibly, [D], ϕ-

features and an index. As such, they are also expected to be phases and to belong to the natural class of anchors. There are even a few temporal cases, so adverbials which refer to times, as well, sometimes surface as case-marked DPs, such as *silloin* 'then,' which is the temporal case form of the inanimate third person singular pronoun. Again, such adverbials are assumed to bear nominal features. However, there is a class of adverbials which do not bear case morphology but can still check the EPP, such as *nyt* 'now,' *kerran* 'once,' *nykyään* 'nowadays,' and *eilen* 'yesterday.' These all seem to have temporal reference and I therefore posit that they bear an index and belong to the natural class of anchors.

A case where a time period appears with an overt index in American Sign Language (ASL) is shown in (33).[8] The constituent 'SOMETIMES WIN' in the first clause is marked by an index 'a' which is referred to again in the third clause by the indexed pronoun 'IX-a,' meaning 'then.'

(33)   *Context*: Every week I play in a lottery.

    IX-1 ₐ[SOMETIMES WIN]. IX-1 ♭[SOMETIMES LOSE]. IX-a IX-1 HAPPY.

    'Sometimes I win. Sometimes I lose. Then [=when I win] I am happy.'

                                                                    [ASL; Schlenker 2015: 5]

Tense (i.e., temporal anchoring) is also used in verbal inflection anchoring in a wide variety of languages, such as English. Finally, since these adverbials all seem to consist of a single word, we can assume that they are phases, following Marantz (2007), who argues that the category-defining head of a word is a phase head.

3.2.5 Subject Agreement

Subject agreement doesn't behave uniformly across languages. In some languages, it can check the EPP (e.g., Greek), and in others, it cannot (e.g., French). Generally, this contrast is described as being the contrast between 'rich' and impoverished agreement (Taraldsen 1978, Rizzi 1986, Vikner 1997), although this has its limitations as a useful diagnostic, as there is no definition of 'rich' agreement that can make accurate predictions about whether agreement in a particular language will be sufficient to allow null subjects (Jaeggli and Safir 1989, Speas 1995). Alexiadou and Anagnostopoulou (1998: 523)

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[8]Note that the non-manual expressions (e.g., raised eyebrows) are omitted in this example.

propose that there is no 'absolute correlate' between rich agreement and whether the subject agreement morpheme in a given language has the right features to check the EPP. Rather, they stipulate that the feature structures of agreement morphemes vary in the lexicon, although the richness of the agreement is one possible indication of the underlying feature structure. New evidence to support this conclusion comes from Borges and Pires (2017), who show that impoverishment in agreement did not trigger the shift from consistent to partial NSL (and presumably therefore from D-on-V EPP to DP-EPP) in the Goiás dialect of Brazilian Portuguese, but was rather a consequence, as the agreement morphemes were not lost until after the rise of overt subjects and the loss of subject-verb free inversion. They thus follow Roberts (2010a) in assuming that the distinction between languages where the agreement marker can or cannot check the EPP arises based on whether the agreement is specified with a [D] feature.

It is plausible that the lexical distinction in feature structure between agreement markers which can or cannot check the EPP is in fact whether they are specified with an index.[9] This is supported by Rohrbacher's (1994) analysis of what constitutes agreement sufficiently rich to trigger verb raising, as shown in (34).

(34)   A language has V°-to-I° movement if and only if in at least one number of one tense of the regular verbs, the person features [1st] and [2nd] are both distinctively marked.

[Rohrbacher 1994: 108, as cited in Vikner 1997: 207]

One piece of evidence for a [D] feature that Roberts (2010a) discusses is the contrast between how generic subjects are encoded in consistent and partial NSLs. In European Portuguese, a null subject cannot be interpreted as generic without the reflexive marker *se*, as shown in (35-a), since it is a consistent NSL with a [D] feature on the agreement, which forces the null subject to be interpreted as definite. On the other hand, in the equivalent sentence in Brazilian Portuguese, as shown in (35-b), no overt strategy is required. Holmberg hypothesizes that the generic requires no overt strategy in Brazilian Portuguese because there is no [D] feature on the verb.

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[9]The index could be in addition to, or instead of, a [D] feature.

(35) a. Aqui não se pode nadar.
          here not SE can   swim
          'One can't swim here.'   [European Portuguese; Holmberg 2005: 554]

      b. Aqui não pode nadar.
          here not can   swim
          'One can't swim here.'   [Brazilian Portuguese; Holmberg 2005: 553]

This analysis could work equally as well if the feature on the verb were an index rather than a [D] feature.

That subject agreement markers belong to the natural class of anchors is clear from the fact that in Blackfoot, they satisfy Ritter and Wiltschko's (2014) coincidence anchoring. Additionally, subject-verb agreement takes the form of an index in sign languages, as shown in the Inuit Sign Language example in (36). In sentences like these, pronouns are signed in a particular position in the signing space (designated as location '3a' in the gloss)[10] and the verb is also signed in the same location to indicate agreement.

(36)   USE-ICE-AUGER$_1$ INDEX$_{3a}$ USE-ICE-AUGER$_{3a}$ INDEX$_{3a}$

        'I use an ice auger, and so does he.'   [IUR; Schuit et al. 2011: 22]

3.2.6 Predicates

There are two possibilities regarding the anchoring properties of predicates. First, it is possible that predicates are able to check the EPP through their event argument. An event can be referred to by a pronoun, as shown in (37).

(37)   Jones buttered the toast. It was over quickly.   [Ramchand 2007: 478]

Likewise, propositions can be referred to by pronouns, as in (38).

(38) a. I don't believe [that Santa Clause can visit the whole world in one night]$_i$.

      b. I don't believe it$_i$.

Further evidence for this may come from Sign Languages where situations can bear indices (Schlenker 2015).

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[10]Index '3a' is associated with a locus for a third person argument, located on the left side of the signing space.

Another possibility, which is discussed in more depth in Chapter 5, is that predicate-EPP languages have an inverse relationship here, raising the predicate *instead* of the anchoring element. In these cases, the predicate and the anchor are in a high predication relation, with the predicate c-commanding the anchor. Through this c-command relation, the predicate agrees with the index in the anchor, which allows it to check the EPP. Evidence that predicates in these languages can be referential comes from the fact that noun-incorporation structures in predicate-EPP languages such as Niuean and Irish are unexpectedly referential, as discussed further in Section 5.6.4.

In either case, vP is typically considered to be a phase, as proposed by Chomsky (2000); and I adopt that assumption here, as well.[11]

3.2.6.1 Roots

I assume that root EPP is a form of predicate EPP, since the root that raises is crucially the head of the predicate. Johns (2007) shows that even nominal roots that have been incorporated are still referential in Inuktitut, as shown in (39).

(39) a. Suulut timmisartu$_i$- lior-   poq.   Suluusa- qar- poq$_i$ aquute- qar-
         Søren plane-   make- INTR.INDIC.3SG wing-   have- INTR.INDIC.3SG rudder- have-
         llu- ni$_i$- lu.
         INF- 3RS- and
         'Søren made an airplane$_i$. It$_i$ has wings and a rudder.'

                                        [Inuktitut (Kalaallisut); Sadock 1980: 311, as cited in Johns 2007: 539]

      b. Johnny uvirniru$_i$- liu- laur- mat.   Nulia- nga   angirra- rami   taku-
         Johnny shirt-   make- PAST- INTR.CAUS.3SG wife- POSS3SG home-   CAUSE4SG see-
         llu- ni- uk$_i$.
         conj- 4SG -3SG
         'Johnny made a shirt$_i$. And his wife came home and she saw it$_i$.'

                                                        [Inuktitut (Kalaallisut); Johns 2007: 539]

The constituent that raises could be a phase if it is actually the constituent headed by the category-defining head, rather than the root itself, following Marantz (2001), who argues that all category-defining heads are phase heads. In fact, according to Barrie and Mathieu (2016), the fact that incorporated nouns

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[11]Note that there is variation in this regard. According to Chomsky (2000), the phasal properties of v depend on its transitivity. On the other hand, there is also evidence of cross-linguistic variation on the locus of phase heads (Heck and Müller 2003, Gallego 2010, Harwood 2013, Bošković 2014, Mahoon 2017), which is predicted to also result in variation in EPP-checking.

are available for reference indicates that they are contained within an *n*P.

3.2.7 Conclusion to Section 3.2

In this section, I discussed the possible EPP-checkers introduced in Chapter 2, including DPs, QPs, expletives, referential adverbials, subject agreement markers, and predicates, and showed that they bore the properties of anchors. That is, I presented evidence that they each are able to bear indices, that they are (or can be) phases, and, finally, that they function as part of a natural class of anchors.

An interesting area for future research would be to capitalize on the finding that there is cross-linguistic variation in the location of phase boundaries (Heck and Müller 2003, Gallego 2010, Harwood 2013, Bošković 2014, Mahoon 2017), and to determine whether this variation is correlated with variation in EPP properties.

3.3 The Inflectional Domain is for Anchoring

Ritter and Wiltschko (2014) also propose a theory of anchoring associated with the inflectional domain. For them, the INFL head is the locus of anchoring and it encodes a [±coincidence] feature that indicates whether the utterance time, location, or participants coincide with the event time, location, or participants. There are many similarities between Ritter and Wiltschko's analysis and my own; however, they must necessarily be different, as verbal inflection co-occurs with EPP phenomena in most languages. I thus propose that they are related, but distinct processes. However, that verbal inflection also encodes anchoring supports my hypothesis that anchoring is a part of grammar and is a primary function of the inflectional domain.

In this section, I extend Ritter and Wiltschko's theory of anchoring by proposing that *all* operations within the inflectional domain share the underlying purpose of anchoring, and, furthermore, that *all* anchoring operations occur within the inflectional domain. This hypothesis predicts that other operations, such as Case, viewpoint aspect, and mood are also related to anchoring. I begin, in Section 3.3.1, by providing an overview of the various domains of a clause, and showing how the inflectional domain fits into this broader perspective. Then, in Section 3.3.2, I discuss why multiple different anchors might be

Figure 3.2: The Three Domains, Repeated (Ritter and Wiltschko 2014)

required in a given clause. Lastly, I go through several different operations that occur in the inflectional domain, and show how they each function as anchors.

3.3.1   Clausal Domains

Ritter and Wiltschko (2014) propose that the clausal and nominal spines are made up of three domains: (a) the CP (or KP) functions to link the existing structure to the larger structure, (b) the IP (or DP) locates the event in time or space, and (c) the vP (or nP) represents the argument structure of the event.[12] This is shown in the tree in Figure 3.1, repeated here as Figure 3.2.

Under my view, the thematic domain (vP) represents the internal structure of the event — the relation between the arguments and the predicate, through relations like thematic roles or lexical aspect. The discourse domain (CP) represents the relations between the clause and the discourse context, such as information structure and pronoun reference. In other words, it connects the speech event to the discourse. Finally, the inflectional domain (IP) represents the relations between the event denoted by

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[12]Wiltschko (2014) adds a fourth domain in between InflP and vP to host aspect, which she calls the Point-of-View domain. For now, I will be following Ritter and Wiltschko (2014) in assuming three domains.

the utterance and the speech event,[13] by locating the event in time and space, through formalisms such as viewpoint aspect and the coincidence features of Ritter and Wiltschko. Another way to think of it is that the inflectional domain mediates or represents the relations between the discourse domain (i.e., the utterance) and the thematic domain (i.e., the event/situation). The difference between the discourse domain and the inflectional domain is that the discourse domain tracks links with the wider discourse (either linguistic or paralinguistic) while the inflectional domain tracks links with the evaluation situation and the speech event that takes place in the real world.

Under this view, it is no coincidence that the three domains appear in this order in the spine, nor does the order need to be encoded in UG, as indeed argued by Ramchand and Svenonius (2014). Rather, the discourse domain needs to be the outermost layer so that it can track with the wider discourse locally, and the inflectional domain needs to be sandwiched between the discourse domain and the thematic domain in order to track and create links between them. Furthermore, the IP is the only domain which is not also a phase. If IP were a phase, the CP would have only constrained access to the vP, limiting the ability of connections to be tracked, since such relations would have to cross two phase boundaries.

Further evidence for clausal domains comes from syntactic non-manual markings in sign languages and from nominalization, in which the natural divisions between domains are exploited. In sign languages, non-manual markings include expressions denoted by the face, head, and upper body. In contrast to lexical and adverbial non-manual markings, syntactic non-manual markings typically serve a purpose analogous to intonation in spoken language (Bross and Hole 2017). Based on an analysis of German Sign Language (*Deutsche Gebärdensprache*, DGS), Bross and Hole (2017) argue that not only do these syntactic non-manual markings carry a morphemic functional load in the same way that intonation does, but the scope of the operator it marks correlates with the height of the body part that encodes it. Bross (2018) takes the research one step further and argues that there are three different regions in the clausal hierarchy which are each expressed through different kinds of marking, as shown in Figure 3.3. High categories, above T, are expressed non-manually. The highest of these categories, such as speech-act, evidential, and epistemic modal markers, are marked with the upper face, such as through eyebrow

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[13]Many thanks to Elizabeth Cowper for suggesting wording that makes the distinction between the roles of the CP and the IP clearer.

wide scope

Speech-act-indicating operators Mirativity (*surprisingly*) Evaluation (*good/bad*) Evidentiality (*allegedly*) Epistemic Modality (*probably*)	CP Layer	Upper face
Scalarity (*little/much*)		Lower face
Tense		Manual: left-to-right (left edge)
Habitual Aspect (*usually*) Frequentative Aspect I (*often*) Volition (*intentionally*) Celerative Aspect I (*quickly*) Continuative Aspect I (*still*) Pefect(?) Aspect (*always*) Retrospective Aspect (*just*) Durative Aspect (*briefly*) Prospective Aspect (*almost*) Deontic Modality (*can/must*)	TP Layer	Manual: left-to-right
Root Modality (*can*) Voice (*well*)		Manual: right-to-left
Celerative Aspect II (*quickly*) Frequentative II (*often*) ...	VoiceP Layer	Manual: incorporation

narrow scope

Figure 3.3: Type of Marking used in DGS and Scope (taken from Bross 2018)

raising, while scalarity is marked with the lower face, for example, by puffing the cheeks. This region corresponds to Ritter and Wiltschko's (2014) Linking Domain. Next, the categories below T[14] but above Voice are expressed through manual marking. Again, this is broken into two categories. Viewpoint aspect, volitionality, and deontic modality are concatenated from left to right, while root modality and Voice are concatenated from right to left. These correspond to Ritter and Wiltschko's (2014) Anchoring Domain. Finally, categories below Voice, such as lexical aspect, are realized by concurrent manual markers that manipulate the movement path of the verb, for example, through reduplication to represent frequentative aspect. These categories correspond to Ritter and Wiltschko's (2014) Thematic Domain. Furthermore, although these studies were based on the properties of German Sign Language, Bross and Hole (2017) present some preliminary findings suggesting that the iconic representation of scope along the vertical axis of the body is perhaps universal across sign languages.

In her cross-linguistic comparison of nominalization processes, Alexiadou (2017) notes that nominalization can only occur at certain parts of the clause, as schematized in (40)-(41).

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[14]Note that Tense is not overtly marked in DGS.

(40) a.   [DP [CP ...

      b.   [DP [TP ...

      c.   [DP [AspectP...   [Alexiadou 2017: Lecture 3, Slide 4]

(41) a.   [*n*P [AspectP ...

      b.   [*n*P [VoiceP ...

      c.   [*n*P [*v*P ...   [Alexiadou 2017: Lecture 3, Slide 4]

If we assume Wiltschko's (2014) four-domain hypothesis, where the aspectual heads belong to a Point-of-View domain, these each correspond to the left edge of a clausal domain: the CP in (40-a) corresponds to the left edge of the Linking Domain, the TP in (40-b) corresponds to the left edge of the inflectional domain, the AspectP in (40-c) and (41-a) corresponds to the left edge of the Point-of-View domain, and VoiceP or *v*P in (41-b)-(41-c) correspond to the left edge of the Thematic Domain. If Alexiadou's (2017) cross-linguistic generalization about the sites of nominalization is correct, it provides further evidence that languages exploit the edges of clausal domains as natural transition points for a nominalization operation, and, therefore, independent evidence about the existence of clausal domains.

3.3.2   Multiple Anchors

Under Ritter and Wiltschko (2009, 2014)'s approach, every clause is anchored exactly once, by the inflectional features of either person, tense, or location. In my approach, however, there are multiple different anchors in a single clause. An anchor is any syntactic object denoting person, location, tense, or world that participates in an anchoring operation. Multiple anchors are required in every clause because, in order to be properly oriented, we need more than one landmark. Consider how we read maps. Just as we need to identify multiple (usually three, through triangulation) landmarks in order to identify our position on a map, we need multiple anchors in an utterance in order to locate the event situation described in an utterance within the world. Each of the anchors also has distinct characteristics. To carry on with the map metaphor, if Ritter and Wiltschko (2009, 2014)'s [±coincidence] feature is like a "You Are Here" (or, perhaps, "You Are Not Here") arrow on a map, indicating a correspondence between

a point on the map and a point in the world, the EPP picks out a salient and relevant landmark, and viewpoint aspect acts as a scale or a compass, indicating the internal parameters of the map (or the event) and how they correspond to the world. Thus, Ritter and Wiltschko's verbal inflectional features track whether the event situation and utterance coincide from the speaker's perspective, while the EPP tracks a particular 'landmark' that is relevant in the event situation, from the perspective of the event. Thus, although the EPP and verbal inflection are unified in their function as anchors, they operate separately and independently.

Ritter and Wiltschko (2014) discuss the following two cross-linguistic properties of their [coincidence] feature: (a) variability in what type of element may substantiate the anchoring, and (b) the possibility of dependent anchoring in certain types of clauses (i.e., the anchoring is dependent on an element higher in the clause or in the discourse). Both of these properties should extend to other anchoring properties, giving us the first two criteria for identifying an anchoring operation. I predict that the natural class of elements that can substantiate anchoring, elements that indicate person, location, or time (cf. Section 3.2), should be able to occur across all anchoring operations, and that dependent anchoring will be triggered in some syntactic contexts for all anchoring operations. Furthermore, if an operation has a similar counterpart in another domain (e.g., viewpoint and lexical aspect), I predict that there should be a contrast between the two, whereby the one internal to the inflectional domain can be shown to have an anchoring function, giving us a third criterion. In the next few sections, I show that a preliminary investigation indicates that all the operations in the inflectional domain also have an anchoring function, using these three criteria. Note that dependent anchoring for EPP and verbal inflection will be treated separately in Section 3.4, so will not be addressed here.

3.3.3   Verbal Inflection

Ritter and Wiltschko (2009, 2014) show that, alongside time (e.g., tense), verbs can inflect and anchor for person, as in Blackfoot (42), or for location, as in Halkomelem Salish (43). In Blackfoot, when an interlocutor is also an event participant, whether object or subject, the verb is marked with [+COIN], which is realized as the local morpheme *hp-* (42-a)-(42-b). Otherwise, it is marked as [-COIN], realized

by the null non-local morpheme (42-c).

(42) a. Kitsinóóhpoaawa.
          kit-   ino-   o-   hp-   oaawa
          2-   see.TA- 1:2- local- 2PL
          'I saw you (pl).'

      b. Kitsinóókihpoaawa.
          kit-   ino-   oki- hp-   oaawa
          2-   see.TA- 2:1- local- 2PL
          'You (pl) saw me.'

      c. Anna pookááwa inoyííwa anni imitááyi.
          ann- wa   pookaa- wa   ino-   yii- ∅   -wa ann- yi imitaa- yi.
          DEM- PROX   child- PROX see.TA- 3:4- NONLOCAL- PROX DEM- OBV dog-   OBV
          'The child saw the dog.'   [Blackfoot; Ritter and Wiltschko 2014: 1341]

In Halkomelem Salish, the verb is marked with [+COIN] when the location of the event overlaps with the location of the utterance, which is realized as the proximal particle *í* (43-a). Otherwise, it is marked as [-COIN], realized by the distal particle *lí* (43-b).

(43) a. í   qw'eyílex tútl'ò
          PROX dance   he
          'He is/was dancing [here].'

      b. lí   qw'eyílex tútl'ò
          DIST dance   he
          'He is/was dancing [there].'

                                        [Halkomelem Salish; Ritter and Wiltschko 2014: 1341]

There seems to be a preference cross-linguistically for time coincidence, but all three elements are attested in the anchoring function.

3.3.4 EPP

Just as verbal inflection could be substantiated by person, location, or time, so can the EPP. There seems to be a preference cross-linguistically for person EPP, analogous to the preference for time co-incidence for verbal inflection, but, again, all three elements are attested in both types of anchoring. Intra-linguistic alternations in EPP-type are possible (e.g., locative PPs in English, referential adverbials in Finnish), but constrained, and seem to be related to information structure.

3.3.4.1   Person EPP

The EPP is checked by person in English, through a subject DP, or in Greek, by the rich agreement features on the verb (cf. Alexiadou and Anagnostopoulou 1998). Although the [D] feature is traditionally considered to be what checks the EPP (Chomsky 1995), I propose that the EPP is sensitive to ϕ-features, including person. Previously in this chapter, I argued that the EPP is checked by an index. I assume that there is a dependency relation between the ϕ-features and the index.

First of all, Alexiadou and Anagnostopoulou argue that, in languages such as Greek, the EPP is checked by a D feature on the verb upon verb-raising, which is realized in the form of rich agreement. However, this could just as easily be analyzed as being sensitive to the ϕ-features in the agreement morpheme.

As I discussed in Section 2.1.1.1, Davies and Dubinsky (2001) show that English non-nominal subjects can bind anaphors (44) and trigger agreement in number on anaphors (44-c) and on the verb (45).

(44)   a.   [$_{CP}$ That Leslie arrived drunk]$_i$ itself$_i$ put Kelly in a foul mood.

        b.   You don't have to get the ball into the net. [$_{PP}$ Right between the two red markers]$_i$ is itself$_i$ sufficient to score.

        c.   [$_{PP}$ [$_{PP}$ Under the bed] and [$_{PP}$ in the closet]]$_i$ are themselves$_i$ reasonable places to stash the cash.   [Davies and Dubinsky 2001: 250]

(45)   a.   [$_{CP}$ that the march should go ahead] and [$_{CP}$ that it should be cancelled] have been argued by the same people at different times.

                                               [McCloskey 1991: 564, in Davies and Dubinsky 2001: 249]

        b.   Sandy talks a lot about her beach house and the family's Appalachian camping trips. As a result, [$_{PP}$ along the coast] and [$_{PP}$ in the mountains] remind me of Sandy's retirement fantasies.

        c.   [$_{AP}$ Very brawny] and [$_{AP}$ very studious] are what Cindy aspires to be.

                                                                      [Davies and Dubinsky 2001: 249]

In both of these cases, the non-nominal subject necessarily has ϕ-features but does not necessarily have

[D].[15]

3.3.4.2 Location EPP

As discussed in Section 2.2.2.2, the EPP can be checked by locative PPs in English locative inversion

constructions like (46), where the PP targets spec,IP (Culicover and Levine 2001) before moving on to

spec,CP (Bruno 2016). This is an example of the EPP being checked by a locative element.

(46)   Into the room walks Robin.

3.3.4.3 Time EPP

Finally, the EPP can be substantiated by time in Finnish, where temporal non-Case-marked adverbs,

such as *nyt* 'now,' *nykyään* 'nowadays,' and *eilen* 'yesterday,' can raise to check the EPP. Holmberg

(2005) shows that raising a referential adverb (47-a) is in complementary distribution with inserting an

expletive (47-b), showing they both check the EPP. In contrast, non-temporal adverbs cannot check the

EPP (47-c). Thus, an EPP checked by temporal elements is also attested.

(47)   a. Nyt   meni   hullusti.
             Now go.PST.3SG crazily
             'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

         b. Sitä meni   nyt hullusti.
             expl go.PST.3SG now crazily
             'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

         c. *Nopeasti meni   hullusti.
             quickly   go.PST.3SG crazily
             'Things quickly went wrong.'   [Finnish]

3.3.5   Subject and Object Agreement

We've already discussed two forms of subject-verb agreement which can function as anchors. Ritter

and Wiltschko (2014) argue that subject-verb agreement in Blackfoot functions as coincidence anchor-

ing, while I, following Alexiadou and Anagnostopoulou (1998), argue that subject-verb agreement in

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[15]Davies and Dubinsky (2001) also show that non-nominals are islands for extraction when in subject position, but not when elsewhere. This suggests that they also have D°, assuming that D is the phase head. My point here, though, is that they must have at least ϕ-features.

languages such as Greek checks the EPP. The crucial difference between these different forms of agreement has to do with the distinctions they make. The agreement marker in Greek contrasts all person and number combinations, and thus functions as a landmark, picking out a particular entity. On the other hand, the direct/inverse marker of Blackfoot only indicates whether a conversation participant is involved in the event, and thus functions as a coincidence anchor.

However, there are also languages which exhibit some form of subject-verb agreement with neither of these functions, such as the present third person singular morpheme -*s* in English, as well as agreement markers in French and Finnish. Further research into such languages is required in order to identify whether these agreement markers also exhibit some sort of anchoring property.

Some languages also exhibit object agreement. Object agreement is often posited to occur low, within the *v*P (e.g., Deal 2010, Coon 2017), so it is predicted to have thematic properties rather than anchoring properties. However, in other languages, object agreement may occur in the inflectional domain (e.g., this seems likely in languages where the same morpheme indexes both object and subject through either a person hierarchy, as in Blackfoot, or through a fused morpheme, as in Inuktitut), and so is predicted to have anchoring properties in such languages. I set this matter aside for future research.

3.3.6   Aspect

Viewpoint aspect can be viewed as anchoring the event time with respect to a reference time, analogously to tense anchoring the event time with respect to the utterance time (Giorgi and Pianesi 1997, Demirdache and Etxebarria 2000).

My approach to aspect diverges from Wiltschko's (2014) since she argues for a fourth domain where aspect is marked. According to her, this fourth domain introduces a point-of-view from which the event is reported. In contrast, I hypothesize that aspect is in the same domain as the other anchoring operations, and is another type of anchoring.

If anchoring is a function of the inflectional domain, there should be a contrast between aspect that is encoded within the inflectional domain and aspect that is encoded in the *v*P, as described by Travis (2010). This contrast obtains in the distinction between viewpoint aspect (e.g., perfective and

progressive) and lexical aspect (e.g., telicity, boundedness, etc). Only the former is anchored with respect to a reference time.

Bliss, Ritter, and Wiltschko (2010) have proposed a person-based aspectual system for Blackfoot, suggesting that there may be parametric substantiation for this category, as well. Additionally, in American Sign Language (ASL), some verbs agree with location, while others agree with person, and still others with time. This is another possible instance of parametric substantiation for aspect.

3.3.7   Case

Wiltschko (2011) argues that case-marking is dependent anchoring (anchoring dependent on another syntactic object rather than on an object in the world) within the nominal domain, where DPs are valued for [$u$identity] instead of [±coincidence], relative to participant argument or grammatical relation. However, her proposal is about how case is marked internally to nouns, once they receive it. I would like to look at the properties of the positions that assign case. Since Case (at least nominative, and perhaps absolutive) is assigned by functional heads in the inflectional domain, the strongest version of my hypothesis would predict that it also has an anchoring function in the clausal domain.

As Wiltschko (2011) notes, Case marking does seem to play a relational role, by formally and systematically encoding the θ-relations of the event so that they are recoverable after movement. However, this formalizes the argument structure, and so one might predict that it is a job for the vP. Fortunately, most cases are assigned within the vP. The exception is nominative case (and perhaps absolutive). My hypothesis then predicts that nominative case should somehow be different from the other cases by being more anchor-like in some way, analogously to the contrast between viewpoint and lexical aspect (see Lahiri and Dresher 1983-1984 for some potential evidence). Perhaps the contrast is between structural cases (NOM and ACC) and non-structural cases. One might argue that accusative case, being assigned by vP, the phase head, may belong to the anchoring domain, rather than the lexical domain.

Cowper (2016) discusses a construction she terms pseudofiniteness in languages like West Flemish and Romanian, where T in a non-finite clause receives the ability to assign nominative case from a higher case-assigning head, as illustrated in (48). Here, the embedded subject receives the ability to

assign nominative case from the matrix T°.

(48) Îi ținea la ușă [pentru a avea tu/*tine timp să strângi vasele]
     them kept-3SG at door for to have you-NOM/*ACC time SA pick dishes-the
     'He was keeping them at the door to give you time to pick up the dishes.'

[Romanian; Alboiu and Motapanyane 2000: 39]

This could be an example of dependent anchoring in Case.

3.3.8 Mood

Mood may involve anchoring within possible worlds. Schlenker (2015) shows that the same grammatical formalisms (the use of loci) are used in ASL to track possible worlds, as well sas person, times, and locations, suggesting that possible worlds, as well, belong to a natural class of deictic elements. In English, mood appears to be in complementary distribution with tense, and so may substantiate the [±coin] features instead of tense. The 'present' modals (*can, must, will, shall...*) represent [+coin], since the set of worlds in the common ground is a subset of the set of worlds denoted by the proposition, while the 'past' tense modals, in contrast, (*could, might, would, should...*) represent [-coin].

Similarly, Ritter and Wiltschko (2014) analyze the fake tense marking in English counterfactual expressions, shown in (49), as marking [-coin] in realis, and as anchored to an abstract evaluation situation argument in the specifier of CP, indicating that the event does not coincide with the evaluation situation.

(49) If I had a car now... [Ritter and Wiltschko 2014: 1348]

On the other hand, in many languages (e.g., French and Spanish), mood is not in in complementary distribution with tense, but instead such languages have a separate subjunctive paradigm. However, Ritter and Wiltschko (2014) show that, in Balkan languages, the subjunctive exhibits dependent anchoring, analogous to English infinitivals, as discussed in Section 3.4. When embedded under desiderative predicates, as in (50-a), the embedded clause receives a dependent [-COIN] value and is able to have independent temporal reference. However, when embedded under an aspectual verb, as in (50-b), the embedded clause receives a dependent [+COIN] value and must receive a simultaneous interpretation,

as indicated by the ungrammaticality of a future-denoting adverbial such as *avrio* 'tomorrow.' In both

of these cases, the [±COIN] feature of the embedded clause predicate is dependent on the main clause

predicate, rather than on the utterance situation.

(50)   a.   tora, o   Yanis elpizi/theli   na figi   avrio
              now, DET John hopes/wants PRT leave.3SG tomorrow
              'Now, John hopes/wants to leave tomorrow.'

        b.   tora, o   Yanis kseri/arxizi   na komibai   (*avrio).
              now, DET John knows.how/begins PRT swim.3SG tomorrow
              'Now, John knows how/begins to swim (*tomorrow).'

                              [Greek; Varlokosta 1993, as cited in Ritter and Wiltschko 2014: 1359]

3.3.9   Conclusion to Section 3.3

In this section, I presented Ritter and Wiltschko's theory of the anchoring domain and described

how they accounted for the parametric substantiation in verbal inflection through a requirement for

anchoring. I then extended their proposal by hypothesizing that *all* operations within the inflectional

domain share the underlying purpose of anchoring, and, furthermore, that *all* anchoring operations occur

within the inflectional domain. I then demonstrated how this hypothesis might apply to other operations

within the inflectional domain, such as Case, viewpoint aspect, and mood.

3.4   Dependent Anchoring

Ritter and Wiltschko (2014) note that non-declarative and non-matrix clauses typically have different

anchoring properties. For example, inflectional anchoring in non-finite clauses must be null and is

dependent on the main clause, and imperatives do not inflect for tense, but are instead dependent

on structure in the C domain. The same generalization holds for EPP-anchoring; the EPP typically

takes different forms in clauses of different types. For example, non-finite clauses and imperatives both

typically require null subjects in English. Harley and Carnie (1997), Harley (2000), and Holmberg (2005)

suggest that the overtness of subjects in different contexts is determined by a [±overt] diacritic feature

on the EPP.[16] I propose that contexts which permit or require a covert EPP-anchor systematically have

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[16]Although they give it different names.

dependent reference. For example, in English non-finite clauses, covert subjects are dependent (through either control or raising) on the main clause subject.

The two examples discussed here — non-finite clauses and imperatives — have dependent anchoring for both [coincidence] and EPP. However, this is not necessarily the case; there could also be cases where one is dependent and the other is independent.

3.4.1 Dependent anchoring in non-finite clauses

Ritter and Wiltschko (2014) argue that the [±coin] feature in non-finite clauses is valued anaphorically to the event situation of the embedding predicate. There are two classes of embedding verbs: aspectual verbs value the non-finite I° with [+coin] (51-a), while future irrealis verbs give a [-coin] feature (51-b), allowing the non-finite clause to have independent temporal reference.

(51) a. On Monday, Mika started to dance (*on Tuesday).

  b. In the morning, Konrad wanted to sleep (in the afternoon).

[Ritter and Wiltschko 2014: 1353]

Both defective subject licensing and the lack of tense marking are properties of non-finite clauses cross-linguistically (Cowper 2016), and both are explained by dependent anchoring. According to Platzack and Rosengren (1998, as cited in Rosengren 2002: 151), there is an inherent connection between finiteness and anchoring: "Finiteness anchors the event in time and space, by identifying a point on the time line with the speaker's here and now. In other words, a finite utterance is referring to an event in the speaker's world or some other world." This could explain why finite clauses have different anchoring properties than non-finite clauses.

3.4.2 The Distribution of null subjects and the EPP

Recall from Chapter 2, Section 1.5.2, that the EPP is checked in non-finite clauses. In non-finite clauses in many languages, the subject can be null, in the form of PRO or a deleted copy, and, in fact, an overt subject is only possible with additional licensing from the matrix verb or from the complementizer

for.

In English, non-finite clauses typically *require* null subjects. In these contexts, covert subjects are dependent (through control or raising) on the main clause. Overt subjects are only possible in non-finite clauses when licensed through ECM (52-a) or by C (52-b).

(52)   a.   I expect Marg/her to win.

        b.   For Marg/her to win would be exceptional.

Evidence that subjects of infinitivals in English are required to be null, rather than specifically PRO, come from sentences such as those below.

(53)   a.   Which horse did John wager <which horse> to win?

        b.   *John wagered the grey horse to win.   [Harley and Carnie 1997: 82]

(54)   a.   The woman that Mary assured me <the woman> to be intelligent.

        b.   *Mary assured me the woman to be intelligent.   [Harley 2000: 29]

In (53-a), there is a *wh*-copy in the subject position of the infinitival verb *win*. An overt subject is not allowed in the same position in (53-b). Likewise, in (54-a) the copy of *the woman* is in the subject position of the non-finite clause, whereas an overt copy of the same DP is not grammatical in (54-b).

In order to account for the distribution of PRO, Chomsky and Lasnik (1993) propose that PRO is licensed by null case. This approach is problematic for two reasons. First, there is no independent evidence for the existence of null case, and instead, the distribution of null case is described in circular terms (null case is available exactly in those contexts where PRO appears). Second, there is empirical evidence from Icelandic that subjects of non-finite clauses bear the case that an overt subject would be assigned in a finite context. In Icelandic, floating quantifiers agree in case with the nominal they modify. In control contexts, we can identify whether the quantifier agrees with PRO or with the matrix clause subject if one of the two verbs assigns quirky case to its subject. In (55), the verb *leiðast* 'bore' assigns quirky dative case to its subject, PRO, which in turn agrees with the floating quantifier, *öllum* 'all.' The matrix subject, in contrast, bears nominative case.

(55) Strákarnir   vonast til [að PRO leiðast ekki öllum   í skóla].
the boys.NOM hope   for to   bore   not all-DAT.PL.M in school
'All the boys hope to not be bored in school.'   [Icelandic; Sigurðsson 1991: 331]

Harley (2000) and Harley and Carnie (1997) suggest that the EPP governs the distribution of PRO in languages with an EPP, like English. They posit a [±overt] diacritic feature on the EPP, governing when an overt subject is required and when one is disallowed. According to them, it is the EPP which licenses PRO in infinitivals.

Harley (2000) comes to the conclusion that the restrictions on null subjects in non-finite clauses are a result of the EPP by contrasting English with Irish. She argues that Irish does not have the same restrictions on the distribution of null and overt subjects because, in her view, it lacks an EPP (McCloskey 1996b). The fact remains that Irish appears to a freer distribution of both null and overt subjects. First, she shows that there are overt subjects in Irish non-finite clauses, as shown in (56).

(56) Níor mhaith liom   [é   a theacht abhaile].
NEG please   to.1SG   3SG come.NFIN home
'I wouldn't like for him to come home.'   [Irish; Harley 2000: 9]

PRO can also appear in finite Irish clauses (Stenson 1989, in Harley 2000), as in (57). In these cases, PRO takes an arbitrary or an impersonal interpretation, and co-occurs with impersonal marking on the verb.

(57) Deirtear   PRO go   bhfuil   droch-aimsir in irinn
say.PRES.IMP PRO COMP be.PRES bad weather in Ireland
'(They) say that Ireland has bad weather.'   [Irish; Harley 2000: 11]

Stenson (1989, in Harley 2000) shows that there is a subject, albeit a null one, in such constructions. First, the inchoative interpretation is unavailable in the impersonal construction, as shown in the contrast between (58-a) and (58-b), indicating a semantic subject.

(58) a. Bhris   an fhuinneog.
break.PST the window
'The window broke.'

b. Briseadh   PRO an fhuinneoig.
break.PST.IMP PRO the window

'They broke the window.'   [Irish; Harley 2000: 11]

Secondly, passives can also appear with impersonal marking, in which case the derived subject receives an arbitrary interpretation, as shown in (59).

(59) Táthar   PRO buailte again.
      be.PRES.IMP PRO beaten by.1PL
      '(They) have been beaten by us.'   [Irish; Harley 2000: 11]

Stenson (1989, in Harley 2000) also shows that these constructions differ from *pro* constructions. For one, the verb does not take personal agreement in these constructions. It thus appears that PRO can appear in both finite and non-finite clauses in Irish.

The free distribution of null and overt subjects is not just a quirk of Irish. Several other languages also allow overt phrasal subjects in infinitivals (Szabolcsi 2009), as in the Spanish examples in (60).

(60) a. Sin   **yo** saber-lo   Pedro se   compró un coche.
          without I   know.NFIN-3SG Pedro REFL bought a   car
          'Without me knowing it, Pedro bought himself a car.'

      b. Interrogar **el fiscal**   al   testigo no   era tarea fácil.
          ask.NFIN   the public prosecutor to.the witness NEG was task easy
          'It was not an easy task for the public prosecutor to question the witness.'

                                                             [Spanish; Pöll 2007: 95]

Sundaresan and McFadden (2009) show that alternations between overt subjects and PRO occur in languages as diverse as Malayalam, Sinhala, Latin, and Middle English, and even in Modern English gerunds. They propose that the distribution of overt subjects and PRO can be explained by selection; the embedding predicate selects for a particular type of subject. This is in line with Ritter and Wiltschko's (2014) analysis of dependent coincidence anchoring, which, likewise, was controlled by the embedding predicate.

If Harley (2000) and Harley and Carnie (1997) are right, and the overtness requirement is linked to the EPP, we might posit that it is only DP-EPP languages which have an overtness requirement on the subject. In contrast, Holmberg (2005) provides evidence from Finnish that null subjects are permitted in finite clauses in a DP-EPP language. In the next section, I show that silent pronouns in Finnish

are systematically dependent anchors. Thus, the generalization that can be made is that pronouns are
required to be silent when they are dependent anchors. In Irish, the distribution of null and overt
pronouns is free because pronouns are not involved in anchoring, dependent or otherwise.

3.4.3 Dependent anchoring is silent

Some have posited that there is an overtness requirement associated with the EPP (e.g., Sifaki
2004, Sigurðsson 2010, Abe 2015, etc.; see Section 1.1.4.2 for more details). This has been posited, for
example, to explain why an overt expletive is required in English, despite being semantically empty,
instead of a *pro*, as in some other languages. Italian, as well, seems to have an overtness requirement,
since an overt pronoun is required to check the EPP in the second person singular subjunctive, where
the agreement morpheme is syncretic with the other singular forms, as discussed in Section 2.2.2.4. In
contrast, languages with different forms of the EPP seem to have looser requirements on the overtness
of subjects, suggesting that overtness is tied to the EPP (Harley 2000). However, stating that the EPP
must be checked by an overt element is an oversimplification. In Section 1.5.2, I argued that the EPP
is checked in non-finite clauses; and yet, non-finite clauses typically require null subjects. Likewise,
imperatives also appear to have null subjects.

Holmberg (2005) argues that null referential *pro* can check the EPP in Finnish. Evidence comes from
(61), where, in the verb-initial word order in (61-a), the null referential subject pronoun checks the EPP,
and blocks the raising of locative DP *jäällä* 'on the ice.' In (61-b), in contrast, the subject is generic and
cannot check the EPP. Therefore, another DP, in this case *jäällä* 'on the ice,' must raise instead. Note
that there appears to be a preference for subject-raising in Finnish, which suggests that (61-b) should
be impossible, or at least disprefered, if the subject were able to raise and check the EPP.

(61)   a.   Kaadut jäällä.
              fall.2SG ice.ADE
              'You fall on the ice.'   [Finnish]

        b.   Jäällä   kaadut.
              ice.ADE fall.2SG
              'One falls on the ice.'   [Finnish]

Both null referential and generic *pro* are syntactically active. Among other things, they can bind

anaphora (Koskinen 1992, Holmberg 2005), as shown in the examples in (62).

(62)   a.   Shelliasemalla   voi   pestä auto-nsa.
              Shell-station-ADE can-3SG wash car-POS.REFL
              'You can wash your car at the Shell station.'   [Finnish; Holmberg 2005: 549]

        b.   Yliopisto-lla   tapa-a   ystäviä-nsä.
              university-ADE meet-3SG friends-POS.REFL
              'At the university (one) meets his/her friends.'   [Finnish; Koskinen 1992: 29]

Additionally, in constructions involving the null generic third person pronoun, the object receives mor-

phological genitive case, as expected if there is a nominative-marked subject (63-a), in the same way as

with a referential subject, whether null or overt (63-b).

(63)   a.   Pankista sa-a   helposti lainan   / *laina.
              bank-INE get-3SG easily   loan.GEN / loan.NOM
              'One gets a loan easily from a bank.'   [Finnish; Koskinen 1992: 44]

        b.   Juhani_i kertoi että (hän_i) oli   ostanut **talon**.
              Juhani said   that   he   have-PST.3SG bought house.GEN
              'Juhani said that he had bought a house.'   [Finnish; Holmberg et al. 2009: 65]

However, Finnish, being a partial null subject language, does not freely allow null subjects. Rather,

third person referential null subjects must be licensed by an antecedent, as discussed by Holmberg et al.

(2009). As such, I posit that null EPP-checkers are systematically dependent anchors, as will be discussed

more in depth over the next few sections. Null first and second person pronouns can be null in most

contexts in Finnish; I assume they are licensed by speaker and addresses projections in the C-domain

(e.g., Sigurðsson 2011). However, third person pronouns can only be null when licensed by a higher

argument, as shown in (64).

(64)   a.   Pekka_i väittä-ä   [että hän_{i,j}/∅_{i/*j} puhu-u   englantia   hyvin].
              P.NOM claim-3SG that he.NOM   speak-3SG English.PAR well
              'Pekka claimes that he speaks English well.'   [Finnish; Holmberg 2005: 539]

        b.   Se   oli   Tarjalle_i pettymys   [ett-ei   hän_{i,j}/∅_{i/*j}
              It.NOM be.PST.3SG Tarja.ALL disappointment.NOM that-NEG.3SG 3SG.NOM
              saa-nut   luke-a   latina-a   koulu-ssa].
              can-PST.PTPL study-NFIN Latin-ACC school-INE
              'It was a disappointment for Tarja that she couldn't study Latin at school.'

    c.   Se   oli   Tarja-n$_i$ äidille$_j$ pettymys   [ett-ei   hän$_{i,j}$/$\emptyset_{*i/j}$

        It.NOM be.PST.3SG Tarja-GEN mother.ALL disappointment.nom that-NEG.3SG 3SG.NOM

        saa-nut   luke-a   latina-a   koulu-ssa].

        can-PST.PTPL study-NFIN Latin-ACC school-INE

        'It was a disappointment to Tarja's mother that she couldn't study Latin at school.'

The example in (64-b) shows that c-command is too restrictive to characterize the relationship required to license a null third-person subject, however, the example in (64-c) shows that there are still syntactic restrictions on what licenses a null subject pronoun. What is important to note here is that, although null DPs may check the EPP, they can only do so when they have dependent reference. Null pronouns without dependent reference, such as the generic pronoun in (61-b), cannot check the EPP.

It thus appears that dependent anchoring is systematically null. This is true not only for the EPP, where subjects of non-finite clauses must be null in DP-EPP languages, but also for coincidence anchoring. Recall from Section 3.4.1 that non-finite clauses also exhibit dependent tense anchoring. Crucially, however, such anchoring is *silent*, just as with non-finite subjects.

So the generalization we can make here is that there are cases where the reference of the anchor is dependent on (or bound to) an antecedent, and, in those cases, it is required to be null. This is consistent with Montalbetti's Generalization, shown in (65).[17]

(65)   Overt Pronoun Constraint (Montalbetti 1984: 94)

        Overt pronouns cannot link to formal variables iff the alternation overt/empty obtains.

In other words, in syntactic environments where both null and overt pronouns are allowed, only the null pronoun can be bound. Note that this is a one-way condition. Null pronouns can also be referential in some languages. As such, I do not predict that all null subjects are instances of dependent anchoring.

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[17]Many thanks to Winfried Lechner for pointing out this connection.

3.4.4 Imperatives

The imperative, shown in (66), also lacks tense and allows null subjects, and thus appears to have dependent anchoring for both coincidence and the EPP.

(66)   (You) be quiet!

Ritter and Wiltschko (2014) argue that imperative verbs are valued as [+coin] by C, directing the hearer to make the event situation part of their plan set. Likewise, subjects of imperatives can be null because their reference is dependent on person features in the C domain (cf. Zanuttini, Pak, and Portner 2012).

3.4.5 Conclusion to Section 3.4

In this section, I showed how clauses of different types have different anchoring properties. In particular, I discussed non-finite and imperative clauses. Non-finite clauses are dependent on the clause under which they are embedded for both their subject licensing (through control or raising) and their tense marking, while imperative clauses also do not inflect for tense, but have special structure in the C domain. Ritter and Wiltschko (2014) argued that the [±coin] feature for verbal inflection in both clause types is valued anaphorically by higher heads in the structure, in a process they call dependent anchoring. Likewise, I propose that null elements which check the EPP are also licensed through a dependent anchoring process, and propose that this can account for null subjects in English non-finite and imperative clauses, as well null referential subjects in Finnish.

So far, I have argued that the inflectional domain has anchoring as its general purpose, however, I have not discussed *why* this might be the case. In the next section, I argue that anchoring is a general property of human language that allows it to exhibit displacement, one of Hockett's (1960) design features of languages. Following that, in Section 3.6, I discuss the existence of unanchored clauses in language and how that can be consistent with my claims that anchoring is a fundamental property of human language.

3.5 Anchoring as a General Property of Human Language

Anchoring is necessary to a communication system capable of displacement, the ability to communicate about things outside of the here-and-now, since it is of no use to communicate about eventualities outside the immediate context if your interlocutor does not know the context in which the eventuality does (or does not) occur. Thus, anchoring allows us to talk about things outside the here-and-now while still maintaining a link to the immediate context. This, in turn allows us to lie (Dor 2017), discuss hypotheticals and other abstract concepts, and may even be linked to the possibility of abstract thought itself.

Displacement is one of Hockett's (1960) properties of human language that separate it from animal communication systems (see also Corballis 2017). It is well known that few animal communication systems have the property of displacement, but even the few animal communication systems that do (e.g., bees) still do not have it to the same extent as humans do. While honey bees can communicate about displacements in location, they cannot communicate about displacement in time, in person, or in realis. Bees are able to create displacement in location since they anchor for it deictically, by indicating a direction with the angle of their dance and the distance through the duration of the dance (Price and Grüter 2015). It seems that human language is the only communication system that fully exploits displacement. Thus, it may be the case that anchoring, the grammatical property which allows for displacement, is part of the narrow faculty of language.

Corballis (2017) notes that there are two cognitive skills that allow human language to have the property of displacement. The first is the ability to mentally navigate through time and space. This includes recalling past events or imagining future events, zooming in and out of space (to the room you are in, the building, the city, etc.), and imagining a location from various orientations. This first quality is not unique to humans. However, it also does not allow for displacement in communication unless combined with the second quality Corballis discusses—theory of mind. Theory of mind is the ability to attribute mental states, beliefs, intentions, attitudes, desires, etc. to others and to oneself, and also the understanding that one's own mental state may be different from others'. Corballis notes that it is controversial whether non-human animals have a theory of mind, although it is reasonable to

conclude from the research that it is at least less developed when compared to humans.[18] When these two skills are combined, it allows us to narrate travel through time and space to others; in other words, to communicate displacement.

According to Dor (2017), displacement is a key component of 'experiential communication'—that is, sharing our experiences with others. Other technologies—like photography, recording, filming, painting— also allow for displacement, but language goes beyond even that. Dor notes that, with language, the addressee reconstructs the experience in their own imagination, without needing any material evidence, and goes beyond what they can experience for themselves. Because of this, we can share our own experiences, and have others communicate their experiences to us. This is in essence what allows humans to lie—we can report false experiences. But it also allows us to imagine and communicate hypotheticals and other events that neither of the interlocutors actually experienced firsthand.

3.6   Unanchored Clauses

In this section, I discuss a few contexts where clauses are truncated and lack the EPP. I argue that, in these cases, the clauses remain unanchored. I argue that they are able to remain unanchored since they occur in contexts where anchoring is provided pragmatically.

In previous work (see also Section 1.5.1), I have argued that constructions in Finnish where the EPP appears to remain unchecked are truncated clauses, lacking the EPP head and everything that dominates it, on the basis of their distribution. Registers of English which allow for subject drop, such as diary drop, show a very similar distribution. Just as with Finnish truncated clauses, diary drop is not possible in emebedded clauses and in questions, nor in clauses with topicalized arguments. Based on their distribution, Haegeman (2013) proposes that diary drop clauses are also truncated. Some other contexts where null subjects are permitted in English, such as child speech and abbreviated styles, also show similar properties.

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[18] An interesting avenue for research is to determine how acquisition of tense markings and obligatory subjects lines up with the development of theory of mind in children. Note that early childhood utterances (e.g., in the two-word stage) are unanchored.

3.6.1 Finnish Truncated Clauses

As discussed in Chapter 2, the EPP in Finnish is normally checked by raising a DP, although it can also be checked by referential adverbs. According to Holmberg (2005), the EPP rule in Finnish results in a prohibition in Finnish against verb-initial clauses, shown in (67-a). When a clause has a null generic subject, as in (67), either an expletive must be inserted (67-b), or an EPP-checking element, such as the referential adverb *nyt* 'now,' must raise to pre-verbal position (67-c). The clause cannot remain verb-initial (67-a).

(67)   a. *Meni   nyt hullusti.
            go.PST.3SG now crazily

      b. Sitä   meni   nyt hullusti.
            3SG.PAR go.PST.3SG now crazily

      c. Nyt meni   hullusti.
            Now go.PST.3SG crazily
            'Now things went wrong.'   [Finnish; Holmberg 2005: 541]

However, in a clause containing no potential EPP-checking elements, as in (68), an expletive may be inserted but is not required.

(68)   (Sitä)   meni   hullusti.
        3SG.PAR go.PST.3SG crazily
        'Things went wrong.'   [Finnish; Holmberg 2005: 542, 543]

I worked with a speaker who does not have an expletive in her grammar. In her speech, a verb-initial clause is only possible when there is no eligible EPP-checking element in the clause. This is still the same pattern, just without the option of inserting an expletive.

(69)   a. Meni   huonosti.
            go.PST.3SG wrongly
            'Things went wrong.'   [Finnish]

      b. ?Meni   nyt hullusti.
            go.PST.3SG now crazily
            'Things went wrong now.'   [Finnish]

These patterns are surprising under the view that the EPP is obligatory. I argue that the EPP appears

to be optional because in certain contexts it is possible to truncate the clause, removing the head bearing the EPP feature. It is thus not the EPP itself which is optional, but the head which bears the EPP feature. In these cases, anchoring is done pragmatically, as discussed in Section 3.6.3, rather than formally.

3.6.1.1 The Structure of a Finnish Clause

The elements normally associated with T° in languages such as English are spread over several heads in Finnish. This can be seen in (70), in which subject-verb agreement appears on the negation marker, while tense appears on the auxiliary.

(70)   Kaikki opiskelijat ei-vät   ole   muutta-neet   uusiin   asuntoihin
        All   student.PL NEG-3PL be.PRES move-PST.PTPL.PL new.ILL apartment.PL.ILL
        'The students haven't all moved to new apartments.'   [Finnish]

I thus adopt a modified version of the structures proposed by Holmberg et al. (1993) and Koskinen (1998), as shown in the tree in (71).

(71)

```
                              CP
                            /    \
                          C      FocusP
                                /     \
                             (XP)      \
                                  Focus    SubjP
                                          /    \
                                      (YP)      \
                                          Subj    NegP
                                           |      /  \
                                          EPP  Neg   TMP
                                                      |
                                                     TM
```
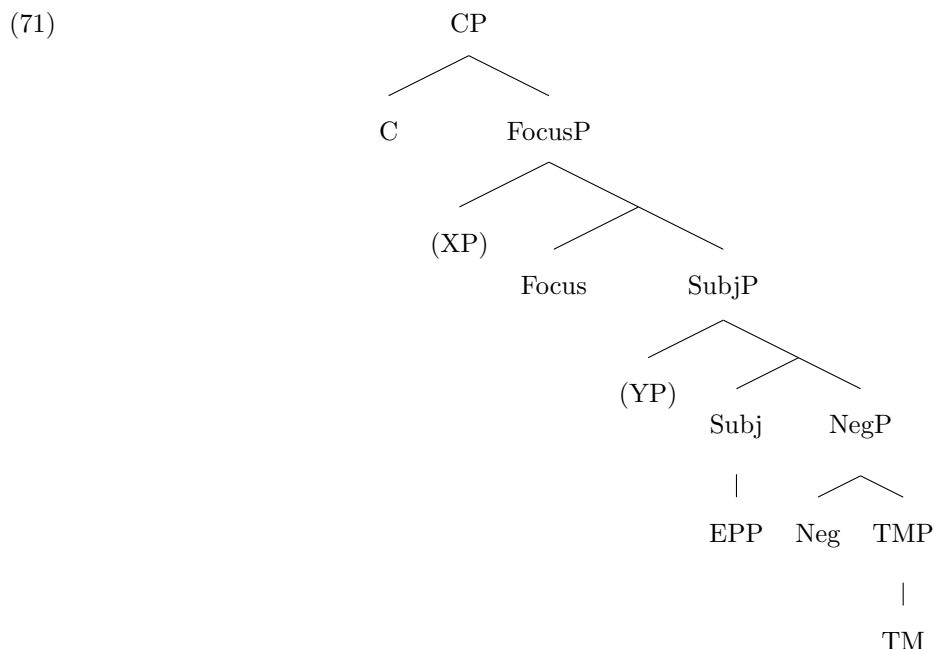
The EPP feature in Finnish is located on Subj° and is checked by raising DPs and referential AdvPs to its specifier (Holmberg 2005). There is also evidence of head-to-head raising of verbs, auxiliaries, and

the negation marker to Subj° in a domino-like pattern; these heads move all the way up to Subj° unless a filled head intervenes, in which case, it stops, and the next head continues the movement.

There are two pieces of evidence that the apparent optional EPP in Finnish is due to clausal truncation. First, no C-domain elements can occur in a clause with an optional subject, and, second, subject-verb agreement appears in the default form in clauses without a subject. These two pieces of evidence are discussed in the next two subsections.

3.6.1.2 Lack of C-domain elements

The EPP is always obligatory when there are overt C elements in the clause. For example, an overt external argument is required in finite embedded clauses headed by the complementizer *että*.

(72) a. Kuulin   että asiat menivät huonosti.
     hear.PST.1SG that thing.PL go.PST.3PL wrongly

    b. *Kuulin   että meni-(vät) huonosti.
      hear.PST.1SG that go.PST-3(PL) wrongly
      'I heard that things went wrong.'   [Finnish]

A finite embedded clause can appear without an overt external argument if a referential adverb checks the EPP, as in (73).

(73) Kuulin   että nyt meni   huonosti.
   hear.PST.1SG that now go.PST.SG wrongly
   'I heard that things went wrong now.'   [Finnish]

Non-referential adverbs, on the other hand, which are unable to check the EPP, cannot rescue the clause. An embedded clause with a non-referential adverb such as *ehkä* 'perhaps' in the EPP position is ungrammatical, in (74-a). Note that the adverb is able to go in a preverbal position, as in (74-b); it is just unable to take the place of the subject.

(74) a. *Kuulin   että ehkä meni(-vät) huonosti.
     hear.PST.1SG that perhaps go.PST.3(PL) wrongly

    b. Kuulin   että ehkä asiat menivät huonosti.
      hear.PST.1SG that perhaps thing.PL go.PST.3PL wrongly
      'I heard that maybe things went wrong.'   [Finnish]

An overt external argument is also required in the formation of questions, which involves raising the verb to a head within the C domain.

(75) a. Meni-vät-kö asiat   huonosti?
          go.pst-3pl-Q thing.pl wrongly

      b. Meni-kö   se   huonosti?
          go-PST-3SG-Q 3SG.NOM wrongly

      c. *Meni-kö   huonosti?
          go-PST-3SG-Q wrongly
          Did things go wrong?   [Finnish]

Finally, the EPP is also required in clauses containing sentential adverbs, as shown in (76)-(77).

(76) a. Valitettavasti asiat   meni   huonosti.
          unfortunately thing.PL go.PST.3SG wrongly

      b. ?Valitettavasti meni   huonosti.
          unfortunately go.PST.3SG wrongly
          'Sadly, things went wrong.'   [Finnish]

(77) a. Selvästi asiat   meni   huonosti.
          clearly thing.PL go.PST.3SG wrongly

      b. *Selvästi meni   huonosti.
          clearly go.PST.3SG wrongly
          'Clearly, things went wrong.'   [Finnish]

Thus, the EPP is not required in Finnish when there is no evidence of elements located in heads higher than the head bearing the EPP feature.[19] I also assume that clausal truncation is disallowed when there are referential elements in the clause, as these require structure in the left periphery (Sigurðsson 2011).

Nonetheless, these truncated clauses must be able to include NegP, as shown in (79).

---

[19]Note that focus constructions behave unexpectedly, as shown in (78), below. Here, the overt external argument can be omitted, although it looks like the verb moves to the Focus head in the C domain. This issue will be set aside for further research.

(78)   Meni-pä   (asiat)   hullusti.
          go-PST-3SG-FOC thing.PL crazily
          'Things, indeed, went wrong.'   [Finnish]

(79)   Ei   mennyt   hullusti.
        NEG.3SG   go.PST.PTPL   crazily
        'Things didn't go wrong.'   [Finnish]

The above data demonstrate that the truncated clauses contain no C elements, but may contain a NegP,

which is immediately below SubjP.

3.6.1.3 Subject-Verb Agreement

The other function of Subj° (the head that bears the EPP feature) is to bear subject-verb agreement.

Whether Subj° contains a main verb, an auxiliary, or the negation marker, subject-verb agreement

appears in Subj° (see (70) above for agreement on the negation marker, for example).

Thus, the clausal truncation hypothesis predicts a lack of agreement in truncated clauses. If case is a

reflex of agreement, there should also be no case marking on the subject. As it turns out, these truncated

clauses always appear with the third person singular null generic pronoun. In these constructions, the

verb appears in the third person singular form and there is evidence that the null generic pronouns

themselves bear nominative case (see Holmberg 2005, among others). However, both nominative case

and the 3SG agreement appear as null morphemes, and so could very easily be default. There is therefore

no evidence that agreement takes place. In contrast, an overt subject is required with verbs which mark

the subject with quirky case, such as *täytyä*, 'must,' shown in (80). The subject can include a DP (80-a),

a pronoun (80-b), or even a referential adverbial (80-c), but must be overt (80-d).

(80)   a.   Asioiden   täyty-y   mennä   huonosti.
             thing.PL.GEN   must.3SG   go.NFIN wrongly
             'Things must go wrong.'

        b.   Sen   täyty-y   mennä   huonosti.
             3SG.GEN   must-3SG   go.NFIN   wrongly
             'It must go wrong.'

        c.   Nyt täyty-y   mennä   huonosti.
             now must-3SG   go.NFIN wrongly
             'Now things must go wrong.'

        d.   *Täyty-y   mennä   huonosti.
             must-3SG   go.NFIN wrongly
             'Things must go wrong.'

3.6.2 English Truncated Clauses

3.6.2.1 Gerunds

English gerunds are also frequently assumed to lack some functional structure (e.g., Bjorkman, Cowper, and Siddiqi 2018). Interestingly, EPP effects also disappear in these structures, since subjects are optional, as shown in (81) (cf. Harley 2000).

(81)   [Barry/PRO$_{i/*j}$ having no hot sauce], we$_i$ went to the store.

<div align="right">[Sundaresan and McFadden 2009: 20]</div>

3.6.2.2 Register-Based Clausal Truncation

Certain registers of English also allow for subject omission, such as diary writing. This is known as *diary drop*. Parallel to optional expletives in Finnish, diary drop is restricted to root clause contexts, as shown in (82).

(82)   a.   Dreamt that *(I) picked up a New Yorker.

         b.   It was good if *(I) do say it myself.

         c.   Have dinner at Palace where *(I) make a speech in reply to the Mexican President.

         d.   Before *(I) went, Clive came to tea.

         e.   Says *(he) has been struck by the number of more or less ordinary Conservatives *(he) has met who are becoming perturbed by the Government's foreign policy.

<div align="right">[Diary English; Haegeman 2013: 89, 94]</div>

Likewise, it is not possible in questions, as shown in (83).

(83)   a.   *(When) will __ see her again?

         b.   *Are __ coming to dinner tonight?   [Diary English; Haegeman 2013: 94]

Diary drop is also not possible when an argument has been fronted, although it is possible when an adjunct has been, as shown in (17).

(84)   a.   *This book, didn't like.   [Diary English; Wilder 1997, as cited in Haegeman 2013: 94]

b.   This morning woke to get a letter in the mail...   [Diary English; Haegeman 2013: 94]

Haegeman (2013) argues that subject omission in diary drop is also a case of clausal truncation, however her analysis is somewhat different than my analysis of Finnish. According to Haegeman, Rizzi points out that in phase-based syntax, the head and specifier of matrix CP should never be spelled out, since the complement of every phase head is spelled out. Haegeman (2013) argues that, in diary drop, the subject moves to a position higher than TP, the specifier of SubjP. In certain contexts, SubjP is the root category, so its head and specifier (including the subject) are not spelled out. She also points out that a similar analysis appears to work for diary drop in French, as well as several other contexts in English, such as some other abbreviated styles including headlinese, certain poetic styles, and second conjunct ellipsis.

However, Haegeman's (2013) analysis is not compatible with the Finnish data above. First, there is no evidence of any subject at all in the Finnish truncation contexts. In these cases, the subject is missing, rather than simply being silent. This contrasts with the diary drop data, where the omitted subjects are recoverable, referential, and interpreted. Second, if the subject were missing simply because SubjP is the root and its head and its specifier were never spelled out, we would expect the verb to raise to Subj°, as usual, in which case it should also be null. However, if SubjP is simply missing, the verb would be predicted to stop at the next highest head, as indeed occurs. If, instead, we were to assume the clause was truncated on the head that immediately dominates SubjP, we would still expect the EPP to hold.

An even bigger problem to a phase-based analysis of clausal truncation — for both Diary Drop and Finnish — is the fact that the unpronounced subject is *interpreted*. If the reason that the subject is unpronounced is because it was never spelled out and sent to PF, then the subject should also never have been sent to LF, and should not be interpreted.

Nonetheless, there are several interesting and suggestive parallels between register-based clausal truncation in English and the clausal truncation that occurs in Finnish, both in terms of Haegeman's (2013) and my analysis, and in terms of the data.

Furthermore, that the EPP anchor can be dropped in casual registers may be a cross-linguistic

pattern. For example, the initial root in the verbal complex in Inuktitut may also be dropped in casual speech (J. Carrier, p.c.).

3.6.3   The Pragmatics of Unanchored Clauses

In all of the contexts discussed above where a clause may be truncated, it seems that anchoring is provided through pragmatics and the extra-linguistic context. One possible analysis of these facts is that C cannot merge with an unanchored TP. C encodes information structure and tracks links with the surrounding discourse. Without C, then, the utterance relies only on extra-linguistic cues to track the discourse. Finnish truncated clauses appear to be generic or anchored to the here-and-now. Gerunds are normally embedded, and can thus be interpreted in the context of the main clause. Omitted subjects in diary contexts are either dependent on a discourse topic or take a default first-person singular reference. In headlinese, the headline takes a sort of existential anchoring that indicates that the event happened in the recent past.

3.7   Conclusion

Anchoring, then, is a general property of human language, specifically of the inflectional domain, that allows us to communicate about things outside of the immediate context. The EPP is one instance of anchoring, whereby a 'landmark' in the utterance needs to be marked with an index that indicates identity with an element in the evaluation situation and needs to be moved to a position of prominence. All elements which are able to check the EPP belong to the natural class of anchors.

If we return to my definition of the EPP, repeated below in (85), we can see that each component of the definition is reflected in the anchoring hypothesis.

(85)   *Definition of the EPP*

        The obligatory movement of some element into the inflectional domain.

The EPP is obligatory because C selects for an anchored complement, and the EPP is part of anchoring. The EPP requires movement because anchoring involves movement into a position of prominence.

Finally, the EPP targets the inflectional domain because the purpose of the inflectional domain is for anchoring.

Although anchoring is universal, in a broad sense, the requirement for anchoring is not uniform across all contexts. For example, the EPP seems to be required in clauses, but not in the same way in nominals, although their structure is parallel in many ways. I posit that this is because the computation of the reference of a clause is more complex than the computation of the reference of a nominal. I also discussed two contexts where anchoring is defective. First, there are structural contexts which result in dependent anchoring. I show that dependent anchors are systematically null. Second, there are pragmatic contexts where clauses may remain unanchored.

Finally, I also show that the EPP is counter-cyclic, in that an element with phonological properties undergoes operations in the narrow syntax, and argue that the counter-cyclicity of the EPP can be resolved if it is checked by an element which is spelled out and then re-merged into the structure. I also show that all of the elements which check the EPP are also phasal.

Chapter 4

Null Subjects, Topic Prominence, and the EPP

Equality is not in regarding different things similarly, equality is in regarding different things differently. — Tom Robbins

This chapter and the next share the common theme of trying to determine whether the EPP type of a particular language is correlated with other factors. In Chapter 2, I showed, following Holmberg (2005), that null elements are able to check the EPP in some contexts. In this chapter, I compare the null subject properties of a language with its EPP properties and conclude that EPP type and null subject type are not coextensive; in fact, I show that a particular EPP type cross-classifies with several different null subject types.[1] Rather, I hypothesize that null subjects are licensed primarily by the left periphery. I discuss some evidence from topic-prominent languages, as well as imperatives in Amharic and sentence-final particles in Japanese, that show a relation between the structure of the left periphery and the presence of null subjects.

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[1]This section is an extension of joint work with Çağrı Bilgin that was presented at the Linguistic Symposium of Romance Languages (LSRL) 48 at York University in April 2018.

4.1 NSL Type and EPP Type: Case Studies

Since some properties of the D-on-V EPP type of language, such as rich agreement and verb raising, are also properties of consistent null subject languages (NSLs), it is natural to assume that the EPP type and the NSL type of a language would be coextensive; that is, that two languages with a particular EPP type would share the same NSL type, and vice versa. However, this does not appear to be the case. Furthermore, there is a lack of consensus in the literature both on how null subjects are licensed, and on what type of EPP some languages have; Doner and Bilgin (2018) suggest that this uncertainty arises because co-extensiveness between EPP type and NSL type is too readily assumed.

As mentioned earlier, I will show that EPP type and NSL type are *not* coextensive, but that several languages with different NSL types have the same EPP type, and that EPP type and NSL type can change independently. Table 4.1 summarizes the languages I discuss in this section (plus Finnish, which I will not discuss further here, as I have already discussed it in Chapter 2), as well as their EPP and NSL categorization.

	NSL Type	EPP Type	V→T?	Selected Citations
Standard French	non	DP EPP	Yes	Roberts 2010b
Brazilian Portuguese (BP)	partial	DP EPP	Yes	Barbosa 2009
Finnish	partial	DP EPP	Yes	Holmberg 2005
General Spanish (GS)	consistent	DP EPP	Yes	Goodall 2001

Table 4.1: EPP Type Compared to NSL Type

I will be following the NSL typology described by Barbosa (2011); however, only two of the NSL categories she describes will be relevant. Consistent NSLs (e.g., Spanish, European Portuguese) allow null subjects in any person with the appropriate discourse conditions, lack *that*-trace effects, have V-to-T raising and rich agreement, and allow free inversion. Partial NSLs (e.g., Brazilian Portuguese and Finnish), on the other hand, do not allow null subjects in every person. Holmberg et al. (2009) furthermore note that partial NSLs allow null generic subjects, while consistent NSLs always require an overt strategy for marking a generic subject, such as the reflexive *se*, as demonstrated by the contrast between European and Brazilian Portuguese in (1).

(1)   a.   É assim que faz   o   doce.
             is thus   that makes the sweet
             'This is how one makes the dessert.'   [BP; Holmberg et al. 2009: 62]

       b.   É assim que se faz   o   doce.
             is thus   that SE makes the sweet
             'This is how one makes the dessert.'   [EP; Holmberg et al. 2009: 63]

4.1.1   Standard French

In Modern French, the subject is obligatory in every person, as shown in (2), and so French is commonly classified as a non-NSL.[2]

(2)   a.   *(J') ai   frappé   le ballon.
             I   have.1SG hit.PST.PTPL the ball
             'I hit the ball.'

       b.   *(Tu)   as   frappé   le ballon.
             you.SG have.2SG hit.PST.PTPL the ball
             'You (sg) hit the ball.'

       c.   *(Il/ Elle) a   frappé   le ballon.
             he/ she   have.3SG hit.PST.PTPL the ball
             'He/She hit the ball.'

       d.   *(Nous) avons   frappé   le ballon.
             we   have.1PL hit.PST.PTPL the ball
             'We hit the ball.'

       e.   *(Vous) avez   frappé   le ballon.
             you.PL have.2PL hit.PST.PTPL the ball
             'You (pl) hit the ball.

       f.   *(Ils/   Elles) ont   frappé   le ballon.
             they.M/ they.F have.3PL hit.PST.PTPL the ball
             'They (mas/fem) hit the ball.'   [French; Doner and Bilgin 2018: 3]

French does not meet the criteria of a D-on-V EPP, since verb raising does not occur in non-finite clauses in French, as shown in (3), and French does not have rich agreement inflection (Roberts 2010b).

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[2]Roberts (2010b) provides an in-depth analysis of null subjects and agreement in French, and concludes that "French is a (very) partial null-subject language at the TP-level in registers which allow [...] Stylistic Inversion; otherwise it is a non-null-subject language at this level" (Roberts 2010b: 325-326). Note also that, in some dialects of French, the subject pronoun has been incorporated into the verb and can now be classified as rich agreement, and these dialects as null subject languages (Roberge 1986, but see also de Cat 2005). I am not considering these dialects.

(3)   Ne pas posséder de   voiture...
       NEG not own.NFIN of.the car
       'Not owning a car...'   [French; Pollock 1989]

I therefore conclude that verb raising in French is independent of the EPP and possibly checks a [+Tense] feature (cf. Biberauer and Roberts 2008).

Instead, I propose that French has a DP-EPP. As shown in (4), French also makes use of an expletive, *il*, which indicates that it likely has a DP-EPP.

(4)   Il est   arrivé trois filles.
       it be.PRES.3SG arrived three girls
       'There have arrived three girls.'   [French; Burzio 1986: 85]

The strongest evidence that French has a DP-EPP comes from Davies and Dubinsky (2001), who show that non-nominal subjects in French have nominal properties, as discussed in Section 2.1.1.1. In this way, French patterns with English and other 'D-prominent' languages, in contrast to 'V-prominent' languages like Bulgarian, Russian, Malagasy, and Irish. Thus, French appears to be a non-NSL with a DP EPP.

4.1.2 General Spanish

Spanish is normally considered to be a consistent NSL; however, there is dialectal variation. While overt subjects pronouns (OSPs) only occur 19%-27% of the time in European and South American varieties of Spanish, that number increases to 33%-70% for Caribbean varieties (Mayol 2012), as shown in Table 4.2. In this section, I focus on the European and South American varieties, following Kato's (2012) classification of 'General Spanish.'

Consistent NSLs such as Spanish are often assumed to have D-on-V EPP, following Alexiadou and Anagnostopoulou's (1998) analysis of Greek and Romance *pro*-drop. In all of these languages, preverbal subjects are possible, and yet subject raising cannot be attributed either to the EPP (since the rich agreement inflection on the verb presumably checks the EPP), or to Case, since postverbal subjects are able to receive case in free inversion structures such as (5).

(5)   Contestó la   pregunta Juan.
       answered the.F question.F John

	% of OSPs	Total subject pronouns	Study
Puerto Rico	45	2122	Cameron 1992: 165
Dominican Republic	41	2217	Otheguy, Zentella, and Livert 2007: 785
Puerto Rico	35	3805	Otheguy et al. 2007: 785
Cuba	33	2778	Otheguy et al. 2007: 785
Ecuador	27	3735	Otheguy et al. 2007: 785
Colombia	24	1926	Otheguy et al. 2007: 785
Spain	21	2061	Cameron 1992: 241
Mexico	19	2569	Otheguy et al. 2007: 785

Table 4.2: Overall rate of overt subject pronouns (OSPs) in different varieties of Spanish (adapted from Mayol 2012: 422)

'John answered the question.'   [Spanish; Torrego 1984: 103]

Alexiadou and Anagnostopoulou (1998) and others who follow their analysis therefore propose that preverbal subjects are in some A' position; crucially, however, such analyses must argue that *all* preverbal subjects are in an A' position, since there is no preverbal A-position available. It is of course possible that preverbal subjects are in A' positions some of the time, and so, to make this argument, it is insufficient to demonstrate that some preverbal subjects are in A' position (Suñer 2003).

In contrast, many researchers have shown that at least some preverbal subjects in Spanish are found in an A-position (Goodall 1999, 2001, Suñer 2003, Camacho 2006, *a.o.*). Some properties that distinguish preverbal subjects in an A-position from DPs in an A'-position are listed below.

- Sentences with left-dislocated subjects cannot appear in out-of-the-blue contexts, but sentences with SVO order can (Suñer 2003).

- Normally, only one preverbal topic is possible in a clause, but Goodall (2001) shows that a topic can co-occur with a preverbal subject.

- Preverbal subjects normally exhibit grammatical, and not semantic, agreement with the verb, but subjects in A'-positions can trigger semantic agreement (Suñer 2003).

- Items in A'-position reconstruct, but items in A-position do not. Preverbal subjects in Spanish do not reconstruct, behaving as if they are in an A-position (Suñer 2003).

- Goodall (2001) also shows that subjects do not create islands for movement, in contrast to focused phrases in spec,CP.

- Bare quantifiers cannot be topics, but they can be preverbal subjects (Goodall 1999, 2001).

- In clauses with an epistemic modal, the modal can be elided when there is a clitic left-dislocated phrase, but not when there is a subject (Camacho 2006).

One piece of evidence that Alexiadou and Anagnostopoulou (1998) use to argue that preverbal subjects are in a topicalized position comes from the fact that the subject can be separated from the verb. For example, an adverb can intervene. However, this only proves that preverbal subjects *may* be topicalized; it does not show that they *must* be. To test that, we should consider negative quantifier subjects, which cannot be topicalized. As shown in (6), these can be in preverbal position, but they must be immediately adjacent to the verb.

(6)   Nadie   (*casi) pudo avanzar 3 metros.
        No-one almost could advance 3 metres
        'No one could advance 3 metres.'   [Spanish; Camacho 2006]

This indicates, at the very least, that the preverbal negative quantifier is not in the same position as topicalized phrases, and that there must be more than one preverbal position. Furthermore, the impossibility of the intervening adverb seems to indicate that the negative quantifier must be in the specifier of the head containing the verb; in other words, in the traditional subject position.

Spanish also patterns with French and English in that non-nominal subjects appear to have nominal properties. Just as with Finnish, locatives and other adverbials can appear in a preverbal position, presumably checking the EPP. Note that they trigger plural agreement under coordination, as shown in (7)-(8).

(7)   Aquí y   allí   me   gustan.
        Here and there 1SG.DAT please.PL
        'I like here and there'   [Spanish; Goodall 2001: 207]

(8) Bajo la   cama y en el   ropero   son   buenos   lugares para
     under the.F bed   and in the.M wardrobe be.3PL good.M.PL place.PL for
     esconder-se.
     hide.NFIN-REFL
     'Under the bed and in the wardrobe are good places to hide.'

                                    [Spanish (Argentinian); M.C. Cuervo, p.c.]

These non-nominal locatives also obligatorily undergo subject-to-subject raising out of non-finite clauses,

indicating that they require Case. This indicates that they occupy an A-position; otherwise this move-

ment would be ungrammatical under the ban on improper movement (which prohibits moving from an

A'-position to an A-position).

(9) Bajo la   cama y en el   ropero   parecen   ser   buenos   lugares para
     under the.F bed   and in the.M wardrobe seem.PRES.3PL be.NFIN good.M.PL place.PL for
     esconder-se.
     hide.NFIN-REFL
     'Under the bed and in the wardrobe seem to be good places to hide.'

                                    [Spanish (Argentinian); M.C. Cuervo, p.c.]

Interestingly, Fernández-Soriano (1999) argues that a variety of impersonal predicates in Spanish

appear to select overt locative subjects and mark them with quirky case. These include eventives such

as *ocurir* 'to happen' and weather predicates, and statives such as *faltar* 'to miss/lack', *constar* 'to state',

and the existential verb *haber*. She provides extensive evidence that these are indeed in spec,TP, but I

will summarize only a few of her arguments here.

First of all, Fernández-Soriano (1999) notes that overt locatives appear preverbally with impersonals

in neutral information structure, as shown in (10), and can even undergo raising, as shown in (11).

(10)   a. En Madrid llueve.
           In Madrid rains
           'It rains in Madrid.'

       b. En este impreso consta que eres   el   responsable.
           in this form   states that you.are the responsible
           'In this form it states that you are the responsible one.'

       c. En Barcelona ha ocurrido   un accidente.
           in Barcelona has happened an accident
           'An accident has happened in Barcelona.'

      d.   En esta tienda hay pan.
            in this shop is   bread
            'In this shop there is bread.'   [Spanish; Fernández-Soriano 1999: 103]

(11)   a.   En Barcelona parece llover mucho.
            in Barcelona seems rain   much
            'It seems to rain a lot in Barcelona.'

      b.   Aquí parece sobrar   algo.
            here seems to-be-extra something
            'Something seems to be extra here.'   [Spanish; Fernández-Soriano 1999: 108]

Furthermore, Fernández-Soriano (1999) shows that these preverbal locatives seem to have argument status, in contrast to locatives in other contexts. This is shown by the examples in (12)-(13). The example in (12-a) shows that a locative can be extracted through across-the-board movement from two weather predicates, but (12-b) shows that it cannot be extracted when the weather predicate is coordinated with a non-impersonal clause, indicating that the locative does not have equivalent status in the two clauses.

(12)   a.   Aquí es donde hace   frio y   faltan paraguas.
            here is where makes cold and miss   umbrellas
            'Here is where it is cold and there are no umbrellas.'

      b.   *Aquí es donde llueve y   acampan los turistas.
            Here is where rains and camp   the tourists
            'Here is where it rains and tourists camp.'

                                          [Spanish; Fernández-Soriano 1999: 110]

Fernández-Soriano (1999) also shows that locatives in nominalized weather predicates take the preposition *de*, which is normally used for arguments, in contrast to locatives in other contexts, such as (13-b).

(13)   a.   La nevada de/*en Sevilla
            the snowing of/in   Seville
            'The snow shower in Seville.'

      b.   La colocación del   libro *de/en la estantería
            the placing   of-the book of/on   the shelf
            'The placing of the book on the shelf.'   [Spanish; Fernández-Soriano 1999: 111]

Based on evidence such as this, both Goodall (2001) and Sheehan (2007) propose that null locatives

check the EPP in constructions where no overt DP is present.

Furthermore, Fernández-Soriano (1999) argues that, not only does the locative in subject position in an impersonal have argument status, it is an external argument, and the event or state is predicated of it. She provides evidence for this argument by contrasting the locatives in impersonals with locative inversion constructions, which, she argues, involves the preposing of an internal argument. In contrast to locatives in impersonals, locative inversion constructions have information structure properties, do not raise in raising constructions, are able to be part of an idiom, and are normally goals or endpoints. Locatives in impersonal constructions, on the other hand, are marked with quirky case, can bind into themes, can only appear with a restricted set of prepositions, take subject-oriented secondary predicates, and cannot appear in non-Case positions, for instance as subjects of non-finite clauses.

However, these patterns do not hold for all varieties of Spanish, not even all varieties of General Spanish. For example, sentences (7)-(9) were all judged to be ungrammatical by a native speaker of Mexican Spanish (V. Partida Peñalva, p.c.). I tentatively propose that different dialects of Spanish vary in EPP type, even if they share the same NSL type. That the EPP type can vary dialect to dialect while the NSL type remains constant is even further evidence that NSL type and EPP type are not coextensive. More cases of synchronic and diachronic variation will be discussed in Section 4.2.

4.1.3 Brazilian Portuguese

Brazilian Portuguese (BP) generally only permits null subjects in the first person,[3] as shown in (14),[4] and is therefore standardly classified as a partial NSL (Holmberg 2005, Kato 1999). BP thus provides an interesting minimal contrast with European Portuguese, which is a consistent NSL (Barbosa et al. 2005).

(14)   a.   (Eu) acert-ei   a   bola.
                   I   hit-1SG.PST the ball
                   'I hit the ball.'

        b.   *(Você) acert-ou   a   bola.
                  you   hit-2SG.PST the ball
                   'You (SG) hit the ball.'

---

[3] And dropping even the first person is unusual in spoken BP (Barbosa, Duarte, and Kato 2005, Bilgin 2017).
[4] Note that the pronoun *nós* as in (14-e) is uncommon; *a gente*, as shown in (14-d) is much more widely used.

c. *(Ele / Ela) acert-ou a bola.
he / she hit-3SG.PST the ball
'He/She hit the ball.'

d. *(A gente) acert-ou a bola.
the person (=we) hit 3SG.PST the ball
'We hit the ball.' (lit. 'The person hits the ball.')

e. (Nós) acert-amos a bola.
we hit-1PL.PST the ball
'We hit the ball.'

f. *(Você-s) acert-aram a bola.
you-PL hit-2PL.PST the ball
'You (PL) hit the ball.'

g. *(Eles/ Elas) acert-aram a bola.
(they.M/ they.F) hit-3PL.PST the ball
'They (M/F) hit the ball.' [BP; Doner and Bilgin 2018: 3]

BP also allows null third person subjects when they are controlled by an antecedent, as shown in (15).

(15) a. O João$_i$ disse que (ele$_i$) tinha comprado uma casa.
DET João said that he have-PST.3SG bought a house
'João said that he had bought a house.'

b. Os meninos$_i$ ficavam contentes quando (eles$_i$) tinham um dia de folga.
the children were happy when they have-PST.3PL a day of holiday
'The children were happy when they had the day off.'

c. A Maria$_i$ admite que (ela$_i$) não fala muito bem inglês.
DET Maria admits that she NEG speak-PRES.3SG very well English
'Mary admits that she doesn't speak English very well.'

[BP; Holmberg et al. 2009: 65]

The EPP operates a little bit differently in BP than the languages discussed thus far, due to BP's nature as a topic-oriented language; however, it can still be classified as a DP-EPP. Sheehan (2007), for example, argues that BP has a "merge-XP" EPP, stating that "Spec IP is only empty at PF where it contains a deleted expletive or locative or the deleted copy of a moved DP" (Sheehan 2007: 258). The analysis of BP as a language with a DP-EPP is based on two main factors. First, I argue, following Sheehan (2007), that the specifier of the root node[5] may optionally be deleted, and, second, that topics are able to check the EPP.

---

[5]That is, a node that is not dominated by any other node.

Sheehan's (2007) argument that the specifier of the root node of a sentence can be deleted is based on Haegeman's (1999) analysis of diary drop in English and can also be used to explain similar phenomena in German, Swedish, and Dutch (as described by Ross 1982). The deletion of the specifier of the root node results in null subjects in declarative matrix clauses, such as in (16).

(16)   (Eu) comprei   os livros ontem.
        I   bought.1SG the books yesterday
        'I bought the books yesterday.'   [BP; Sheehan 2007: 260]

The deletion of the specifier of the root node can also be used to allow null subjects in embedded clauses, just in case there is a salient linguistic antecedent which allows the null subject to be interpreted as the topic. This is shown in (17), where the linguistic antecedent for the embedded subject in (17-b) is provided by (17-a).

(17)   a.   E   o $Paulo_1$?
              And the Paulo
              'What about Paulo?'

        b.   A $Maria_2$ disse que EC_1 estava doente.
              the Maria said that   was   ill
              'Maria said he was ill.'

        c. EC_1 está doente.
                  is   ill
              'He's ill.'   [BP; Sheehan 2007: 265]

The embedded subject can undergo raising to the matrix topic position (cf. Rodrigues 2004), and is subsequently deleted as the specifier of the root node, as shown for (17-b) in (18).

(18)

```
                    TopicP                                              ]
                   /      \
            (O Paulo)      \
                  /         \
               Topic         TP
                            /  \
                      A Maria   \
                           /     \
                          T       VP
                       disse     /  \
                               V     CP
                          <disse>    /  \
                                    C    TP
                                  que    /  \
                              <o Paulo>  /    \
                                        T      VP
                                    estava    / \
                                         <estava> doente
```
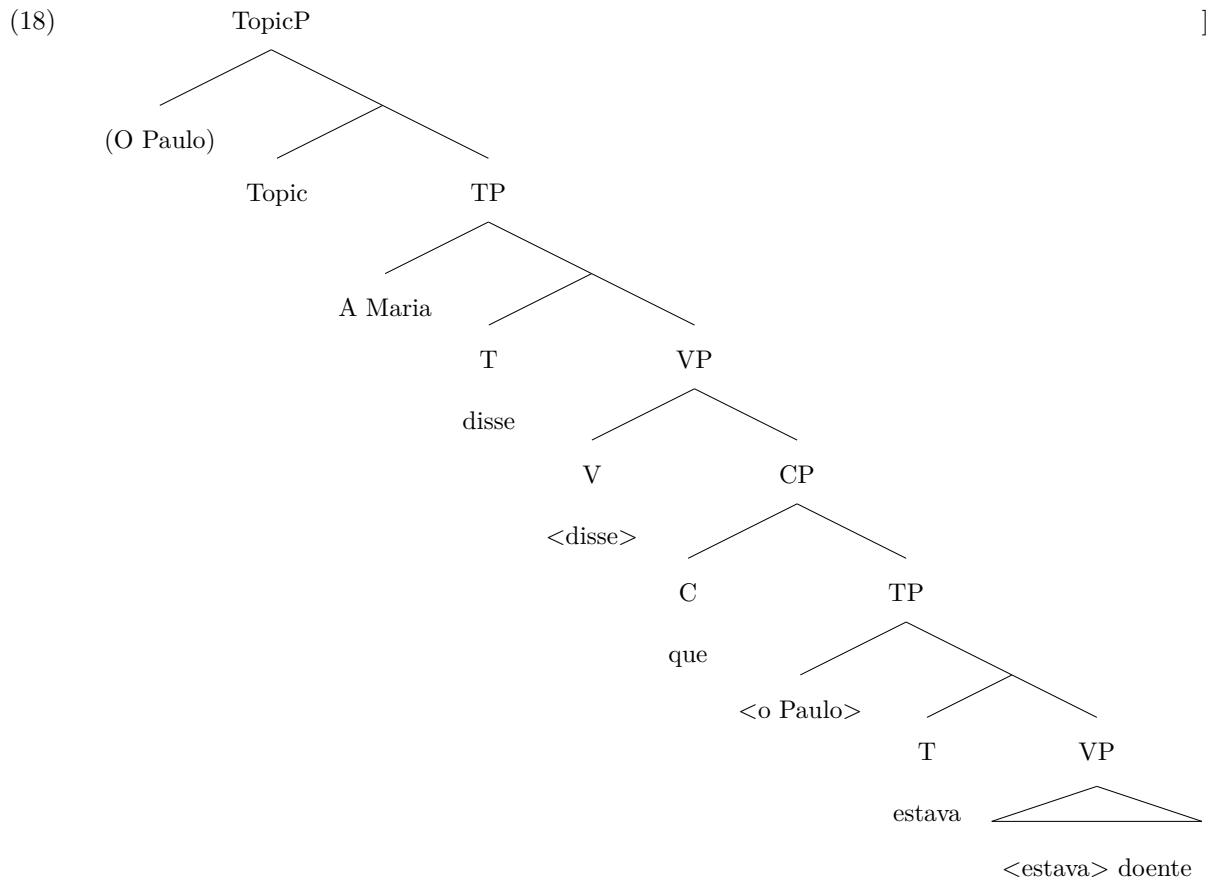
Evidence that this topicalization movement may occur comes from sentences in which the topic remains overt, as in (19).

(19) A   Maria$_1$, o   José disse que EC$_1$ comprou um carro.
      The Maria, the José said that   bought a   car
      'Maria, José said that she bought a car.'   [BP; Sheehan 2007: 266]

Sheehan (2007) furthermore argues that null subjects in Brazilian Portuguese have the properties of bound variables, requiring a linguistic (not pragmatic) antecedent, and behaving like obligatory control both in terms of the structural relationship with the antecedent and the possible interpretations of the null element. For example, NSs in BP cannot have split antecedents, receive *de se* readings, or exhibit bound readings with *only*, and only sloppy readings are available under ellipsis.

At least for some speakers, Brazilian Portuguese does not have the properties of a D-prominent language, as described by Davies and Dubinsky (2001). For example, coordinated non-nominal subjects do not appear to trigger plural agreement, unlike in French, English, and some varieties of Spanish.

(20)   a.   Embaixo da   cama e   no   armário **é**   bom   para se   esconder.
            under   of.the.F bed   and in.the.M cabinet **be.3**SG good.M.SG for   REFL hide.NFIN
            'Under the bed and in the closet are good places to hide.'

       b.   Muito estudiosa e   inteligente **é**   o   que a   Cindy nos   inspira   a
            much studious.F and intelligent **be.3**SG the.M that the.F Cindy 1PL.REFL inspire.3SG to
            ser.
            be.NFIN
            'Very studious and intelligent are what Cindy inspires us to be.'

                                                                              [BP; S. Lima, p.c.]

I propose that this is likely due to the topic-prominent nature of Brazilian Portuguese. In French,
Spanish, and English, non-nominal subjects are interpreted as covert nominals, and thus trigger plural
agreement and have other properties of nouns; however, in BP, null subjects are interpreted as topics
bound by a (possibly deleted) antecedent, and agreement is controlled by the post-verbal thematic
subject. These agreement facts are parallel to light locative inversion constructions in English and
scrambling constructions in Finnish, indicating that this might be a general pattern that is exhibited
when the EPP is parasitic on topic. As mentioned in Section 2.2.2.2, Bruno (2016) argues that the light
locative inversion construction is derived by a locative PP raising to a topic position in spec,CP, passing
through spec,TP to check the EPP. As shown in (21), agreement is controlled by the post-verbal subject,
here, as well.

(21)   Into the room walks Robin.

Likewise, in Finnish, when a non-subject, such as *kukkia* 'flowers' in (22), raises for the EPP, the verb
still agrees with the postverbal subject, in this case the singular proper name *Tuija*.

(22)   Kukk-i-a   osta-a   aina tiistai-na   Tuija.
       flower-PL-PAR buy-3SG always Tuesday-ESS T.NOM
       'It is Tuija who always buys flowers on Tuesday.'   [Finnish; Koskinen 1998: 27]

Fernández-Soriano (1999) also shows that Spanish has both locative inversion constructions and external
argument locatives, and demonstrates that they each have very different properties, along similar lines.

      Some speakers of Brazilian Portuguese (unlike speakers of EP) can have non-thematic deictic nominals
in the subject position in out of the blue contexts, as in (23). These exhibit third person agreement.

(23) a. As   florestas chovem muito.
          the.F.PL forest.F rain.3PL much
          'It rains a lot in the forests.'

                                    [BP; Costa 2010, as cited in Naves, Pilati, and Salles 2013]

      b. Aqui conserta sapato.
          here fix.3SG   shoe
          'They fix shoes here.'   [BP; Naves et al. 2013]

These deictic topics, besides demonstrating that the EPP is linked to deixis in BP, provide further

evidence that the EPP in BP is parasitic on topic-fronting, since the deictic topics prevent the embedded

clause subject from corefering with the matrix clause subject, as shown in (24-b).

(24) a. O   Pedro$_i$ disse   que conserta$_{i/*j}$ sapato.
          the.M Pedro say.PST.3SG that fix.3SG   shoe
          'Pedro$_i$ said that he$_i$ fixes shoes.'

      b. O   Pedro$_i$ disse   que aqui conserta$_{*i/j}$ sapato.
          the.M Pedro say.PST.3SG that here fix.3SG   shoe
          'Pedro$_i$ said that s/he$_j$ fixes shoes here.'   [BP; Naves et al. 2013]

It therefore appears as though the deictic nominal acts as an intervener. When there is a deictic nominal,

the null subject cannot be interpreted as a referential topic which raises to the specifier of the root node

and is deleted. I propose that, instead, the deictic nominal checks the EPP.

4.1.4 Summary of Case Studies

In this section, I looked at the null subject properties of Standard French, Brazilian Portuguese,

and General Spanish. I showed that all three languages had a DP EPP, although with slightly different

properties. French has the most canonical DP EPP properties, since it is a non-NSL with expletives

and it passes the diagnostics of non-nominal subjects with nominal properties developed in Davies and

Dubinsky (2001). General Spanish also passes Davies and Dubinsky's (2001) diagnostics; however, the

category of non-nominal subjects is wider, as locatives can occupy the subject position of impersonal

predicates, as discussed by Fernández-Soriano (1999). Goodall (2001) and Sheehan (2007) both argue

that null versions of these locatives are also able to check the EPP. Finally, Brazilian Portuguese allows

the widest class of arguments to check the EPP, since any topic, whether or not it is a subject, can

check the EPP on route to the topic position. Furthermore, Brazilian Portuguese also allows for the specifier of the root node to be deleted, which results in a null topic in many cases. Since these EPP-checkers are topics, and not true subjects, they do not pass Davies and Dubinsky's (2001) diagnostics, but instead pattern cross-linguistically with other topics in not triggering subject agreement. However, despite these differences in EPP properties, French, General Spanish, and Brazilian Portuguese are all united in having an EPP checked by a phrasal argument. This argument usually has nominal properties, albeit sometimes covertly, or, at the very least, deictic properties. Thus, they can all be classified as DP EPP. I also showed that all three of these languages have different null subject types. This is summarized in Table 4.3, repeated from Table 4.1.

	NSL Type	EPP Type	V→T?	Selected Citations
Standard French	non	DP EPP	Yes	Roberts 2010b
Brazilian Portuguese (BP)	partial	DP EPP	Yes	Barbosa 2009
General Spanish (GS)	consistent	DP EPP	Yes	Goodall 2001

Table 4.3: EPP Type Compared to NSL Type

4.2 Diachronic Variation

In this section, I demonstrate that EPP type and NSL type can vary independently, providing further evidence that EPP type and NSL type are not coextensive.

It has long been noted that the ability to have null subjects in a particular language is linked to the appearance of rich agreement (Taraldsen 1978), at least for consistent NSLs. It also seems to be the case that when a consistent NSL loses its agreement through phonological reduction and/or morphological leveling, it also loses its ability to license null subjects at about the same time. It can thus become a partial NSL, as occurred with BP (Kato 1999, Duarte 2000, *a.o.*), or a non-NSL, as occurred with French (Roberts 1993, Kato 1999, King, Martineau, and Mougeon 2011, *a.o.*). It is often assumed in the literature that the loss of agreement occurs first, triggering the loss of null subjects. However, Roberts (2014) and Bilgin (2017) point out that the reverse order is also logically possible. Bilgin (2017) thus proposes the two competing hypotheses in (25).

(25)   Null Subject Chicken-Egg Problem (Bilgin 2017: 86)

      a.   Hypothesis 1: *Lose Person-agreement Markers First*

           Person-agreement markers (typically verbal endings in Romance, Turkish and many other

           languages) are lost, which triggers the usage of overt pronouns.

      b.   Hypothesis 2: *Increase Overt Pronoun Usage First*

           Overt pronouns become more common, thereby rendering distinct person-agreement mark-

           ers redundant, which may cause these markers to fall into disuse, and eventually disappear.

In the next few sections, I discuss the change in null subject type in several languages and demonstrate that both directions of change are attested cross-linguistically, with Goiás Brazilian Portuguese (Borges and Pires 2017) and Dominican Spanish (Toribio 2000) following the path of change outlined in Hypothesis 2, and Swedish (Falk 1993) following Hypothesis 1. Based on these three languages, I also propose the following hypothesis. If the trigger for change is the loss of agreement (i.e., Hypothesis 1), the result is a non-NSL with a DP-EPP; however, if the trigger for change is an increase in the usage of overt pronouns (i.e., Hypothesis 2), the result is a partial NSL, also with DP-EPP. This explains why partial NSLs such as Finnish are still able to exhibit rich agreement.[6] Interestingly, although both French (Roberts 1993) and Swedish follow the order of change outlined above in Hypothesis 1, there was a delay of multiple centuries between the loss of agreement and the loss of null subjects in both languages, indicating that although the loss of agreement was perhaps a factor in the change, it was not in and of itself the *trigger* for change.

There seem to be a few common trends among languages which have transitioned away from a consistent NSL type, regardless of the current NSL type, including Brazilian Portuguese, Dominican Spanish, and Swedish. All of these languages show a marked decrease in the use of null subjects; however, null subjects are still possible. All allow locative and temporal adverbials to check the EPP, either by remaining in the subject position, or en route to a topicalized position. Finnish also patterns with these languages, indicating that perhaps it also developed out of a consistent NSL. This transitional grammar appears to be quite stable, and can remain for several generations; however, over time, the list

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[6]This hypothesis will not be pursued further here, as it takes us too far afield from the central topic of EPP typologies.

of possible EPP-checkers may gradually become more constrained, as Falk (1993) notes for Swedish, and as presumably occurred in the history of English, for example.

In any case, these case studies show that the NSL type of a language can change independently of its EPP type and is further evidence that NSL type and EPP type are not coextensive.

4.2.1 Goiás BP

In a corpus study of historical documentss in Brazilian Portuguese from the Goiás district, Borges and Pires (2017) demonstrate that the increase in the frequency of overt subjects and the loss of free inversion, a property of consistent NSLs, both preceded the impoverishment of the verbal paradigm.

As shown in Table 4.4,[7] overt subjects increased from 22.48% to 64.00% from the 18th to the 19th centuries, while null subjects decreased from 55.44% to 22.80%. According to a chi-square test that I conducted, this difference is highly significant ($\chi^2 = 412.81$, df = 1, $p_{\text{two-tailed}} < 2.2 \times 10^{-16}$).

	Overt Subjects	Null Subjects	*SE*-constructions	Impersonal clauses
18th century	22.48%	55.44%	19.36%	2.72%
	281/1250	693/1250	242/1250	34/1250
19th century	64.00%	22.80%	1.20%	12.00%
	800/1250	285/1250	15/1250	150/1250

Table 4.4: Distribution of Null Subjects in Goiás BP (Borges and Pires 2017: 7)

At the same time, the *se* construction was replaced with the impersonal construction. I also conducted a chi-square test on this data, and again, the change is highly significant ($\chi^2 = 259.09$, df = 1, $p_{\text{two-tailed}} < \times 10^{-16}$). Recall that an overt strategy, such as *se*, is required for generic subjects in consistent NSLs, but that partial NSLs can have null generic subjects, as demonstrated here by the rise of the innovative impersonal construction. This seems to indicate that the shift from consistent to partial NSL had already taken place by the 19th century.

Additionally, the use of free inversion structures (VS order) also decreased dramatically during this time, occurring at a rate of over half of all sentences with an overt subject in the 18th century, but decreasing to less than a quarter of sentences with an overt subject by the 19th century, as shown in Table 4.5.[8] I conducted a third chi-square test which indicates that this difference, as well, is highly

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[7] I corrected some minor rounding inconsistencies in the original source based on the raw numbers provided.
[8] The total number of sentences corresponds to the number of sentences with overt subjects from Table 4.4.

significant (χ^2 = 110.65, df = 1, $p_{\text{two-tailed}}$ = 2.2 ×10^{-16}). Although VS order was still attested in the 19th century, many of the attested cases involve locative inversion, in which the locative may be checking the EPP. This is demonstrated in (26) below.

	SV order	VS order
18th century	43.42%	56.58%
	122/281	159/281
19th century	77.50%	22.50%
	620/800	180/800

Table 4.5: Free VS-inversion distribution in Goiás BP (Borges and Pires 2017: 9)

(26)   Dia 22 chegou o   presidente e   mais alguns colegas.
       day 22 arrived the president and more some   colleagues
       'On the 22nd, the president and some (of his) colleagues arrived.'

[Goiás BP (19th C); Borges and Pires 2017: 10]

Thus, it appears that at least the Goiás dialect of BP made the shift from consistent to partial NSL between the 18th and the 19th centuries; however, Borges and Pires (2017) claim that, in the same time period, there was no evidence of loss of agreement. According to them, the 18th century data did not exhibit any lack of agreement, while there was only marginal impoverishment in the 19th century data, as only 15% (54/380) of clauses with an overt plural subject lacked agreement. Furthermore, all of the attested cases which lack agreement involve third person unaccusative or existential/locative verbs, as exemplified in (27), and most are inverted structures.

(27)   a.   Dia 13 de tarde   esteve   aqui Dr. Azeredo e   o   Joaqm. F.
            day 13 of afternoon was-3SG here Dr. Azeredo and the Joaquim Ferreira
            'On February 13th in the afternoon, Dr. Azeredo and Joaquim Ferreira were here.'

       b.   Lulu e   o   Cavalcante veio   aqui.
            Lulu and the Cavalcante came.3SG here
            'Lulu and Cavalcante came here.'

[Goiás BP (19th C); Borges and Pires 2017: 11]

It thus appears that the change from consistent to partial NSL type occurred prior to the loss of agreement in Goiás BP. Borges and Pires (2017) therefore propose that the trigger for change was the loss of a [D] feature in T. The occurrence of overt preverbal subjects increased in order to compensate

for the loss of the [D] feature. I propose, furthermore, that the loss of this [D] feature, in fact, constitutes a change in EPP type. Therefore, the loss of agreement morphology *followed* the change in EPP type. Overall, then, it seems as though the change in EPP type occurred first, leading to a decrease in the usage of null subjects, which, in turn, caused a change in NSL type, and, finally, triggered the loss of rich agreement.

4.2.2 Dominican Spanish

Dominican Spanish has several features which separate it from Standard Latin American Spanish and which indicate that it is in transition away from a consistent NSL.

First of all, agreement in Dominican Spanish has become impoverished due to the nearly categorical weakening and elision of syllable-final /s/. Because of this, the 2nd and 3rd person singular are homophonous in most tenses and moods, and all three singular persons are homophonous in the imperfect and the conditional (Toribio 2000). Since rich agreement seems to be a factor in the licensing of null subjects in consistent NSLs, this loss of agreement is predicted to cause a rise in the use of overt subjects. Table 4.6 illustrates the high prevalence of overt subjects in two communities of the Dominican Republic, showing that this prediction is borne out. These numbers contrast with the use of overt subjects in non-Caribbean varieties, where overt subjects are only used 19%-27% of the time (Mayol 2012). Toribio (2000) notes that overt subjects may be freely used without added pragmatic force in Dominican Spanish, and that the use of overt subjects is increasing even with verb forms which remain contrastive.

	El Cibao	Santo Domingo	**Average**
Overt Subjects	70%	68%	69%
Null Subjects	30%	32%	31%

Table 4.6: Average Rate of Overt and Null Subject Usage in the Dominican Republic (adapted from Camacho 2017)

This is not simply a change in frequency of use, although that in itself would be interesting. Toribio (2000) also shows that the domain of use of overt pronouns is expanding to include pronouns with non-human reference, as in (28), innovated impersonal or generic pronouns *uno*, *tú*, and *usted*, as in (29), and even a non-referential pronoun *ello*, as in (30).

(28)   a.   Ellas se   saben   devolver en Villa; ellas pasan de   largo.
             3PL.F REFL know.PL return   in Villa 3PL.F pass.PL of.the long
             'They [the buses] often turn around in Villa; they pass you by.'

        b.   Él   tiene poca   agua.
             3SG.M has   little.F water.F
             'It [the river] has little water.'   [Dominican Spanish; Toribio 2000: 320]

(29)   a.   Uno habla regularcito aquí.
             one speaks normal.DIM here
             'We speak somewhat normally here.'

        b.   Tú haces lo   que   tú te   propones a hacer.
             you do   that which you REFL.2SG decide.2SG to do
             'You do what you set out to do.'

        c.   Todo   es relativo a como usted   vea   las   cosas...
             everything is relative to how   you.FORMAL see.SUBJ the.PL.F thing.PL.F
             'It's all relative to how you see things...'

                                                   [Dominican Spanish; Toribio 2000: 320-321]

(30)   a.   Ello   llegan   guaguas hasta allá.
             3SG.M arrive.3PL bus.PL   until there
             'There arrive buses there.'

        b.   Ello   había mucha gente en *lay-a-way.*
             3SG.M was   many.F people in
             'There were a lot of people on stand-by.'

                                               [Dominican Spanish; Toribio 2000: 321]

Furthermore, free inversion for pragmatic reasons is no longer available (Toribio 2000). Instead, a pseudo-cleft construction was innovated in order to create focus, as shown in (31).

(31)   a.   Yo quiero   es comida.
             I   want.1SG is food
             'I want food/What I want is food.'

        b.   Tú   trajiste fue una sola   maleta   nada   más.
             you.SG brought was a.F single.F suitcase.F nothing more
             'You brought only one suitcase.'

        c.   Ese niño está es enfermo.
             that child is   is sick
             'That child is sick.'   [Dominican Spanish; Toribio 2000: 323]

Because of these innovative properties of Dominican Spanish, it seems to pattern much more like a partial NSL or even a non-NSL. It certainly can no longer be classified as a consistent NSL. However,

although they are becoming less common, null subjects are still permitted with every verb form, causing (Toribio 2000) to argue that speakers of Dominican Spanish are simultaneously using two different grammars.

Presumably, prior to the changes it is undergoing, the EPP type of Dominican Spanish was the same as that of General Spanish, that is, DP-EPP. As it has undergone change, it actually has become much more similar to canonical DP-EPP languages like English and French, especially because of the increase of overt subjects and the coinage of an expletive, and so can still be classified as a DP-EPP language. Dominican Spanish is therefore an example of a language which has undergone a change in NSL type while maintaining the same EPP type, providing further evidence that NSL type and EPP type can change independently, and are not co-extensive.

4.2.3 Diachronic Swedish

Swedish underwent a change in both NSL type and EPP type between the 15th and the 17th centuries. According to Falk (1993), verbs in Old Swedish agreed in person and number with their subjects. The verbal agreement paradigms for the past and present of the strong verb *vita* 'bend' and the weak verb *kräfia* 'demand' are shown in Table 4.7.

	1SG	2SG	3SG	1PL	2PL	3PL
Present	vik-er	vik-er	vik-er	vik-um	vik-in	vik-a
Past	vek	vek-t	vek	vik-um	vik-in	vik-u
Present	kräf-er	kräf-er	kräf-er	kräfi-um	kräf-in	kräf-ia
Past	krafþ-i	krafþ-i	krafþ-i	krafþ-um	krafþ-in	krafþ-u

Table 4.7: Verbal agreement paradigms for the Old Swedish strong verb *vita* 'bend' and the weak verb *kräfia* 'demand' (Falk 1993: 155)

Old Swedish also allowed null subjects, as shown in (32).

(32) a. ... at iak födde han   hemæ i husum ok hæskap. Þer diþi
          ... that I   brought him [the foal] up home in house and household. There sucked [e]
          ok drak miolk af moþor   spina
          and drank milk of mother's teats

      b. Oc rängde ower iordhina fyretighi dagha och fyretighi nätter
          and rained over the earth forty   days and forty   nights

    c.   Är grauit vnder syll
         is   dug   under sill

[Old Swedish; Falk 1993: 143-144]

As with other NSLs, Old Swedish also exhibited V-to-T movement, as shown in (33), where the verbs *räddos* 'feared' and *skulle* 'should' precede the negation markers *ei* and *inthett*, respectively.

(33)   a.   ... hvi kristne män räddos ei pino (Jär, 1385)
           ... why christian men feared not pain

        b.   som K. Mtt: skulle inthett hafwe waritt där   (Hand, born c. 1590)
           as if His Royal Mejesty should not   have been there

[Old Swedish; Falk 1993: 150, 158]

However, person agreement was lost in the 15th century, which resulted in the paradigm in Table 4.8.

	SG	PL
Present	vik-er	vik-a
Past	vek	vek-o
Present	kräver	kräva
Past	krävde	krävde

Table 4.8: Verbal agreement paradigms for the Late Old Swedish strong verb *vita* 'bend' and the weak verb *kräfia* 'demand' in the 15th century (Falk 1993: 156)

The 15th century paradigms maintained a number distinction, which remained until the 17th century. It was not until the number distinction was lost that null subjects decreased in usage, as indicated in Table 4.9, as was V-to-T movement, as illustrated in (34) (cf. (33-b)).

year of birth	null subjects
1530-1570	62%
1571-1610	62%
1611-1650	28%
1651-1690	22%
1691-1730	17%

Table 4.9: Rate of appearance of impersonal constructions without overt subjects over time in Swedish (Platzack 1985, as cited by Falk 1993: 157)

(34)   att bussarna   intet skulle äta frucht (Stiernhöök, born 1673)
        that the soldiers not   should eat fruit

[Early Modern Swedish; Falk 1993: 158)

In Swedish, then, the verbal paradigm was impoverished well before the change in NSL type. However, it

also appears as though an intermediate grammar with an impoverished agreement system, verb raising, and null subjects was maintained as a stable system for several generations, from the 15th to the 17th centuries.

Furthermore, in the same time period, the quasi-argument *det* (with spelling variants such as *dett*, *thet*, and *thett*) began to be used as an expletive, as shown in Table 4.10. Falk (1993) classified subjects of weather predicates (35-a), time predicates (35-b), or active, personal verbs with a non-referential subject (35-c) as quasi-subjects, while impersonal passives (36-a) and existentials (36-b) were classified as expletives.

(35)   a.   samme   dagh regnede (Karl IX, born 1550)
              the same day   rained

        b.   effter dett er någått sent (Banér, born 1596)
              since it   is rather late

        c.   at   thet skulle stå   i fridh emellen konung Karl och konung Christiern (Petri, born
              that it   should stand in peace between king   Karl and king   Christian
              c. 1495)

                      [Early Modern Swedish; Falk 1993: 160]

(36)   a.   Ther fore äre kommin mykin obestond, örligh ock krigh riken   emellen (Petri,
              therefore are come   much insolvency, strife and war the countries between
              born c. 1495)

        b.   at   fultgöras   motte med thet gifftermåål (Petri, born c. 1495)
              that be-carried-through must with this marriage
                           [Late Old Swedish; Falk 1993: 161]

		Quasi-subjects			Expletives		
Year of birth	**# of texts**	0	*det*	%	0	*det*	%
1495-1535	5	76	65	46%	133	7	5%
1536-1570	4	44	25	36%	76	3	3%
1571-1600	5	59	45	43%	83	8	9%
1601-1635	5	66	170	72%	96	23	19%
1636-1670	5	44	90	67%	63	29	32%
1671-1700	4	36	70	66%	85	15	15%
1701-1735	5	48	93	66%	89	31	26%

Table 4.10: Use of *det* as quasi-argument or expletive over time (Falk 1993: 161)

Quasi-argumental *det* (*thett*) was also able to appear in a post-verbal position, unlike expletive *det* (Falk 1993), as shown in (37).

(37)   Thy nähr konung Sigismundus först kom in i   rikett   [...] var **thett** seent om hösten
         for when King   Sigismundus first came in to the country   was it   late at autumn
         (Gyllenheilm, born 1574)

<div align="right">[Early Modern Swedish; Falk 1993: 162]</div>

Table 4.10 indicates that the expletive use of *det* was marginal until the 17th century. Falk (1993) suggests that, before 1600, *det* was a construction marker, appearing almost exclusively with existential constructions,[9] and often in formulaic contexts like the opening line to a story.

After 1600, however, *det* begins to display properties of a subject. It shows up in impersonal passives, as shown in (38).

(38)   a.   när   thet är schreffuet i   städerne   (Oxenstierna, born 1587)
              when   it   is levied   in the towns

         b.   Det spijsades utur Tenn (Rålamb, born 1622)
              it   was-eaten on   tin

         c.   Thå ringdes   thet starckt i   all klocker (Swedberg, born 1658)
              then was-tolled it   loud   in all bells

<div align="right">[Early Modern Swedish; Falk 1993: 166]</div>

It also begins to appear in postverbal position in existential constructions, as shown in (39). The earliest occurrences of the inverted *det* are by authors born in the 1620s.

(39)   a.   Sedhan kom thet en sådan häfftigh Storm (Gyllenius, born 1622)
              then   came it   a such violent storm

         b.   Och när   thet snöga, så lågh thet stora snödrifwan   i kamaren
              and when   it   snowed so lay   it   big   snow-drift-the in the chamber
              (Horn, born 1629)   [Early Modern Swedish; Falk 1993: 166]

Falk (1993) also notes that, in several of the cases where *det* is missing, there is a preposed locative phrase instead, as shown in (40) for Modern Swedish.

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[9]The only two exceptions are from a late text.

(40)   a.   På det här hotellet har (det) bott många kungligheter
           on this   hotel   has it   lived many   royalties

       b.   På kusten   blåser (det) alltid   förskräckligt
           On the coast blows it   always terribly

[Modern Swedish; Falk 1993: 167]

Although these preposed locatives do not behave as subjects, Falk (1987) argues that they pass through the subject position on their way to the topic position, causing the subject position to be interpreted as an A'-bound trace, parallel to Bruno's (2016) analysis of light locative inversion in English, and similar to my analysis of Brazilian Portuguese from Section 4.1.3. Locative adverbs *där* 'there' and *här* 'here' may appear in subject position, however, as shown by their ability to appear in embedded clauses, as in (41). Falk (1993) notes that several historical authors seem to use *där* as an expletive and suggests that there was a period in which *där* and *det* were in competition.

(41)   a.   ... om där/här   har bott många kungligheter
           if   there/here has lived many   royalties

       b.   ... om där/här   alltid   blåser så förskräckligt
           if   there/here always blows so terribly

       c.   ... om där/här   var ostädt
           if   there/here was untidy

[Modern Swedish; Falk 1993: 169]

Early Modern Swedish (but only variably in Modern Swedish) also allowed preposed temporal phrases, as shown in (42).

(42)   a.   Om afftonen   rägnade (Linné, born 1707)
           in   the evening rained

       b.   K. 4 effter middagen begynte åther blåsa NV   vind. (Philström, born 1677)
           At 4 after noon   began   again blow north-west wind

       c.   Härpå   måste nödwändigt följa   en ändring (Hermelin, born 1658)
           after-this must necessarily follow a change.

[Early Modern Swedish; Falk 1993: 169]

Assuming that the use of true expletives is indicative of a change in EPP-type from D-on-V EPP to DP-EPP, then this may indicate that the EPP type also changed at approximately the same time

as number agreement, null subjects, and V-to-T movement were lost. This is further supported by innovative use of locative and temporal adverbials in subject position. However, person agreement (and therefore rich agreement) was lost two centuries earlier. Thus, the NSL classification of Swedish changed much earlier than the EPP type.

4.3 Interim Summary

For the most part, I have shown in the last two sections that languages with a variety of different NSL types all share the same EPP type, DP EPP, and argued that this demonstrates that EPP type and NSL type are not co-extensive. I have only shown that NSL type can vary while EPP type remains constant. I have argued that this is because EPP type and NSL type are not coextensive. However, another obvious interpretation of these facts is simply that D-on-V EPP doesn't exist. The D-on-V EPP analysis was developed by Alexiadou and Anagnostopoulou (1998) on the basis of Greek, and was extended to Romance based somewhat on the assumption that consistent NSLs will all share the same EPP properties. A more thorough investigation, as summarized above, demonstrates otherwise. I do, however, also predict that there should also be languages which share the same NSL type, but differ in EPP type. At least the 'original' D-on-V EPP language, Greek, should be investigated more thoroughly before any final conclusions may be drawn. Furthermore, the D-on-V EPP languages with pied-piping proposed by Richards and Biberauer (2005) and Biberauer and Richards (2006) should also be investigated further.

It is interesting to note that the topic-orientation of a language or even a particular clause seems to have greater influence on its EPP properties than its null subject status. Consider, for example, the contrast between Brazilian Portuguese and Spanish. Both languages share the same basic EPP type— DP EPP; however, the EPP is checked by covert topics in Brazilian Portuguese and by covert DPs in Spanish. There are several consequences of this difference; for example, covert DPs control agreement, but covert topics do not. This pattern cuts across languages, but also across different structures within the same language. For example, in the English locative inversion construction in (43-a), the preposed PP does not control agreement, patterning with Brazilian Portuguese, whereas the copular construction

with a PP subject in (43-b) patterns with Spanish, as the preverbal PP does control agreement.

(43) a. Down the hill and across the road rolls/*roll the ball.

  b. Under the bed and in the closet are/*is where I thought of hiding.

Further research is needed in order to determine whether the relation between NSL type and EPP type is a double dissociation (that is, can the same NSL type be associated with multiple different EPP types, as well?), and whether all of the possible combinations are attested, as sketched in Table 4.11. Table 4.11 raises many interesting questions. First of all, it must be investigated whether any of the empty cells in this table represent impossible combinations. For example, it seems likely that non-NSLs will not have D-on-V EPP, since many of the properties of a D-on-V EPP (verb raising, rich agreement) are also properties of a consistent NSL. Some combinations, on the other hand, might only exist as a 'transitional' grammar during language change, and might represent a grammar that is difficult to acquire. However, as was discussed in Section 4.2, some of these 'transitional' grammars can exist as a stable system for several generations; in which case, it is not necessarily very helpful or informative to classify them as 'transitional.' In addition, consistent NSLs and D-on-V EPP languages have many properties in common, which raises the question of what the cues to a consistent NSL with DP EPP are that differentiate it from D-on-V EPP. However, one conclusion that can be drawn from this analysis is that, at the very least, we can't assume that EPP type and NSL type are correlated unless it is first proven. Correlation should not be the null hypothesis.

	DP-EPP	D-on-V EPP
non-NSL	French	
Partial NSL	Brazilian Portuguese, Finnish	
Consistent NSL	(some varieties of) Spanish	Greek? Romanian?
Semi *pro*-drop		German, Icelandic
Topic drop	Mandarin?	

Table 4.11: Some possible combinations of NSL type and EPP type

4.4 What Licenses Dependent Reference

In Chapter 3, I argued that the subjects of infinitive and imperative clauses were null because they had dependent reference; that is, that their reference was based on some other element in the clause. This had parallel properties to tense marking, which is also null in infinitive and imperative clauses, and whose reference is also dependent on some other element in the clause. I thus proposed that there is a link between dependent anchoring and null elements, across languages and for different kinds of anchoring (e.g., for both tense and the EPP).

However, although all languages are hypothesized to have both tense and EPP anchoring, and thus, presumably, dependent anchoring, the possibilities for null subjects varies greatly from language to language. This leads me to ask two big questions. First, why are overt subjects allowed in some languages in contexts where they are often not allowed in other languages (e.g., in non-finite clauses)? For example, the Portuguese sentence in (44-a) allows for a nominative-marked subject *os meninos* 'the children' in a non-finite clause, but the equivalent English sentence in (44-b) does not.

(44) a. Eu vi os meninos a lerem   esse livro.
          I   saw the children to read-INF-3PL that book
          'I saw the children reading that book.'

[European Portuguese; Raposo 1989: 277]

      b. *I saw the children to read that book.

This is an old question, traditionally answered through Case theory and government of null categories (Bouchard 1984, Chomsky 1981, Chomsky and Lasnik 1993, Chomsky 1995, Martin 1996, 2001), but these analyses are problematic under Minimalism (e.g., see Cecchetto and Oniga 2004 for evidence that PRO bears Case in Icelandic). The second question is the obverse: why are null subjects allowed in some languages in contexts where they are not allowed in other languages (e.g., in finite clauses)? For example, in the Brazilian Portuguese finite declarative clause in (45-a), a null subject is permitted, but the equivalent sentence in English, shown in (45-b), cannot be interpreted as a declarative clause, but only as an imperative.

(45) a. Acert-ei   a   bola.
          hit-1SG.PST the ball
          'I hit the ball.'   [BP; Doner and Bilgin 2018: 3]

      b. Hit the ball. (≠ 'I hit the ball.')

One possibility that could be adopted is that EPP type plays a role in determining whether a null subject is allowed. In the context of the typology presented in this dissertation, it could be worded as in (46).

(46)   *Hypothesis on the connection between EPP and NSs*

          Languages with a DP-EPP have restrictions on the overtness of the subject.

However, it seems EPP type alone cannot predict overtness. As we saw in Section 4.1, languages which share the DP-EPP type can vary greatly in their ability to license null subjects. In English and French, null subjects are only licensed in infinitives, imperatives, and certain registers, while in Brazilian Portuguese they are licensed in the first person or if they are the topic, and, finally, in Spanish, a null subject is licensed in nearly any clause.

Cross-linguistically, it seems like the possibility of a null subject is determined by some combination of four factors: clause type, discourse/topicalization, agreement, and register. As such, it seems likely that the licensing of null subjects is determined at least in part by the left periphery, where all of these factors, except agreement, are formally encoded. Perhaps, then, the cross-linguistic differences in null subject licensing can be explained by variation in the structure of the left periphery.

In the following subsection, I will provide evidence that the overtness of subjects is controlled by the left periphery. I will begin by showing that the Amharic person/number agreement may be null in imperatives just in case there is no intervening head blocking licensing from the C domain. Following that, I will use evidence from Japanese person restrictions to show that the licensing of null subjects can be linked to the structure of the left periphery.

4.4.1 Amharic jussives and imperatives

The Amharic jussive and imperative paradigms, shown in Table 4.12, provide evidence that null ele-

ments need to be licensed.[10] Similar to the imperative, the jussive is a verbal mood that also expresses commands, instructions, or wishes. Normally, the second person forms shaded in grey are listed separately from the jussive forms in the grammar as imperatives, but in Table 4.12 they are listed together to facilitate comparison. Amharic, like other Semitic languages, operates with triconsonantal roots which appear in different verbal templates to denote inflection. As can be seen in Table 4.12, the imperative and both the affirmative and negative jussives all share the same verbal templates, *-SBäR-* for Type A, *-FäLLəG-* for Type B, and *-MaR(ə)K-* for Type C, with the exception that the imperative in Type A has an additional epenthetic <ə> (R. Godfrey, p.c.). Thus, putting them all in the same paradigm seems justified.

	Type A *-SBäR-* 'break'		Type B *-FäLLəG-* 'want'		Type C *-MaR(ə)K-* 'capture'	
	Aff	**Neg**	**Aff**	**Neg**	**Aff**	**Neg**
1SG	ləsbär	aləsbär	ləfälləg	alfälləg	ləmark	almark
2SG.M	səbär	attəsbär	fälləg	at(tə)fälləg	marək	at(tə)mark
2SG.F	səbäri	attəsbäri	fälləgi	at(tə)fälləgi	marki	at(tə)marki
3SG.M	yəsbär	ayəsbär	yəfälləg	ayfälləg	yəmark	aymark
3SG.F	təsbär	attəsbär	təfälləg	at(tə)fälləg	təmark	at(tə)mar(ə)k
1PL	ənnəsbär	annəsbär	ənnəfälləg	an(nə)fälləg	ənnəmark	an(nə)mark
2PL	səbäru	attəsbäru	fälləgu	at(tə)fälləgu	marku	at(tə)marku
3PL	yəsbäru	ayəsbäru	yəfälləgu	ayfälləgu	yəmarku	aymarku

Table 4.12: Amharic Jussive and Imperative Paradigms (Leslau 2000: 75-77)

However, the imperatives in the shaded cells do show a distinct pattern. While the unshaded cells all follow the template in (47), the second person affirmative forms do not have overt person/number agreement prefixes.

(47)   NEG 'a' - person/number agreement - root - gender/number agreement

I posit that this is because, like imperatives in other languages (see Section 3.4.4), imperatives in Amharic have person anchoring dependent on addressee features in the left periphery. Thus, the person features are null. However, the agreement features are overt in the negative forms, appearing as *tte-* or *t-*, likely because the intervening Neg head blocks the licensing of the null agreement marker. There is therefore a correlation between the availability of licensing and the overtness of person features.

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[10]Thanks to Ross Godfrey for suggesting this line of inquiry and helping me with the data.

4.4.2 Japanese Sentence-Final Particles

Bamba (2018) hypothesizes that null arguments are influenced by the structure of the left periphery in Japanese. As such, the patterns of null argument licensing in Japanese provide further evidence for how null arguments are licensed, as well as why different patterns of null argument licensing obtain in different languages. As is well known, Japanese is a discourse *pro*-drop language (*a.k.a.* radical NSL or topic-drop). In discourse *pro*-drop languages, both subjects and objects can be null when they are the topic in the discourse, despite the lack of rich agreement inflection.

Normally, a null argument can be interpreted as any person, depending on the context. However, in several constructions, the possible referents of null subjects are restricted. For example, different sentence-final discourse particles affect the possible interpretations of a null subject, as shown in (48).[11]

(48)   a.   Sakini kaeru.
            first   go.home
            '(I/You/He) will go home first.'

        b.   Sakini kaeru   yo.
            first   go.home YO
            '(I/#You/He) will go home first.'

        c.   Sakini kaeru   ne.
            first   go.home NE
            '(I/#You/#He) will go home first.'   [Japanese; Bamba 2018: 3-4]

Similarly, predicates of direct experience have subject restrictions that depend on the clause type, that is, whether it is declarative or interrogative. This is the case whether the subjects are overt, as in (49), or null, as in (50).

(49)   a.   Watashi-wa / *Anata-wa / *kare-wa samui-desu.
            I-TOP   you-TOP   he-TOP   cold-COP.POLITE
            '(I am / *You are / *He is) cold.'

        b.   *Watashi-wa / Anata-wa / *Kare-wa samui-desu   ka.
            I-TOP   you-TOP   he-TOP   cold-COP.POLITE Q
            '(*Am I / Are you / *Is he) cold?'   [Japanese; Tenny 2006: 247]

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[11]The sentence-final particles in Japanese can have a variety of meanings. According to Bamba (2018), the particle in (48-b), *yo*, marks the clause as an emphatic subjective assertion or a declarative towards the addressee, and the particle in (48-c), *ne*, can be a request for confirmation from a female speaker, an indication of agreement when a female speaker addresses a male speaker, or an interrogative towards the addressee for any speaker.

(50)   a.   Samui-desu.
             cold-COP.POLITE
             '(I am / *You are / *He is) cold.'

        b.   Samui-desu   ka.
             cold-COP.POLITE Q
             '(*Am I / Are you / *Is he) cold?'   [Japanese; Bamba 2018: 16]

Additionally, complementizers with evidential meanings lift the person constraint, such as *node* 'because' in (51-a), in contrast to those without, such as *toki* 'when' in (51-b).

(51)   a.   Kare-wa samuka-tta node,   dambou-o ireta.
             he-TOP   cold-PST   because heat-ACC put.on.PST
             'Because he was cold, he put on the heat.'
             'Because it was cold, he put on the heat.'

        b.   Kare-wa samuka-tta toki, dambou-o ireta.
             he-TOP   cold-PST   when heat-ACC put.on.PST
             '*When he was cold, he put on the heat.'
             'When it was cold, he put on the heat.'

                            [Japanese; Tenny 2006: 250, as glossed in Bamba 2018: 17]

Verbal evidential morphology, such as the morpheme *-garu* 'appears to be,' also affects the possible interpretations of the subject, as shown in (52).

(52)   a.   *Watashi-wa samu-gatte iru   yo.
             I-TOP   cold-GARU PROG.PRES YO
             'I (appear to be) cold.'

        b.   *Anata-wa samu-gatte imasu   ka.
             you-TOP   cold-GARU PROG.PRES.POLITE Q
             'Do you (appear to be) cold?'

        c.   Mary-wa   sabishi-gatte iru   yo.
             Mary-TOP lonely-GARU PROG.PRES YO
             'Mary (appears to be) lonely.'

                 [Japanese; Tenny 2006: 271-272, 251, as glossed in Bamba 2018: 18]

Finally, the person constraint is lifted under nominalization, indicating that this is a structural requirement, not a purely pragmatic one.

(53)   Mary ga   sabishii   koto   wa   dare mo utagawanai.
           Mary NOM lonely-TNS the-fact-that TOP nobody doubt-NEG-PRES
           'No one doubts that Mary is lonely.'   [Japanese; Tenny 2006: 252]

All of these constructions can be linked to the left periphery. Sentence-final particles and clause type are both elements that are very clearly within the left periphery. Evidentiality is also sometimes encoded within the left periphery cross-linguistically, including when it is encoded on the complementizers in the examples in (51).

Tenny (2006) analyzes these person restrictions by arguing that experiencer arguments must move to a position in the left periphery which she calls the seat of knowledge. Bamba (2018) modifies her analysis, using variable binding instead of movement. Regardless, licensing of null arguments is controlled by the left periphery, not by the EPP. What is important to note is that, in both Tenny's and Bamba's analyses, the person restrictions are derived through regular syntactic mechanisms which block or allow the relationship between the subject and various heads in the left periphery. Regardless of the analysis, there is an argument there that can check the EPP; it just so happens that it may be null when properly licensed by the left periphery.[12]

Furthermore, in some of the contexts described in this section, Japanese looks much more like a partial null subject, since there are person restrictions on what may be null. Perhaps, then, partial NSLs are really the same as discourse pro-drop languages, but with different restrictions on what relationships can be formed between the subject and the left periphery, due to structural differences.

4.5 Conclusion

In this chapter, I demonstrated that the NSL type of a language and the EPP type of a language are not co-extensive, by demonstrating that several languages with different NSL types share the same EPP type, and by showing that NSL type and EPP type have changed independently in several varieties. Rather, I proposed that the licensing of null subjects is determined by the confluence of four factors: clause type, discourse and topicalization, agreement, and register. Or, in other words, the licensing of null subjects is determined by the structure of the left periphery of the clause (with a small caveat for the role of agreement), although more research is needed in order to provide a detailed, formal typology of

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[12]Although see Yokoyama (2013) who shows that allocutive agreement is correlated with the presence of a Speech Act Phrase. Since null arguments are permitted in clauses without allocutive agreement, this seems to indicate that it is not the Speech Act Phrase (alone) which licenses null arguments. More research is needed in this area.

the various means of licensing null subjects and the associated structural differences (but see Frascarelli 2007 for an analysis along these lines for Italian). In contrast, I showed that topic-orientation does seem to have an effect on EPP properties, by allowing for non-subject topics to check the EPP and by affecting whether the EPP-checker is indexed by subject agreement.

Chapter 5

Clausal Architecture and the EPP

> *Think left and think right and think low and think high. Oh, the thinks you*
>
> *can think up if only you try! — Dr. Seuss*

This chapter continues the discussion on whether and how the EPP type of a language is related to other properties of the language. In the previous chapter, I discussed how EPP type interacts with null subjects, topicalization, and the left periphery. In this chapter, I discuss how differences in clausal architecture affect EPP type. This is a very broad topic, and there is still much research to be done. Here, I begin looking at two main areas. First, I briefly discuss how clausal architecture affects the EPP properties of a language by discussing which syntactic head the EPP appears on in various languages in Section 5.1.1, and how scrambling operations can affect the EPP through locality in Section 5.1.2. The majority of the chapter describes a cluster of properties associated with predicate-EPP languages, introduced in Section 5.2.1, which I argue is centred on the presence of a defective T. I present case studies in Niuean, Irish, and Inuktitut to illustrate this cluster of properties in Section 5.3, and describe how this analysis could be extended to Gitksan, Mazahua, and Mandarin in Section 5.4. I also argue that predicate-EPP languages exhibit a different order in the functional projections of the clause, with the tense head appearing high, in Section 5.6. Overall, this chapter illustrates several ways that minor differences in the ordering and properties of heads in the clausal spine can affect which element checks the EPP in a given language or context.

5.1 Architecture of the Clausal Spine

5.1.1 Where is the EPP?

The domain in which the EPP is checked cross-linguistically is an open question. Early formulations of the EPP claimed that it was a property of T (e.g., Chomsky 1995). However, claiming that the EPP is checked in T is meaningless when the spine is not the same in all languages. For example, the functions of T are distributed over several heads in Finnish (Holmberg et al. 1993), while É. Kiss (2002), Cardinaletti (2004), and Biberauer and van Kemenade (2011) all argue for separate TPs and SubjectPs in a variety of languages, including English.[1] Jouitteau (2005) proposes that the domain of the EPP is the head where the tensed verb is realized. This, however, cannot account for English, where the tensed verb is low. In contrast, I hypothesize that the EPP feature is found on the highest head in the inflectional domain (see also Cowper 2010 who independently proposes the same hypothesis).[2]

An interesting contrast is found between Niuean and Inuktitut, which both seem to have defective Ts, as will be discussed in Section 5.3. If the EPP is centred on T, we might expect it to occur on a head adjacent to T in languages where T is defective. This is more or less what we find in both Niuean and Inuktitut; however, the EPP surfaces higher than T in Inuktitut, but lower than T in Niuean.[3]

As discussed in Chapter 2, Inuktitut has an EPP-like feature which requires a root in the initial position of the verbal complex (Johns 2007), which I take to be equivalent to the CP (Compton and Pittman 2010). Normally, the lexical verb occupies the initial position (1-a), but the object is obligatorily incorporated when the verb is light (1-b), and an expletive root is inserted when there is no other root in the clause (1-c).

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[1]Determining which of these heads is the one that bears the EPP feature is a matter left for future research.

[2]Others also consider V2 to be a form of the EPP in C (Bailyn 2004, Jouitteau 2005, *a.o.*). However, based on work such as Richards and Biberauer (2005), who argue that V2 languages such as Icelandic also have EPP movement in the inflectional domain, I set V2 movement aside as a separate phenomenon. Icelandic is discussed in more detail in section 2.1.1.3. There are also cases where an EPP within the *v* domain has been proposed to derive object scrambling (e.g., Chomsky 2000, Lasnik 2001, Biberauer and Roberts 2005). Likewise, I set these aside as a separate phenomenon for future research.

[3]As noted below, negation can intervene between T and the raised predicate which checks the EPP (Massam 2009b). However, I assume that negation does not count for intervention. Since negation does not have a fixed position in the clausal spine cross-linguistically, I assume that it is not associated with a particular domain.

(1)   a.   Pitsi-mik   **nigi**-vunga.
            dried.fish-MOD eat-INTR.INDIC.1SG
            'I am eating dried fish.'

       b.   **Pitsi**-   tu-   vunga.
            dried.fish- consume- INTR.INDIC.1SG
            'I'm eating dried fish.'   [Inuktitut (Labrador); Johns 2007: 541]

       c.   **Pi**-   qa-   nngit- tuq.
            EXPL- have- NEG- INTR.DEC.3SG
            'He has nothing.' (Lit. 'He does not have something.')

                                                    [Inuktitut (South Baffin); Johns 2007: 559]

In these sentences, the roots seem to be raising to C, rather than to T. However, T plays almost no role

in Inuktitut, with mood playing the central role in every clause, instead (Johns, p.c.).

On the other hand, Massam (2000) shows that the pre-verbal particles in Niuean can mark tense,

as with the past tense marker *ne* in (2-a) or the future tense marker *to* in (2-b); aspect, as with the

progressive marker *hā ne* in (2-c) or the habitual marker *fā* in (2-d); and complementizer features,

as with the subjunctive marker *ke* in the embedded clause of (2-e). These pre-verbal particles are in

complementary distribution with each other.[4]

(2)   a.   **Ne** tagi a   ia.
            PST cry ABS she
            'She cried.'

       b.   **To** fano a   ia.
            FUT go   ABS he
            'He will go.'

       c.   **Hā ne** nonofo a   mutolu i   hinei.
            PROG stay   ABS you   at this.place
            'Whilst you are staying here.'

       d.   **Fā** totou he   tau faiaoga e   tau tohi.
            HAB read   ERG PL teacher ABS PL book
            '(The) teachers often read books.'

       e.   Ne foa   e   lautolu e   vala vao **ke** tā   aki e   fale pola.
            PST clear ERG they   ABS bushland SBJ build INST ABS house
            'They cleared the bushland to build a thatch house.'

                                                    [Niuean; Massam 2000: 98-100]

The predicate raising which occurs to check the EPP in Niuean targets a position lower than these

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[4]However, some of them may be compositional. For example, the past tense marker *ne* may be included in the progressive marker *hā ne*. A variety of particles can occupy this position, and only a subset are compositional.

particles. In fact, Massam (2009b) argues that T in Niuean is found in the C domain, since it is higher than negation (3-a), and even higher than an inverted verb in questions (3-b). In these examples, T is realized as the perfect marker *kua*.

(3) a. **Kua** nākai tuai fano a   ia.
         PERF not   PERF go   ABS.PROP 3SG
         'He has not gone.'

     b. **Kua** kai nakai e   Moka e   apala?
         PERF eat Q   ERG.PROP Moka ABS.COM apple
         'Did Moka eat the apple?'   [Niuean; Massam 2009b: 3]

Thus, in languages with a defective T, the EPP can appear either above or below T in the spine. I hypothesize that the EPP is required for the interface between C and T, which then explains why it must appear on the highest head in the inflectional domain, and also why it can be missing in truncated clauses but not in clauses with C. In other words, C obligatorily selects for a TP with the EPP already checked.

5.1.2 Locality

In cases where multiple potential EPP-checkers are available, locality is a factor at least some of the time. This is seen clearly in English, where the external argument almost always checks the EPP, as shown in (4-a). However, in passives, when there is no external argument, the next closest DP, the theme, raises in its stead, as shown in (4-b). In the double object construction, where the linear order is reversed, it is still the closest argument which raises to check the EPP, as shown in (5).

(4) a. I gave a book to my brother.

     b. A book was given to my brother.

(5) a. I gave my brother a book.

     b. My brother was given a book.

Languages where the object is able to check the EPP as well as the subject can also be explained through generalized principles of locality in two different ways. First of all, if there are differences in the

structure below T, such as middlefield scrambling, this may affect the possibilities of what may check

the EPP in a given construction. Secondly, Miyagawa (2003) argues that the object is able to check the

EPP in Japanese because V-to-T movement expands the domain and makes the subject and the object

equidistant from T. Therefore, either the subject or the object may freely check the EPP in Japanese,

as shown by the scopal properties between arguments and negation in (6). In (6-a), below, when the

quantifier *zen'in* 'all' is the internal argument, the most salient interpretation is for it to scope under

negation, which occurs between the *v*P and the TP, whereas in (6-b), when the quantifier *zen'in* 'all' is

the external argument, it must take scope over negation. Miyagawa (2003) proposes that this is because

the subject raises to spec,TP to check the EPP, where it c-commands the negation marker. However,

when the object is scrambled, resulting in an OSV order, as in (6-c), the object is able to take scope

over negation.[5] Miyagawa (2003) argues that this is because the object has raised to spec,TP to check

the EPP.

(6)   a.   (Kinoo)   Taroo-ga zen'in-o home-nakat-ta (yo   / to omou).
           (Yesterday) Taro-NOM all-ACC praise-NEG-PST (EXCL / C think)
           '(I think that) Taro didn't praise all (yesterday)(!)'   not > all, (*)all > not

      b.   Zen'in-ga sono tesuto-o uke-nakat-ta (yo   / to omou).
           all-NOM   that test-ACC take-NEG-PST (EXCL / C think)
           'All did not take that test.'   *not > all, all > not

      c.   Sono tesuto-o$_i$ zen'in-ga t_i uke-nakat-ta (yo   / to omou).
           that test-ACC all-NOM   take-NEG-PST (EXCL / C think)
           'That test, all didn't take.'   not > all, (all > not)

                                                              [Japanese; Miyagawa 2003: 182-184]

   Note that Miyagawa argues that the subject and object are equidistant cross-linguistically only if

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[5]Note that the inverse scope is also possible. Miyagawa (2003) explains this by arguing that there is another option
for deriving OSV, where the subject moves to spec,TP (and takes scope over negation), but the object also moves, even
higher, to a focus position. Miyagawa (2003) provides several tests for distinguishing the two ways of deriving OSV order,
and shows that the scopal properties are consistent with his analysis. For example, if a high adverb, such as *saiwaini*
'fortunately' is inserted immediately after the subject, this forces the subject to occur high, in spec,TP, and so the OSV
order must be derived by means of focus movement of the object. As predicted, the subject scopes over negation, as shown
in (7).

(7)   Sono tesuto-o$_i$ zen'in-ga saiwini t_i uke-nakat-ta (yo   / to omou).
       that test-ACC all-NOM   fortunately   take-NEG-PAST (EXCL / C think)
       'That test, all didn't take fortunately.'   *not > all, all > not
                                                              [Japanese; Miyagawa 2003: 186]

Note also that Miyagawa argues for a distinction between A-scrambling (i.e., EPP-driven) and A'-scrambling (i.e., focus-
driven) movement, and that A'-scrambling obligatorily reconstructs. Hence the object cannot take high scope here.

there is overt morphological case marking, in addition to a requirement for V-to-T movement. This is in contrast to Romance languages, which have V-to-T movement but lack scrambling. Miyagawa argues that the subject and object cannot be equidistant in such languages, since there is no morphological case. Functionally, case allows scrambled word order to be unambiguous. But, additionally, there is a theoretical explanation. Miyagawa assumes that, in order for a head to attract a phrase, it must agree with it. In languages where the object and the subject are equidistant, T must therefore have agreed with both, since they are both able to move. He proposes that morphological case marking is the reflex of that agreement. Furthermore, if Miyagawa's analysis is correct, then I also predict that languages where the verb agrees with both the object and the subject (in other words, languages with head-marking case) should also be object scrambling languages, which may be able to explain a subset of the well-known cluster of properties associated with polysynthetic languages, such as pronominal agreement and "free" word order.

Finally, in languages where the external argument stays in its predicate-internal theta-position, the predicate itself may be equidistant or even closer to the EPP probe than the external argument, since the external argument is contained within the predicate.[6] In contrast, some languages have an intermediate position for an argument, in between its theta-position and the EPP probe. Such positions would prevent the EPP being checked by the predicate, by acting as an intermediary.[7] For example, this seems to occur in Finnish. Holmberg and Nikanne (2002) use sentences like (8) to argue that there are two vP-external subject positions in Finnish. In (8), the subject is doubled, appearing as a pronoun *ne* clause-initially, and repeated as a phrasal DP *ministerit* 'ministers,' following the head bearing subject-verb agreement. Both of these precede the participle *ostaneet* 'bought,' and so must be outside the vP.

(8) Ne   ovat   ministerit   ostaneet   uusia   autojaa.
     3SG.PL.NOM be.3PL minister.NOM.PL buy.PST.PTPL.PL new.PAR.PL   car.PAR.PL
     'The ministers have bought new cars.'   [Finnish; Holmberg and Nikanne 2002: 72]

They propose that the lower position is a focus position, while the higher one is the EPP position, as it

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[6]This depends somewhat on how much functional structure predicates have in the language in question. For example, if the external argument is in the specifier of the highest head of the predicate, it may be equidistant with the predicate.

[7]For some reason, the intermediary case position in Niuean doesn't appear to block predicate raising. This may be because Niuean specifically (Massam 2019) and predicate-initial languages in general (Travis 2006a) do not have DP-movement.

can contain an expletive, as in (9).

(9) Sitä   ovat   nämä   lapset   jo   oppineet   uimaan.
     3SG.PAR be.3PL these.NOM child.NOM.PL already learn.PST.PTPL.PL swimming
     'These children have already learned to swim.'

[Finnish; Holmberg and Nikanne 2002: 72]

My consultant cannot use this kind of scrambling, and instead rejects both of the sentences in (8) and

(9); however, that may simply be due to her grammar's lack of expletive *sitä*, as the EPP would have no

way of getting checked in such constructions. Nonetheless, it follows from general principles of locality

that, if this intermediate position is filled by a nominal, then predicate-raising to satisfy the EPP should

be impossible.

Huhmarniemi (2019) proposes that lower-field scrambling feeds EPP-checking in Finnish. She notes

that when objects occupy the specify of FinP, they have information structure properties; for example,

they cannot be non-referential. However, subjects have no such restrictions. This contrast is illustrated

in (10), where only a subject *wh*-word can check the EPP.

(10) Tämä   laulaja   on kuuluisa.
      this.NOM singer.NOM is famous.NOM
      'This singer is famous.'

      a. *Mitä   tahansa laulaa   hän.
         what.PAR ever   sings.PRES.3SG 3SG.NOM
         Intended: 'She sings anything.'

      b. Kuka   tahansa arvostaa   häntä.
         who.NOM ever   appreciate.PRES.3SG 3SG.PAR
         'Everyone appreciates her.'   [Finnish; Huhmarniemi 2019: 86]

She argues that this is because, in the default case, the subject, in the specifier of *v*P, is the most local

goal for the EPP. However, in certain contexts, movement of the object to a second specifier of *v*P is

triggered. In these cases, the object is now local and can raise to check the EPP. It is the lower movement

of the object to the specifier of *v*P that has discourse and information structure properties, and so it only

appears that the EPP position also has these properties, since the EPP is fed by the lower movement.

5.2   A Possible Parameter: Predicate EPP Languages

In Chapter 2, I demonstrated that there is a class of predicate-EPP languages, including Inuktitut, Irish, and Niuean, and that, in these languages, functional verbal elements do not raise but non-verbal predicates do. This contrasts with languages where functional verbal elements raise, but non-verbal predicates do not, such as French or Finnish.

In this section, I demonstrate that the predicate-EPP languages pattern together by sharing several properties, in contrast to languages from other typological classes, despite being geographically and genetically diverse. These characteristics include (a) their lack of non-finite clauses, (b) a preverbal or high T, (c) a T bundled with C, (d) defective tense morphology, and (e) a defective D. I attribute these shared characteristics to a high, defective T. Overall, these characteristics can be explained by the presence of a defective T head.[8]

I will begin by explaining these five characteristics in more depth, and then go through several case studies demonstrating how Irish, Inuktitut, and Niuean exhibit these properties. I will then discuss whether these same properties can be extended to a few other languages, including Gitksan, Mandarin, and Mazahua, and whether these languages should be classified as predicate-EPP languages, as well, based on whether they pattern with Irish, Inuktitut, and Niuean.

A large cluster of properties have been attributed to verb-initial languages, which overlaps significantly with these five properties of predicate-EPP languages. For example, Greenberg (1963) found several correlations in word order, such as being head-initial, and having prepositions rather than post-positions and postnominal adjectives. Verb-initial languages seem to have impoverished verbal functional structure, as Myhill (1985) noted that they tend to lack a non-finite verb form, Carnie (1995) notes that copular constructions in these languages tend to lack verbs, and Freeze and Georgopoulous (2000) noted that they lack a word for the verb 'have'. Instead, they tend to have preverbal TAM, question, and negation particles (Carnie and Guilfoyle 2000), as well as inflected prepositions (Kayne 1994) and left-conjunct agreement (Doron 2000). Finally, Polinsky (2012) noted that they all have a low noun to verb

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[8]I mean defective in the sense that it exhibits fewer inflectional possibilities than non-defective T heads (e.g., no infinitive form), and that it is dependent on C.

ratio.[9]

As previously mentioned, many of the properties of predicate-initial languages have been noted as properties of verb-initial languages, as listed above; however, the class of predicate-EPP languages differs from verb-initial languages since the clause-initial position may be obfuscated by other movements. In Section 5.4, I will discuss one predicate-EPP language which is not verb-initial, Inuktitut, as well as one verb-initial language which likely does not have predicate-EPP, Mazahua. These two case studies will elucidate the differences between these two language classes.

5.2.1 Properties of Predicate-EPP Languages

In the next few subsections, I give a brief overview of the various properties that cluster with predicate-EPP languages. I then follow this overview with several case studies of predicate-EPP languages, illustrating how each property surfaces in each language in Section 5.3.

5.2.1.1 Non-finite clauses

Predicate EPP languages tend to pattern together by their lack of non-finite clauses (see also Myhill 1985 who notes the same thing for VS languages). For my purposes here, a non-finite clause is an embedded clause that has not been nominalized, does not have the ability to assign subject case, and in which the verb does not agree with the subject Cowper (2016). The lack of a finite distinction in predicate-sensitive EPP languages was also discussed briefly in Section 2.1.3.

Finiteness is normally considered to be a property of T; thus, if a language lacks a finiteness contrast, then the T of that language is less rich.

5.2.1.2 T is bundled with C

Some property of T is bundled with C. This can be exhibited by subject-verb agreement appearing fused with C morphemes, by T particles being in complementary distribution with C particles, or through

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[9]In a survey of 28 languages, the number of nominal lemmas were divided by the number of verbal lemmas to create a noun to verb ratio. The noun to verb ratios correlated with three statistically significant categories. Head-initial languages (Halkomelem, Zapotec, Malagasy, Maori, Zinacantec Tzotzil, and Irish) have ratios between 1.05-2.07, while all other languages in the sample had ratios ranging from 2.14 (Bahasa) to 9.57 (Hungarian). This is therefore another way in which verb-initial languages pattern together.

morphological merger.

5.2.1.3 T is preverbal or high

In predicate EPP languages, T normally precedes the verb, either as an independent word or particle, or as a prefix. However, in polysynthetic languages derived by head-to-head movement, a high T is realized as a suffix, word-internally, due to the mirror principle (Baker 1985). The deeper generalization that can be made here is that T is higher than the verb, and since the verb has raised to check the EPP, then T must be higher than the EPP probe. Earlier, in Section 5.1.1 (see also Cowper 2010), I hypothesized that crosslinguistically, the EPP appears on the highest head in the inflectional domain. Combining that hypothesis with the generalization that T is higher than the EPP probe in predicate EPP languages results in the prediction that this high defective T head is *not* part of the inflectional domain. In turn, this then connects back to the idea that T is bundled with C—since they are bundled, T is part of the left periphery, not the inflectional domain.

5.2.1.4 Defective Tense Morphology

This characteristic is not so much a property I discovered, but rather a property I predict. If predicate-EPP languages can indeed be characterized by a defective T head in the syntax, we might expect this to be reflected in the morphology.

5.2.1.5 Defective D

Predicate EPP languages also tend to have a defective D, which is realized by the lack of a systematic definiteness contrast.[10] I propose that this is because nominal structure tends to mirror clausal structure. Since mirroring across categories is only a tendency, I do not predict this to be true of all predicate-EPP languages; however, it is true of Inuktitut and Niuean, and possibly Irish.

The mirroring between D and T can be fairly specific. For example, in Irish, where there are two T heads (a rich and an impoverished one), there are also two D heads. In Niuean, where T is fused with C, D is also fused with case.

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[10]That is, I do not include, for example, optional demonstratives which mark for definiteness.

5.3 Case Studies: Predicate-EPP Languages

5.3.1 Niuean

5.3.1.1 Non-finite clauses

According to Massam (2005), verbs in Niuean have no finiteness, agreement, or tense, but more closely resemble participials or nominals. Although Niuean has no finiteness marking on the verb, there is subject raising in the subjunctive, as shown in (11)-(12). However, this raising construction does not affect the ability of the embedded verb to assign case, and the embedded clause therefore does not qualify as non-finite by my definition. In the sentence in (11-a), where no argument is raised, the subject *tama* 'child' is marked with ergative case, while the object *akau* 'tree' is marked with absolutive case. If the subject is raised to the main clause, as in (11-b), it is assigned absolutive case in the main clause, while the embedded verb maintains its own ability to assign absolutive case to the embedded object. If the embedded object raises to the main clause, as in (11-c), the embedded verb maintains its ability to assign ergative case to the agent, *tama* 'child.' The same pattern is repeated in (12).

(11)　a.　Kua　kamata ke　hala he　tama e　　akau.
　　　　　PERF begin　　SBJ cut　ERG child ABS tree
　　　　　'The child has begun to cut down the tree.'

　　　　b.　Kua　kamata e　　tama ke　hala e　　akau.
　　　　　PERF begin　　ABS child SBJ cut　ABS tree
　　　　　'The child has begun to cut down the tree.'

　　　　c.　Kua　kamata e　　akau ke　hala he　　tama.
　　　　　PERF begin　　ABS tree SBJ cut　ERG child
　　　　　'The tree has begun to be cut down by the child.'　　　　　[Niuean; Seiter 1980: 158]

(12)　a.　To　maeke　ke lagomatai he　ekekafo e　　tama ē.
　　　　　FUT possible SBJ help　　　ERG doctor　ABS child this
　　　　　'The doctor could help this child.'

　　　　b.　To　maeke　e　　ekekafo ke　lagomatai e　　tama ē.
　　　　　FUT possible ABS doctor　SBJ help　　　ABS child this
　　　　　'The doctor could help this child.'

　　　　c.　To　maeke　e　　tama ē　　ke lagomatai he　　ekekafo.
　　　　　FUT possible ABS child this SBJ help　　　ERG doctor
　　　　　'This child could be helped by the doctor.'　　　　　[Niuean; Seiter 1980: 158]

5.3.1.2 T is high, bundled with C

T and C (and Asp) pre-verbal particles are in complementary distribution, leading Massam (2000) to posit a bundled CTP.[11] This is exemplified in (13), where the past tense marker (13-a), the question marker (13-b), and the perfect marker (13-c) all occupy the same slot.

(13)   a.   Ne   inu   kofe kono a   Mele.
            PAST drink coffee bitter ABS Mele
            'Mary drank bitter coffee.'   [Niuean; Massam 2001: 158]

       b.   Ai kia kitia e   koe e   laa kua   tokoluga?
            not Q   see   ERG you ABS sun PERF high
            'Didn't you see the sun high up?'   [Niuean; Massam 2000: 102]

       c.   Kua   nonofo   a   lautolo ki lalo.
            PERF sit/stay/dwell ABS they   to down.
            'They sat down.'   [Niuean; Massam 2001: 172]

In fact, as discussed in Section 5.1.1, T is so high that it actually precedes an inverted verb in a question. The example is repeated in (14).

(14)   **Kua** kai nakai e   Moka e   apala?
       PERF eat Q   ERG.PROP Moka ABS.COM apple
       'Did Moka eat the apple?'   [Niuean; Massam 2009b: 3]

In Niuean, tense must be higher than the predicate's surface position, since it is a preverbal particle bundled with C. In addition, the predicate must have moved, presumably for the EPP, since it precedes the subject. The EPP probe cannot be on the tense head, since tense is higher than the EPP probe. All of the predicate-EPP languages seem to share this high impoverished tense above the EPP.

5.3.1.3 Defective morphology

Tense is optional in Niuean (Massam 2009b). The following two examples are taken from the same story, illustrating variation in the expression of tense marking. The example with tense marking appears second, indicating that the variation does not arise due to a need for tense to be established at the beginning of the discourse.

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[11]In addition, T takes on different forms when there is a an operator in C (Massam, p.c).

(15) a. Uta e   ia   e   tau laukou ia   fakatatai aki e   tau laukou ne
          take ERG.P 3.SG ABS.C PL leaf   DEM compare=with ABS.C PL leaf   REALIS
          pakupaku he   lā.
          dry   LOC.C sun
          'He took the leaves and compared them with those that were dried in the sun.'

      b. **Ne** fano a   ia   mo e huo hake e   fu-kaho ti   mui hifo ke   he
          PST go ABS.P 3.SG and C pull up ABS.C bamboo then follow down LOC.C GOAL.C
          matua ki   Lalo-fona.
          parent GOAL.P Lalo-fona
          'He went and pulled up the bamboo and followed his father down to Lalofuna.'

                                          [Niuean; *Niue: A History*, as cited in Massam 2009b: 12]

5.3.1.4 Lack of definiteness contrast

Finally, definiteness and specificity are not contrastive in Niuean (Gorrie et al. 2010). The determiner

system only encodes case and the proper/common distinction, as shown in Table 5.1.

	ABS	ERG	LOC	GOAL	POSS	SOURCE
COMMON	e	he	he	ke he	he	mai he
PROPER	a	e	i	ki	ha	mai

Table 5.1: Niuean Case markers, as analyzed by Seiter (1980) (Gorrie et al. 2010: 354)

The number markers are also non-contrastive. The example in (16) shows how the plural marker *tau*

can appear in both definite (16-a) and indefinite (16-b) contexts, while example (17) shows the same

for the null singular marker. Note that in both (16-a) and (17-a), the nominal in question is previously

mentioned in the discourse and salient. In contrast, the nominal in (16-b) must be indefinite since it

appears in an existential context. Thus there is no difference in marking between definite and indefinite

nominals.

(16) a. Ati hāhā ai   agataha   mo e pehē ai   e   **tau** fuata mai he
          then ask ANAPH immediately and COM say ANAPH ABS.COM PL youth SRC LOC.COM
          motu ko   Tonga.
          island PRED Tonga
          'So the group from Tonga told the reason why they were visiting.'

      b. Ha.ha.i.ai e   **tau** vahega.
          EXIST   ABS.COM PL class
          '...there were some classes...'   [Niuean; Gorrie et al. 2010: 358]

(17) a. Kua keli tuai e   ia e   ∅ feke   ti   mate.
          PERF beat PERF ERG.PROP 3SG ABS.COM   octopus then die
          'She beat the octopus and it died.'

      b. Ka.e iloa   nakai e   koe ka pehē ko   e   ∅ Atu Luga.
          but know   Q   ERG.PROP 2SG if thus PRED COM   Cook.Islander
          'But how would you know if it was a Cook Islander?'

                                                          [Niuean; Gorrie et al. 2010: 359]

There is also a demonstrative in Niuean (Gorrie et al. 2010) which presumably encodes definiteness; however, it is optional. I thus set it aside.

5.3.1.5 Summary: Niuean

Niuean has all of the properties of a predicate-EPP language. There is no finiteness marked on the verb or definiteness marked in the noun phrase. Tense is optional, and marked on a preverbal particle which also encodes aspect and C. This can all be explained by a high defective T head which is mirrored in the nominal domain by a defective D head, if we assume that D is the nominal equivalent to T, and that the same macroparameter affects both heads together.

5.3.2 Irish

Irish has two T heads (McCloskey, Bennett, and Elfner 2014, as cited in Ostrove 2015). It appears to be the higher of these two heads which has the properties under discussion here.

5.3.2.1 Non-finite clauses

In Irish non-finite clauses, verbs must be nominalized (Carnie 2011), and appear with verbal noun morphology (Carnie 1995: 87), therefore there are no true non-finite clauses in Irish, as predicted. Carnie (2011) calls these constructions predicative verbal nouns (PVNs) to contrast them with argument verbal nouns (AVNs), illustrated in (18), which he argues are nominalized verb phrases. Traditionally, PVNs and AVNs were grouped together as verbal nouns (cf. Ó Siadhail 1989).

(18) a. Chuala mé an tseinm. *Argument Verbal Noun*
          heard I the play.VN
          'I heard the playing.'

   b. Tá   Seamus ag   seinm ceoil.   *Predicative Verbal Noun*
      be.PRES James PROG play.VN music.GEN
      'James is playing music.'   [Irish; Carnie 2011: 1209]

Irish PVN constructions have a variety of functions, such as non-finite complements to modals (19-a), complements to auxiliaries (19-b), and complements to some raising and control constructions (19-c)-(19-d).

(19)   a. Ní mór dom an scéal a   **scríobh**.
        NEG big to.1SG the story 3SG.M write.VN
        'I must write the story.'

     b. Tá   mé tar-eis an scéal a   **scríobh**.
        be.PRES 1SG PERF the story 3SG.M write.VN
        'I've just read the book.'

     c. Ba mhaith liom   Seán an scéal a   **scríobh**.
        COP good   with.1SG Sean the story 3SG.M write.VN
        'I want Sean to write the story.'

     d. Tá   mé ábalta an scéal a   **scríobh**.
        be.PRES I   able   the story 3SG.M write.VN
        'I am able to write the story.'   [Irish; Carnie 2011: 1212]

Carnie (2011) argues that these clauses lack a T projection altogether. As shown in (20), predicative verbal nouns lack tense marking, but can be marked with aspect.

(20)   a. Tá   Seán ag   dúl   abhaile.
        be.PRES Sean PROG go.VN home
        'Sean is going home.'

     b. Bhí   Seán tar-eis dúl   abhaile.
        be.PST Sean RECPERF go.VN home
        'Sean is going home.'   [Irish; Carnie 2011: 1213]

He also demonstrates that some arguments in PVNs receive genitive case as a last resort operation due to the lack of functional structure in these constructions.

5.3.2.2 T is bundled with C

The high T° bundles with C post-syntactically, forming a prosodic word that precedes the verb (McCloskey 1996b). In both examples in (21), the verb is sandwiched between two tense markers. The

verb form *creid* 'believe' is inflected for past tense. The preverbal particle also encodes tense, shown

overtly marked in (21-b), as well as complementizer functions such as embedding (for more functions of

the preverbal particle, see Table 5.2).

(21)　　a.　...go gcreideann tú...
　　　　　　COMP believe.PRES you
　　　　　　'...that you believe...'

　　　　b.　...gur　　chreid　　tú...
　　　　　　COMP.PST believe.PST you
　　　　　　'...that you believed...'　　　　　　　　　　　　　　　　　[Irish; Oda 2012: 145]

McCloskey (1996a) argues that this bundling between the high T and C is post-syntactic, based on

word order properties, such as the placement of sentential adverbs. This analysis is problematic under

the assumption that the defectiveness of T is a syntactic property, and so a post-syntactic merger should

not be relevant. However, it's still suggestive. Perhaps, in fact, it merges post-syntactically precisely

because it is defective. Perhaps a syntactically defective T is also prosodically defective and requires

support, and therefore triggers a cliticization process.

5.3.2.3　Defective morphology

The high $T°$ has fewer tense distinctions than the low one. It is limited to [±PAST], as shown in

Table 5.2. In fact, two particles, the wh-extraction a^L and the simple conditional marker *má*, make no

tense distinctions at all (Oda 2012). In contrast, verbs also show a contrast between present and future,

resulting in a three-way tense contrast, as shown in (22). Thus, compared to the low T, the high T has

defective tense morphology.

	PRESENT	FUTURE	PAST
Negation *ní*	ní	ní	níor
Y/N Question *an*	an	an	ar
Resumption a^N	a	a	ar
Complementizer *go*	go	go	gur
Wh-extraction a^L	a	a	a

Table 5.2: Tense inflection on bundled C + T_{HIGH} heads, based on data from Oda (2012): 144-145

(22) a. An gcreideann   tú   ...
          Q believe.PRES you
          'Do you believe...?'

      b. An gcreidfidh   tú   ...
          Q believe.FUT you
          'Will you believe...?'

      c. Ar   chreid   tú   ...
          Q.PST believe.PST you
          'Did you believe...?'   [Irish; Oda 2012: 144]

5.3.2.4 T is high

Irish is especially interesting since it appears to have two tense heads, named T_{HIGH} and T_{LOW}. At first glance, of course, this makes Irish appear as if it has a very rich tense system, contrary to my claim that T is defective. However, T_{HIGH} is quite defective and patterns with the T head in Niuean and Inuktitut in several interesting ways. This seems to indicate that it is not the *lack* of a particular head or a particular set of features that is crucial to a language being a predicate-EPP language, but rather the positive presence of this particular head, which looks almost, but not quite, like the T we are familiar with in languages like English.

That the higher T head seems to be related to EPP type is rather unexpected, for two reasons. First of all, *how* can this head, which is higher than the EPP position, determine the EPP type of the clause? Secondly, *why* should it be the higher, defective T which determines the EPP type of the clause, rather than the lower T? I will begin with the second question. As discussed in Section 5.1.1, I hypothesized that the EPP feature is found on the highest head of the inflectional domain. Based on that hypothesis, it is the higher head which is predicted to determine the EPP type, as long as it remains in the inflectional domain. Determining the edges of the clausal domains remains an open problem; however, these patterns bring new evidence to bear on this question. Second, how can the higher head determine the EPP type of the clause, derivationally? This is conceivably done through selection. Again, recall that I suggested in Section 5.1.1 that C obligatorily selects for a TP with the EPP already checked. Perhaps, then, the C of a particular language has specific selectional features that require a particular kind of T.

5.3.2.5 Definiteness

Irish has a separate Dem° and D° (Windsor 2014), which could be analyzed as parallel to the split T. Like T, the two morphemes create a sandwich around the noun, as shown bolded in (23). The preverbal definiteness particle is the D° while the postverbal proximal or distal marker is the demonstrative.

(23) a. Tá [DP **an** fear **seo**] sásta.
          COP   DEF man PROX satisfied
          'This man is satisfied.'

      b. Tá [DP **an** chloch mhór **sin**] go   deas.
          COP   DEF stone   big   DIST PRT nice
          'That big stone is nice.'

      c. Níl   [DP **na**   fir   **úd**] sásta.
          COP.NEG   DEF.PL man.PL DIST satisfied
          'Those men are not satisfied.'   [Irish; Windsor 2014: 101]

The pre-nominal morpheme expresses definiteness, since it alternates with a null indefinite morpheme (Windsor 2014), and number, as in (24).

(24) *Features expressed on the definite determiners in Irish (Windsor 2014: 99)*

       +DEF
         |
       NUMBER
        ⌒
      SG   PL

      an   na
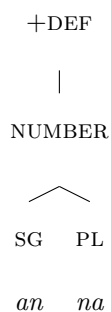
The post-nominal morpheme, in contrast, expresses a proximal/distal contrast, as well as a visible/invisible contrast, as in (25).

(25)   *Features expressed on the demonstrative in Irish (Windsor 2014: 101)*

```
                    LOCATION
                    /      \
              PROX            DIST
               seo           /    \
                          VIS      INVIS

                          sin     siúd (úd)
```
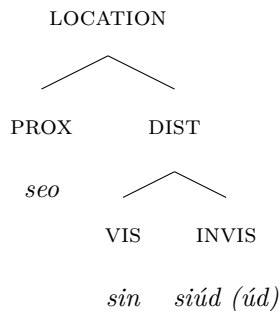
One of the two D morphemes is richly inflected for definiteness, while the other is not, just as only

one of the two T morphemes is richly inflected for tense. However, the linear order is reversed. The T

morpheme with rich tense is post-verbal, while the D morpheme with rich definiteness is pre-verbal. Be

that as it may, there is evidence that the morpheme marking definiteness is more deeply embedded. For

example, demonstratives can co-occur with pronouns (26-a) and with proper nouns (26-b).

(26)   a.   Chuaigh **sé**   **seo**   ar seachrán.
             go.PST   3SG.M PROX on astray
             'This person went astray.'

        b.   Bhí   urradh as   miosúr i **nGoll seo**.
             be.PST strength out-of measure in Goll   PROX
             'This guy Goll has astonishing strength.'   [Irish; Windsor 2014: 102]

Assuming that pronouns and proper nouns occur in D, these constructions indicate that the demon-

strative selects, and therefore occurs outside of, the DP. Thus, although the linear order is reversed in

nominal and clausal structure in this double-marked constructions, the hierarchical structure is paral-

lel. The high defective T c-commands the lower rich T, just as the demonstrative without a finiteness

distinction c-commands a lower D head with a finiteness distinction.

5.3.2.6   Summary: Irish

Irish has two T heads, a structure mirrored in the nominal domain by the doubling of the demon-

strative and the D head. The higher T head is merged with C post-syntactically, and has fewer tense

distinctions. There is no finiteness distinction on the verb, since non-finite clauses are nominalized.

5.3.3 Inuktitut

Inuktitut is a polysynthetic language with a √-EPP, checked by a root taking initial position in the verbal complex (Johns 2007). Like Irish, Inuktitut in a sense has two tense heads. The semantic tense marker is lower in the clause; however, the functional properties of T in languages like English, such as agreement and case assignment, appear on a higher head bundled with C.

5.3.3.1 Non-finite clauses

Inuktitut does not have a non-finite construction. For example, Johns and Smallwood (1999) argue that *-llu* is not a non-finite marker. In these constructions, both ergative and absolutive arguments can be indexed, as shown in (27).

(27)   Alana-up   ujagak   atja-tlu-gu   ani-vuk
        Alana-ERG rock-ABS carry-llu-3SG go.out-INTR.INDIC.3SG
        'While Alana was carrying the rock, she went out.'
                                            [Inuktitut (Labrador); Johns and Smallwood 1999: 162]

5.3.3.2 T is bundled with C

Two functions of T, agreement and case assignment, occur on C (Compton 2017). This is shown in (28), where agreement is fused with the question marker. I will refer to this morpheme as the functional T marker.

(28)   takulauqsimanngippinga(a)?
        taku- lauq-   sima- nngit- pinnga(a)?
        see-   DIST.PAST- PERF- NEG   Q.2SG.1SG
        'Haven't you seen me before?'   [Inuktitut (Baffin Island); Compton 2017: 1]

5.3.3.3 T is high

In Inuktitut, the semantic tense marker immediately follows the verb, while the functional tense marker is the final morpheme in the verbal complex, as shown in (28). In the other predicate-EPP languages, tense is preverbal, but in Inuktitut, both of these tense markers follow the verb. However, if we assume that the verbal complex is formed by successive head-to-head movement, this still corresponds

to a very high position in the clause for the functional T head, in accordance with the Mirror Principle (Baker 1985).

5.3.3.4 Defective morphology

Greenlandic varieties of Inuktitut are tenseless (Bittner 2005). On the other hand, in other varieties, such as South Baffin Inuktitut, tense is marked overtly in the future and the past, and clauses with null tense are obligatorily interpreted as present (Hayashi 2011). Hayashi (2011) demonstrates that the past tense markers, at least, satisfy the following criteria indicating that they are tense markers (the latter three are taken from Tonhauser 2006).

(29)   *Diagnostic criteria for tensehood (Hayashi 2011: 40)*

    a.   A tense cannot be omitted.

    b.   Aspects may not be able to co-occur with members of particular aspectual classes, while tenses are not subject to such constraints.

    c.   Tenses cannot co-occur with other tenses, while aspects may co-occur with other aspects.

    d.   Tenses do not encode a state change, while aspects may.

However, even in dialects where tense is marked, as in South Baffin, tense is marked only on the lower head, and never on the high functional T head. The semantic T head still differs from T in argument-EPP languages such as English, since it is lower than negation, and because it has contrastive near and remote past and future, so it cannot be described simply as [±COINCIDENCE] in the sense of Ritter and Wiltschko (2014). However, there is still evidence of dependent tense marking on the lower T head in dependent clauses, both through a relative interpretation of tense and through past tense as counterfactual markers (Hayashi 2011). The existence of tenseless dialects, such as Greenlandic, provides further evidence that tense plays a different, less architectural, role in the clausal stucture.

5.3.3.5 Definiteness

Finally, definiteness contrasts are not marked morphologically, but depend on which arguments are indexed by agreement (Sadock 2003, Branigan and Wharram 2017). For example, incorporated objects

(30-a) and objects of antipassivized verbs (30-b) are obligatorily interpreted as narrow-scope indefinites.

(30)   a.   Pani-qaq-tunga.
              daughter-have-PART.1S.ABS
              'I have a daughter/daughters.'

        b.   Akittiq iqalung-mik taku-∅-ngngit-tuq.
              A.ABS   fish-MOD   see-ANTIPASS-NEG-PART.3S.ABS
              'Akittiq didn't see any fish.' (#'There is a particular fish that Akittiq didn't see.')

                                    [Inuktitut (South Baffin); Branigan and Wharram 2017: 2]

However, if an object of a non-incorporating verb has not been antipassivized, then it is obligatorily

interpreted as 'specific' (in Fodor and Sag's 1982 sense) and takes wide scope, patterning with absolutive

and ergative subjects, as shown in (31).

(31)   a.   Akitti-up iqaluk   taku-ngngit-taa.
              A.ERG   fish.(ABS) see-NEG-PART.3S.ERG.3S.ABS
              'There is a particular fish that Akittiq didn't see.' (#'Akittiq didn't see any fish.')

        b.   Suli arnaq   iqalung-mik taku-∅-ngngit-tuq.
              still woman.(ABS) fish-MOD   see-ANTIP-NEG-PART.3S.ABS
              'There is a woman who hasn't seen any fish yet.' (#'No woman has seen any fish yet.')

        c.   Suli arna-up   Miali   taku-sima-ngngit-tanga.
              still woman-ERG M.(ABS) see-PERF-NEG-PART.3S.ERG.3S.ABS
              'There is a woman who hasn't seen Mary yet.' (#'No woman has seen Mary yet.')

                                    [Inuktitut (South Baffin); Branigan and Wharram 2017: 2]

This indexing occurs with the high, defective T, and not with the low, semantic T, providing further

evidence that definiteness is linked to the high T head.

5.3.3.6   Summary: Inuktitut

Inuktitut has all of the properties of a predicate-EPP language. Like Irish, Inuktitut has a double T

head structure. However, unlike Irish, the higher head only has the functional properties of T, and does

not encode semantic tense features. The functional T head is high and bundled with C. There are no

non-finite clauses or morphological definiteness markers.

5.3.4 Summary of Case Studies

The properties of the predicate-EPP languages discussed in this section are summarized in Table 5.3. These properties can all be explained by a high defective T. In Irish and Inuktitut, the high defective T co-occurs with a lower, richer, semantic tense marker, indicating that it is the positive presence of the defective functional T that correlates with the predicate-EPP type. The properties of the defective T in the clausal domain appears to be mirrored in the nominal domain by the lack of a definiteness contrast. The mirroring goes so far as to have a doubled head structure in Irish.

	Niuean	Inuktitut	Irish
EPP Type	vP-predicate	root-predicate	v°-predicate
Non-Finite Clauses	none	none	nominalized
T Bundled with C	comp. dist.	agr on C	post-syntactic
T is High	preverbal word	by mirror principle	preverbal
Morphology	optional	none on functional T	fewer contrasts
Definiteness	none	by agreement	parallel double D

Table 5.3: Summary: Predicate-EPP Languages

5.4 Predicate EPP: Extensions to Other Languages

In the previous section, I described the shared properties of three predicate-EPP languages, Niuean, Irish, and Inuktitut, and demonstrated that these properties were linked to the positive presence of a high defective T head which is mirrored in the nominal domain. In this section, I will describe how three other languages, whose EPP types have not been independently established, pattern with regards to these same properties. I will demonstrate that Gitksan shares these properties, and so tentatively class it as a predicate-EPP language. In contrast, I will show that both Mazahua and Mandarin share only a subset of these properties, and propose, tentatively, that they have D-on-V EPP and DP-EPP, respectively. These last two languages can be used to distinguish the properties of predicate-EPP languages from other closely related classes: verb-initial languages in the case of Mazahua, and languages with other kinds of defective T in the case of Mandarin.

5.4.1 Gitksan

Gitksan appears to pattern as a predicate EPP language. Gitksan is a Tsimshianic language spoken in British Columbia. It has fairly strict VSOX word order (where X stands for oblique arguments and/or adjunct DPs), as shown in the independent clause in (32), and two clause types, independent and dependent.

(32)   Gi'namis   Henryhl wineex as   Aidan.
        gi'nam-ə-t =s   Henry =hl wineex a-t   =s   Aidan
        give-TR-3.II =DN   Henry =CN food   OBL-3.II =DN Aidan
        'Henry gave food to Aidan.'   [Gitksan; Forbes 2018: 21]

5.4.1.1 EPP Type

Forbes (2018) argues that Gitksan is derived by predicate-fronting, similar to Massam's (2001) analysis of the structure of Niuean. Gitksan also appears to share the four properties of predicate-EPP languages discussed above. I assume the structure of Gitksan proposed by Forbes (2018).

Forbes (2018) suggests that Gitksan has a phrasal predicate-fronting process based on two pieces of evidence. First, Gitksan has a noun incorporation construction similar to the pseudo noun incorporation of Niuean, shown in (33)-(34). This appears to be derived by phrasal movement because it results in VOS order, and because Series II agreement follows the entire predicate, including the object.

(33)   Yukwhl hisyets lekws   John.
        yukw   =hl   [yəts~**yets** -**lekw**]-t   =s   John
        IPFV   =CN   [PL~chop   -firewood]-3.II =DN John
        'John was chopping wood (wood-chopping).'   [Gitksan; Forbes 2018: 145]

(34)   Needii   gubasxum   smaxt.
        nee=dii   [**gup**-asxw-m   -**smax**]-t
        NEG=FOC [eat-ANTIP-ATTR -meat]-3.II
        'He never eats meat (meat-eats).'   [Gitksan; Forbes 2018: 145]

Second, low adverbs (traditionally called *pre-verbs*) precede the verb, as shown in (35); this can be explained if they raise with the predicate.

(35) T'ek'il   suwi k'eekwhl   x̲pts'ewit   hlgu gyet.
      [**t'ek'il   suwi** k'eekw] =hl x̲pts'exw-it hlgu gyet
      [curled.up away flee]   =CN afraid-SX   little man
      'The frightened little guy took off right away.'   [Gitksan; Forbes 2018: 145]

Gitksan also arguably has rich agreement, as shown below, and so D-on-V EPP is also a plausible analysis. Table 5.4 shows the distribution of different forms of person-marking in Gitksan. Forbes (2018) argues that both series I and II person marking morphemes are agreement, while series III morphemes are pronouns. Thus, in every context except independent intransitive clauses (which only has an S argument), there is some agreement morpheme (series I or II) marked on the verb. Table 5.5 shows that both series I and II are rich, having contrasts in nearly every person-number context. The only syncretism is between third person singular and third person plural marking in independent contexts.

	Independent	Dependent	Dependent with DP/3PLA
A	II	I	I + II
S	III	II	(n/a)
O	III	II	III

Table 5.4: Argument Marking Morphology across Clause Types in Gitksan (Forbes 2018: 39)

	Pre-predicate clitics (I)		Predicate suffixes (II)		Independent/full (III)	
	SG	PL	SG	PL	SG	PL
1	n	(n) dip	-'y	-'m	'nii'y	'nuu'm
2	m	m sim	-n	-si'm	'niin	'nisi'm
3		t	-t	-diit	'nit	'nidiit

Table 5.5: Gitksan person-marking series (Forbes 2018: 28)

Since Gitksan also has a predicate-fronting operation and patterns with predicate EPP languages on nearly every key property, I maintain that it is a predicate-EPP language.

5.4.1.2 Non-finite clauses

Brown (2016) assumes that dependent clauses in Gitksan are non-finite; however, Forbes (2018) refutes that assumption, based primarily on Hunt's (1993) argument that dependent markers cannot be analyzed as predicates (and thus, cannot be embedding predicates). For example, predicates such as *hlisxwi'y* 'finish' in (36-a) can host the prospective marker *dim*, but dependent markers such as the

imperfective marker *yukw* cannot, as shown in (36-b).

(36) a. Hlaa yukw dim   hlisxwi'y.
       hlaa   yukw **dim**   hlis-xw-'y
       INCEP IPFV PROSP finish-INTR-1SG.II
       'I'm very close to finishing.'

    b. *hlaa   **dim**   yukw hlis-xw-'y
       INCEP PROSP IPFV finish-INTR-1SG.II

[Gitksan; Hunt 1993: 147, as cited in Forbes 2018: 120]

This illustrates that *yukw* does not function as an embedding verb in (36-b), and therefore that dependent clauses are not bi-clausal. Instead, they are another class of matrix clause. This is in contrast to *yukw* 'be busy' in its predicate function, which can host the prospective marker, shown in (37).

(37) Dim   hiyukw   'nii'y ahl   jamhun.
     dim   hi~yukw   'nii'y a-t   =hl   jam-hun.
     PROSP DUR~busy 1SG.III PREP-3.II =CN   cook-fish
     'I'm going to be busy cooking fish.'

[Gitksan; Hunt 1993: 147, as cited in Forbes 2018: 119]

However, as shown above in Table 5.4, agreement alignment does differ in dependent and independent clauses in Gitksan. This suggests that, if Gitksan is indeed a predicate-EPP language, the properties of Gitksan dependent clauses could be used to clarify my definition of non-finite clauses from Section 5.2.1.1.

5.4.1.3 T is bundled with C

Forbes (2018) argues that the differences between dependent and independent clauses in Gitksan arise because in independent clauses T inherits features from C, but inheritance is blocked when a dependent marker intervenes between C and T or when there is an alternate C head. In this way, then, Gitksan also exhibits a close relationship between C and T. However, if we include feature inheritance as a type of bundling between C and T, then, in order to maintain it as a property of predicate-EPP languages, I would have to argue that argument-EPP languages do *not* have feature inheritance, a claim that might be false.

On the other hand, Forbes (2018) proposes a cross-linguistic difference in feature inheritance properties.

(38)   a.   *Languages with defective agreement in non-finite clauses*

             T/Infl° must inherit agreement from C°.

       b.   *Languages without clear finiteness contrasts*

             T/Infl° inherently bears an agreement probe.

[adapted from Forbes 2018: 245]

Forbes also proposes that the languages of (38-b) might still inherit features from C, albeit other features, which may result in different clause-type contrasts cross-linguistically.[12] Perhaps, then, language classes may pattern together in *which* features are shared between C and T, rather than in whether there are shared features at all.

5.4.1.4   Defective morphology

There is a two-way temporal contrast in Gitksan, between future and non-future. Among non-future clauses, states generally receive a present tense reading by default (39), while activities, accomplishments, and achievements have default past tense readings (40). (Default interpretation is underlined.)

(39)   Luu am-hl   got-s   Diana.
        in   happy-CONNECT heart-CONNECT Diana
        'Diana is/was happy.' (≠'Diana will be happy.')

[Gitksan; Jóhannsdóttir and Matthewson 2008: 2]

(40)   a.   Yookw-t   James.
             eat-CONNECT James
             'James ate/is eating.' (≠'James will eat.')

       b.   Ama japdi-hl   m'al.
             fix   make-CONNECT canoe
             'I fixed/am fixing my canoe.' (≠'I will fix my canoe.')

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[12]See also Miyagawa (2010, 2017) for another proposal whereby languages differ in which features are inherited, creating the contrast between agreement-based and discourse-configurational languages.

    c.   N'uw't   John.
         die.CONNECT John
         'John <u>died</u>/is dying.' ($\neq$'John will die.')

[Gitksan; Jóhannsdóttir and Matthewson 2008: 2-3]

The future is marked with *dim*, as in (41).

(41)   Dim yookw-t   James (ji   taahlakxw).
        FUT eat-CONNECT James (PREP tomorrow)
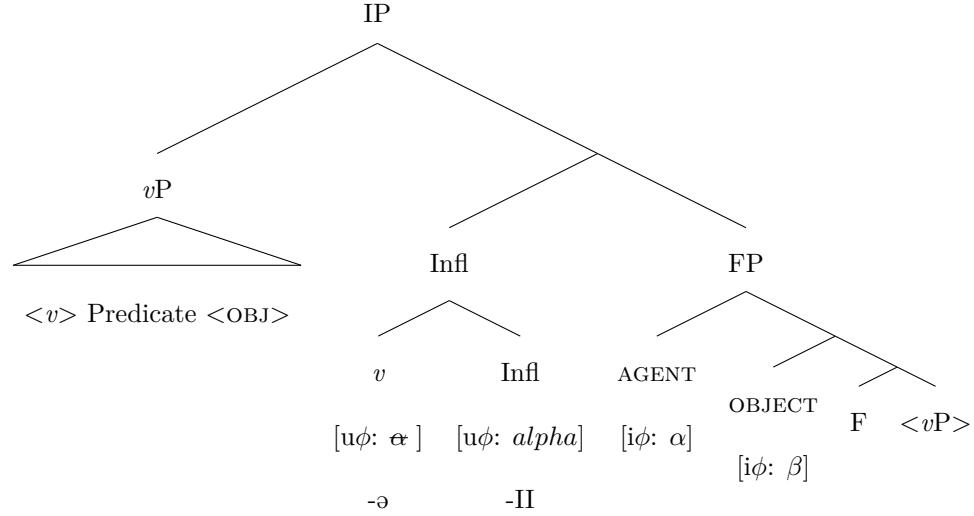   'James will eat (tomorrow).'   [Gitksan; Jóhannsdóttir and Matthewson 2008: 3]

This is likely an aspectual prospective marker, rather than tense (C. Forbes, p.c.). Either way, there is no past-present distinction in Gitksan.

5.4.1.5 T is high

It is not easy to tell where T is in Gitksan, since there are no tense markers. However, Forbes (2018) also proposes that the Series II probe is on Infl°(which can be taken as equivalent to T° in this case). Thus, we can take the position of the Series II agreement markers as a proxy for its position. The Series II marker is suffixed to the predicate as a whole, as shown above in (33)-(34). This ends up being at the same position as the EPP probe, as shown in the tree in (42), and therefore Gitksan could also be analyzed as an argument-EPP, specifically D-on-V EPP, language, due to the presence of rich agreement. However, we have seen other languages which exhibit rich agreement which does not check the EPP, such as Finnish and Spanish.

(42)

IP

vP

⟨v⟩ Predicate ⟨OBJ⟩

Infl

FP

Infl

v
[uφ: ⍺]
-ə

Infl
[uφ: *alpha*]
-II

AGENT
[iφ: α]

OBJECT
[iφ: β]

F   ⟨vP⟩

[Gitksan; Forbes 2018: 144]

5.4.1.6 Definiteness

According to Forbes (2018), Gitksan has two determiners, *=hl* for common nouns and t[13] for personal names, ascending kinship terms, animate pronouns, and demonstratives (Forbes 2018: 41). Forbes assumes that these determiners head the projection K. Bicevskis, Davis, and Matthewson (2017: 293, as cited in Forbes 2018) show that they do not encode definiteness or specificity contrasts.

5.4.1.7 Summary: Gitksan

It is not possible to independently determine the EPP-type of Gitksan. Since, as argued by Forbes (2018), it has predicate-fronting, it could be argued to be a predicate-EPP language. On the other hand, Gitksan also has sufficiently rich agreement that it could be argued to have a D-on-V EPP, as well. However, I demonstrated in this section that it patterns with the other predicate-EPP languages in having a defective T, including the lack of non-finite clauses, a high preverbal T bundled with C, and no overt tense markers. The defective T is also mirrored in the nominal domain by the lack of a definiteness contrast. I therefore tentatively class it as a predicate-EPP language.

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[13]Note that /t/ lenites to /s/ when following another /t/ (Forbes 2018: 46).

5.4.2 Mazahua

Mazahua, an Otomanguean language spoken in central Mexico, is also a verb-initial language, and so one might expect it to pattern with the predicate-EPP languages. However, it does not share all of the properties of a predicate-EPP language. Rather, it appears to have at least some of the properties of a D-on-V EPP language.[14] The facts of Mazahua demonstrate that not all verb-initial languages have predicate-EPP, and can be used to distinguish the cluster of properties that characterize verb-initiality and those that characterize predicate-EPP languages.

5.4.2.1 T is preverbal

As with the other predicate-EPP languages, T in Mazahua is a prefix that precedes the verb (Partida Peñalva 2017), as shown in (43).

(43) a. ɾó-ßɨɣɨ   (nùtskɔ)
          1PST-run I
          'I ran.'

      b. ɾí-nè-ts'e   (nùts'ke)
          1PRES-love-2AGR$_V$ you.SG
          'I love you.'   [Mazahua; Partida Peñalva 2017: 6]

5.4.2.2 Rich morphology

On the other hand, unlike the predicate-EPP languages, Mazahua has rich verb inflection. The table in 5.6 shows that the T prefix cross-references a three-way contrast in TAM (past, present, and irrealis), as well as a three-way contrast in person.[15] Therefore, it cannot be said that the morphology is defective.

	PAST	PRESENT	IRREALIS
1	ó-	í-	á-
2	ì-	í-	ì-
3	ò-	ø-	à-

Table 5.6: Prefixes in Mazahua (Crescencio Morales), based on data from Partida Peñalva (2017): 5-7

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[14]Note that Mazahua speakers have borrowed *ja* 'already' from Spanish, which can be used instead of the present and past tense markers, in which case, the agreement marked on the prefix is lost (Partida Peñalva, p.c.). Although subject agreement would still be marked on the suffixes of unaccusative predicates, this would no longer constitute rich agreement. Thus, if Mazahua has D-on-V EPP, there appears to be a register-based EPP alternation.

[15]This prefix has a split ergative alignment, agreeing with the sole argument of an unergative, the subject of a transitive, and appears with a default third person marker in unaccusatives.

5.4.2.3 T is *not* bundled with C

In addition, T does not seem to be bundled with C in Mazahua, since having an independent com-plementizer does not appear to affect the appearance of tense inflection, as shown in (44).

(44) a. ɾí-sṹ-k'ɨ   k'ɨ   ì-jâɓ-ɣɨ
          1PRES-fear-2AGR$_V$ because 2PST-hit-1AGR$_V$
          'I fear you because you hit me.'

[Mazahua; Vargas Bernal 2013: 62, as glossed by Partida Peñalva 2017: 24]

  b. mà j'a = ɾì-hə̂s'ə-∅   zákɨ ɾà-mbǎɣɨ-∅
      if   NEG=2IRR-put-3AGR$_V$ fast IRR-red
      'If you don't put it fast, it will become red.'

[Mazahua; Vargas Bernal 2013: 71, as glossed by Partida Peñalva 2017: 25]

5.4.2.4 Definiteness contrast

Mazahua also has a distinction between definite and indefinite determiners (Partida Peñalva, p.c.). The example in (45) illustrates both the definite determiner *nù* and the indefinite determiner *ná*.

(45) ɾó-ũnũ̀   ná   íʃi   nù   ɓézo
      1.PST-give INDEF apple DEF man
      'I gave an apple to the man.'   [Mazahua (San Pedro Potla), V. Partida Peñalva, p.c.]

5.4.2.5 Finiteness is emerging

Mazahua is an understudied language, and the available literature is incomplete regarding the finite-ness distinction in Mazahua. However, sentences like the one in (46) may be bi-clausal. The embedded verb has no tense or agreement marker, indicating that it may be a non-finite clause.

(46) ɾá-má   ʃom-bɨ   nù   w̥ǎm̥a   ín-tʃehue.
      1.FUT-go plow-3SG DEF cornfield 1SG.POS-daughter
      'I'm going to go plow my daughter's cornfield.'

[Mazahua (San Pedro Potla), V. Partida Peñalva, p.c.]

If the subject of the embedded clause has distinct reference from the subject of the main clause, as in

(47), the tense and agreement marker becomes obligatory.

(47)   ɾó-ʃi-pi=ɣo   ɣò-neme
       1.PST-say-3SG-EMP 3.PST-dance
       'I asked him to dance.'   [Mazahua (Crescencio Morales), V. Partida Peñalva, p.c.]

However, constructions such as (46) did not appear until more recent elicitation sessions (V. Partida Peñalva, p.c.), indicating that this may be an emerging form.[16] Rather, older sources list constructions where the tense and agreement marker is repeated, even in constructions where the subjects of both clauses are not distinct, as in (48).

(48)   ʔjá=ɾì-mɔ̀=hì   nà-hɛ́ɛ̃   ɾá-ndà-mɔ́=ʰme   ɾá-mbɔ́=ɓɔ̀   ɾá-mɔ́=hò
       NEG=1.PRES-go=PL PRED-far 1.FUT-AUG-go=PL.EX 1.FUT-accompany=DU.EX 1.FUT-go=PL
       'Don't go so far, we will go together.'   [Mazahua (Western); Mora et al. 2017: 238]

Because of this variation, no strong conclusions can be made about the nature of finiteness in Mazahua without further data collection.

5.4.2.6 Summary: Mazahua

Mazahua does not appear to be a predicate-EPP language, and may have D-on-V EPP instead. The only property that it non-controversially shares with the predicate-EPP languages is that tense is a preverbal particle. Interestingly, this is the one property that the only non-verb-initial predicate-EPP language, Inuktitut, does not have, indicating that preverbal tense may truly be a property of verb-initial languages rather than of predicate-EPP. On the other hand, the fact that Mazahua does not share the other properties provides evidence that they are properties of predicate-EPP languages, rather than properties of verb-initial languages.

5.4.3 Mandarin

Mandarin is also difficult to classify with respect to EPP-type. On the one hand, there appears to be a dedicated subject position above spec,vP which has no other properties, suggesting that Mandarin has

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[16]Of course, this is just a tentative suggestion. It could also be dialectal variation or an accident of changing elicitation practices.

an argument EPP. However, Mandarin is also topic-drop, and so the wide availability of null subjects

obfuscates the obligatoriness of this position.[17] Furthermore, Mandarin also has many properties of a

predicate-EPP language.

5.4.3.1 EPP-Type

When overt, subjects in Mandarin obligatorily appear in clause-initial position, as shown in (49).

(49)   a.   Zhangsan hui zhunbei wancan.
            Zhangsan will prepare dinner
            'Zhangsan will prepare the dinner.'

    b.   *Hui Zhangsan zhunbei wancan.
            will Zhangsan prepare dinner

    c.   *Wancan hui Zhangsan zhunbei.
            dinner will Zhangsan prepare

                                                  [Mandarin; Lin 2011: 50]

However, the subject is not always preverbal. For example, an indefinite subject appears post-verbally,

as in the presentative sentence in (50-b).

(50)   a.   Rén   lái   le.
            person come PFV/CRS
            'The person/people has/have come.'

    b.   Lái   le   rén   le.
            come PFV person CRS
            'Some person/people has/have come.'   [Mandarin; Li and Thompson 1981: 20]

There is some evidence that this subject-raising process is not related to topichood. First of all, having

an overt topic phrase is not in complementary distribution with raising the subject, as shown in (51).

(51)   [TOPIC Nèi kuài tián] **wǒmen** jiā féi.
            that piece field we   add fertilizer
            'That field, we fertilize.'   [Mandarin; Li and Thompson 1981: 19]

Furthermore, adverbs such as *tanbui-shuo* 'frankly speaking' cannot occur between the subject and

the predicate (52-b), but they can appear in between a topic and a predicate (52-c), illustrating that

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[17]As in Chapter 4, null subjects should be able to check the EPP, and that the licensing of null subjects is done independently of the EPP.

Zhangsan in (52-b) is truly in a subject position.

(52)   a.   Tanbai-shuo,   Zhangsan keneng   zhunbei wancan.
             frankly-speaking Zhangsan be-likely-to prepare dinner
             'Frankly speaking, Zhangsan may prepare the dinner.'

        b.   *Zhangsan tanbai-shuo   keneng   zhunbei wancan.
             Zhangsan frankly-speaking be-likely-to prepare dinner
             Intended: 'Zhangsan frankly speaking may prepare the dinner.'

        c.   Wancan tanbai-shuo   keneng   Zhangsan zhunbei.
             dinner   frankly-speaking be-likely-to Zhangsan prepare
             'The dinner, frankly speaking, may be prepared by Zhangsan.'   [Mandarin; Lin 2011: 63]

These patterns suggest that Mandarin has a DP-EPP. However, before this can be stated conclusively, an explanation regarding the contexts which permit a post-verbal subject must be sought. It is possible, for example, that presentative sentences such as the one in (50-b) could be explained by a null event argument, as discussed in Section 2.2.2.1 for Hungarian.

5.4.3.2   Defective morphology

The status of T in Mandarin is a matter of debate in the literature. Grano (2017) argues that Mandarin has no T at all, since there is no overt agreement or case marking (Huang, Li, and Li 2009), nor any overt tense distinctions (Huang et al. 2009). Thus, if T exists at all, it makes very little overt contribution to the structure of the clause. Furthermore, if there is no T, it does not make sense to discuss whether it is high, or bundled with C.

5.4.3.3   Non-finite clauses

Mandarin also arguably has no non-finite clauses (Peters 2017). Lin (2015) argues for a distinction between two types of predicates, which are described below in Table 5.7 as Class A and Class B. However, where Lin attributes the distinction between the two classes to finiteness, Grano (2017) shows that the difference can be accounted for by using a different amount of structure.

Peters (2017) argues that the clause type distinction in Mandarin can be attributed to proposition-ality, rather than finiteness, and that the feature that encodes this contrast is hosted on Asp. Thus,

Class A	Class B
Can host overt subjects, epistemic modals, and aspectual markers.	Cannot host overt subjects, epistemic modals, and aspectual markers.
Can appear as complements of modals but not control verbs.	Can only appear as complements of root modals and control verbs.
Dominated by AspP (Grano 2017).	Only vP (Grano 2017).
A proposition.	Not a proposition.

Table 5.7: Two Classes of Predicates in Mandarin (Peters 2017)

there is no need for T°, and, furthermore, no finiteness distinction.

5.4.3.4 Definiteness

Definiteness in Mandarin is contrastive in only some contexts. For example, if a nominal includes a classifier phrase with a demonstrative, as in (53), then it is necessarily definite, while a classifier phrase with a numeral but no demonstrative, as shown in (54), is necessarily indefinite.

(53) a. zhèi ge rén
　　　 this CL person
　　　 'this person'

　　 b. nèi xiē yǐzi
　　　 that PL chair
　　　 'those chairs'   [Mandarin; Li and Thompson 1981: 130]

(54) a. sān jiālún yóu
　　　 three gallon oil
　　　 'three gallons of oil'

　　 b. yi ge fāngfǎ
　　　 one CL method
　　　 'an idea'   [Mandarin; Li and Thompson 1981: 131]

On the other hand, nominals such as the one in (55) can be either definite or indefinite, depending on context. If 'fruit' is already in the common ground, then here *shuǐguǒ* 'fruit' is definite, but it is indefinite otherwise.

(55) Wǒ mǎi le shuǐguǒ le.
　　 I buy PFV fruit CRS
　　 'I have bought the/some fruit.'   [Mandarin; Li and Thompson 1981: 131]

5.4.3.5 Summary: Mandarin

Mandarin shares with the predicate-EPP languages unusual T properties, including the lack of non-finite clauses and of an obligatory definiteness contrast. However, rather than having a high defective T, Mandarin appears to have no T at all. From our analyses of Irish and Inuktitut in Section 5.3, we concluded that it was the positive presence of the high, defective T that was correlated with predicate-EPP. This predicts, then, that Mandarin should *not* have predicate-EPP. As predicted, Mandarin has a dedicated subject position above spec,*v*P that indicates a DP-EPP. Therefore, Mandarin provides an interesting test case to distinguish between the properties of the flavour of defective T that is correlated with predicate-EPP and other flavours of T.

5.5 Interim Summary: Predicate-EPP Languages

Tables 5.8 and 5.9 give a summary of how each of the six languages discussed above behaves with respect to the hypothesized properties of a predicate-EPP language. I shaded the cells where the languages behave somewhat differently than as predicted for a predicate-EPP language.

Table 5.9 lists the properties of three languages whose EPP types are difficult to classify. Gitksan is ambiguous between *v*P-predicate EPP and D-on-V argument-EPP, but it otherwise seems to behave as a predicate-EPP language. Therefore, I tentatively class it as *v*P-EPP. Mazahua is a verb-initial language with rich agreement. It only shares some of the properties of a predicate-EPP language. I tentatively categorize it as D-on-V EPP and suggest that it can be used to distinguish properties that characterize predicate-EPP from verb-initiality. Finally, Mandarin appears to have a DP-EPP but also lacks T, and so can be used to distinguish the flavour of defective T that is correlated with predicate-EPP from other consequences of variation in the properties of T. Interestingly, all six languages seem to lack non-finite clauses in at least some dialects. This could indicate that the finiteness contrast is not actually correlated with EPP-type, or that it is a one-way condition (i.e., a language with a finiteness distinction must have an argument EPP, or, a predicate-EPP language cannot have non-finite clauses).

The clausal spine seems to have a different structure in predicate-EPP languages, compared to

	Niuean	Inuktitut	Irish
EPP Type	vP-predicate	root-predicate	v°-predicate
Non-Finite Clauses	none	none	nominalized
T bundled with C	comp. dist.	agr on C	post-syntactic
T is High	preverbal word	by mirror principle	preverbal
Morphology	optional	none on functional T	fewer contrasts
Definiteness	none	by agreement	parallel double D

Table 5.8: Summary: Predicate-EPP Languages, Repeated

	Gitksan	Mazahua	Mandarin
EPP Type	vP-predicate?	D-on-V EPP?	DP-EPP?
Non-Finite Clauses	none	variation	none
T bundled with C	inheritance	no	n/a
T is High	suffix	prefix	n/a
Morphology	none	rich	none
Definiteness	none	yes	depends on context

Table 5.9: Summary: Extensions

argument-EPP languages, since it has a high, defective T. As mentioned earlier, Irish has two tense heads (McCloskey et al. 2014, as cited in Ostrove 2015); it is the higher one which is impoverished. This indicates that it is the positive presence of a high impoverished T which is correlated with predicate EPP. Argument EPP-languages, in contrast, have the EPP probe on T (e.g., English) or higher than T (e.g., Finnish). Thus, languages appear to differ in the order and nature of the heads in the clausal spine.

5.6 High Predication and the Order of Operations

In Section 2.3, I proposed that the major distinction between EPP-checkers was a distinction between predicates and arguments. If the EPP is a syntactic operation, then predicates and arguments necessarily each operate as a natural class, independent of syntactic category, in the syntax. Furthermore, since there is a contrast between argument- and predicate-EPP languages, we can infer that, whatever the role of the EPP, moving either the argument or the predicate can satisfy it. In other words, although arguments and predicates are in some sense opposites, in this case, they are somehow equivalent. Since the only thing that predicates and arguments have in common is the predication relation, I propose that

the EPP operation is a predication relation, which I call *high predication*. I call it high predication to contrast it with the predication relation that is established upon merge, in the thematic domain. It is interesting to note that many syntactic relations seem to have both high and low varieties (e.g., high and low applicatives, or high and low aspect).

High predication also calls to mind the idea that the EPP is a requirement for clausal bifurcation (Massam 2005). That is, that the EPP requires *either* the predicate or an argument to raise. In the resulting configuration, either the predicate or the argument has to c-command the other, with the caveat that the argument or predicate features of the constituent that moves percolates up to the phase level for XP-movement, and to the highest constituent of a complex head in the case of head movement.

That the predication structure can be reversed was noted by den Dikken (2006), who shows that the two structures in (56) are attested cross-linguistically. He argues that predication is hierarchically asymmetrical.

(56)   The Two Permutations of the Predication Structure (den Dikken 2006: 48)

      a.   *Predicate-complement structure*

         [RP [XP SUBJECT] [R' RELATOR [YP PREDICATE]]]

      b.   *Predicate-specifier structure*

         [RP [XP PREDICATE] [R' RELATOR [YP SUBJECT]]]

The two permutations are exemplified in the secondary predication shown in the examples below, in the bracketed portions. The examples in (57) are predicate-complement structures, while those in (58) are predicate-specifier structures.

(57)   a.   Imogen regards [the president as a fool].

      b.   Imogen takes [the president for a fool].   [den Dikken 2006: 36]

(58)   a.   We have [a fool as our president].

      b.   We have [a fool for a president].   [den Dikken 2006: 36]

However, den Dikken notes that the predicate-specifier structure appears to be restricted in three ways.

First, he makes the empirical generalization in (59), that predicate-specifier structures have limited interpretative possibilities.

(59)   Predicate-specifier structures with adjectival, nominal, and prepositional predicates receive an *attributive* interpretation (den Dikken 2006: 50).

Second, he notes that predicate-specifier structures are frozen, disallowing extraction of either the subject in the complement position or the predicate in the specifier position. Finally, he notes that specifier-predicate structures can be primary predicates in the sense of (60) only if the uninterpretable features of T can be checked.

(60)   Primary Predication (den Dikken 2006: 48)

        The primary predication is the main, tensed subject-predicate relationship of the clause.

However, although den Dikken's (2006) analysis as a whole is based on a wide variety of languages, the generalization that primary predications are generally specifier-predicate structures seems to be based primarily on English. In the hypothesis I propose here, this generalization is in essence parametrized; where argument-EPP languages tend to have complement-predicate structures, predicate-EPP languages tend to have specifier-predicate structures. In argument-EPP languages, the head which facilitates the high predication relation, the relator in den Dikken's (2006) sense, appears to be T. It is less clear what the relator is in predicate-EPP languages.

In the remainder of this section, I explore the hypothesis that the EPP is a requirement for (re)combining an argument with a predicate. Whereas the nominal EPP languages do this by moving the argument to the highest position in the inflectional domain, predicate EPP languages do the reverse, moving the predicate to the highest position in the inflectional domain. This contrast aligns with the order of operations between EPP-checking and tense-marking. The predicate must combine with two different things in order to make a well-formed sentence: a) tense[18] and (b) an argument. However, the two types of languages perform the same operations in a different order, as shown in (61).

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[18]What I mean by *tense* is really the [coincidence] feature of Ritter and Wiltschko (2014), which is only sometimes realized as tense. I refer to it here as tense for simplicity.

(61)   a.   argument-EPP languages: [[PRED + TENSE] + ARGUMENT]

        b.   predicate-EPP languages: [[PRED + ARGUMENT] + TENSE]

The exact way that these different elements can combine differs from language to language. Below, I
illustrate the six main patterns (see the typology from Chapter 2 Table 2.1). Since there can be multiple
arguments in the clause, I will henceforth refer to the one which participates in high predication as the
*anchor*.

5.6.1   Argument-EPP languages: Tense First

In the argument-EPP languages, the predicate first combines with tense via merge, and then com-
bines with the anchor through movement or agreement. The anchor then c-commands both T and the
predicate. This is shown below for English, Greek, and Afrikaans.

In the English tree in (62), the predicate combines with tense by being its complement. After the
predicate combines with tense, it then combines with an anchor, in the specifier of T. The anchor
c-commands the predicate.

(62)   *English*

        a.
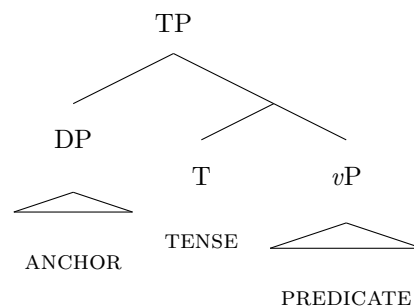
        b.   Mary was eating an apple.

In (63), the structure of a language where the EPP is checked by rich inflection on the verb (D-on-V
EPP languages), such as Greek, is shown. In these languages, the predicate combines with the tense
marker through merge, and then it combines with the anchor by agreeing with the subject. This order of
operations is reflected morphologically, since the agreement suffix follows the tense suffix. The complex
head containing the anchor, T, c-commands the predicate.

(63)   *Greek*

a.

```
                              TP
                   ┌───────────┴────────┐
                 (DP)              ┌─────┴─────┐
                                   T           vP
                               ┌───┴───┐    ┌───┴───┐
                               T      Agr   PREDICATE
                             TENSE   ANCHOR
```
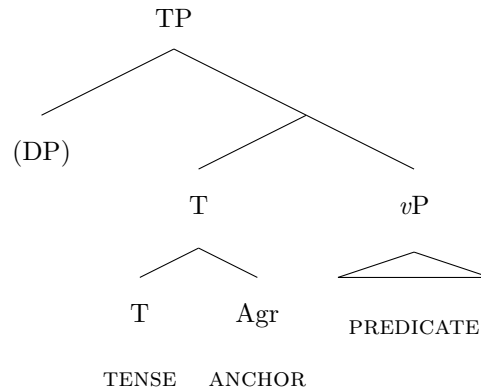
b.   O   Petros pandreftike   tin   Ilektra.
      DEF.M.NOM Peter   marry.PST.3SG   DEF.F.ACC Ilektra
      'Peter married Ilektra.'   [Greek; Alexiadou and Anagnostopoulou 1998: 492]

In the pied-piping Germanic languages (Richards and Biberauer 2005), as in (64), the predicate is merged first with tense. Then the entire predicate, including the anchor in spec,*v*P, is pied-piped to the specifier of T, in order for the anchor to combine with tense.[19] The nominal features that check the EPP percolate up to *v*P, as the phase level, and in this way c-commands tense.

(64)   *Afrikaans*

a.

```
                              TP
                   ┌───────────┴────────┐
                  vP              ┌──────┴──────┐
              ┌────┴────┐         T           <vP>
             DP        ...      TENSE      ┌────┴────┐
          ┌───┴───┐                        PREDICATE
          ANCHOR
```
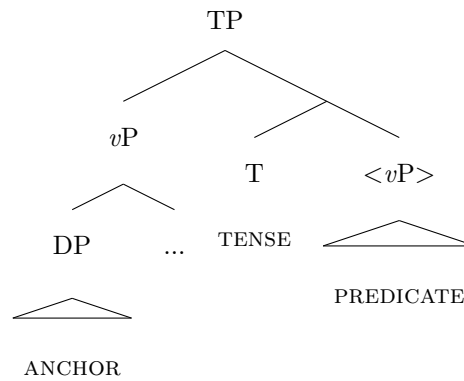
b.   ... dat [*v*P [DP 'n skip] gister   gesink] het.
          that   a ship yesterday sunk   has
      '...that a ship sank yesterday.'   [Afrikaans; Richards and Biberauer 2005: 142]

In all of the argument-EPP languages, the anchor moves to a position within T (either the head or

---

[19]This, of course, raises the question of why it has to move, and what relationship can be established after movement that couldn't be before. I think it has something to do with the order of operations in (61) again. This is discussed further in Section 5.6.3.

specifier), and the moved constituent c-commands the predicate. Tense is merged first, and then the EPP movement occurs.

5.6.2 Predicate-EPP languages: High Predication First

In predicate-EPP languages, on the other hand, the predicate moves, rather than an argument, to a position of prominence, ias shown in (61), repeated below.

(65)   a.   argument-EPP languages: [[PRED + TENSE] + ARGUMENT]

       b.   predicate-EPP languages: [[PRED + ARGUMENT] + TENSE]

In this position, the predicate c-commands the anchor argument through an intermediary to create the anchoring relationship. Thus, the c-command relationship between the predicate and the anchor is reversed when compared to argument-EPP languages. After the EPP is checked and anchoring is established, tense is merged. Tense c-commands both the predicate and the anchor.

In Niuean, as shown in in (66), the predicate raises to the specifier of XP, where it c-commands the anchor in its case position. Afterwards, tense is merged.

(66)   *Niuean*

       a.
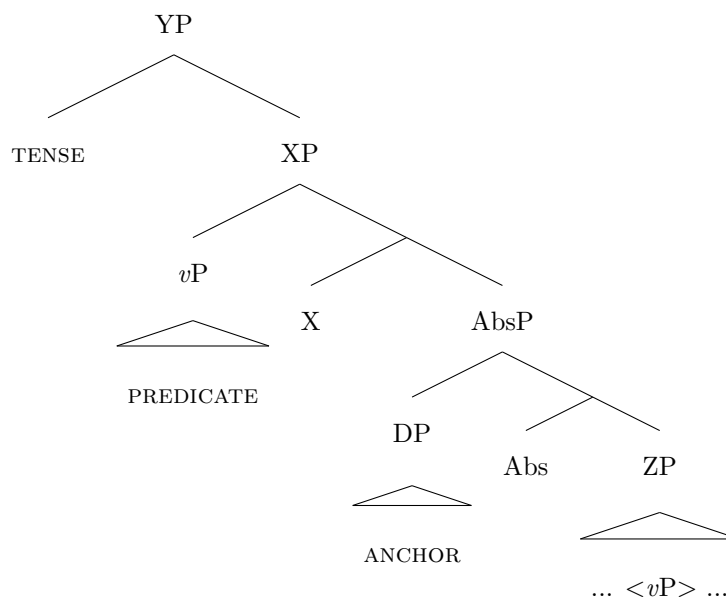
    b.   Ne [inu kofe kono] [a   Mele].
         PST drink coffee bitter ABS Mele
         'Mary drank bitter coffee.'   [Niuean; Massam 2001: 158]

As mentioned earlier, Irish has two tense heads (McCloskey et al. 2014, as cited in Ostrove 2015). The head of the predicate raises through the lower T to Pol° (polarity); from this position, the complex head that is formed c-commands the anchor. Afterwards, the higher tense is merged, where it c-commands both the predicate and the anchor. It is the higher tense head which shares the properties of impoverished T with Inuktitut and Niuean.

(67)   *Irish*

    a.
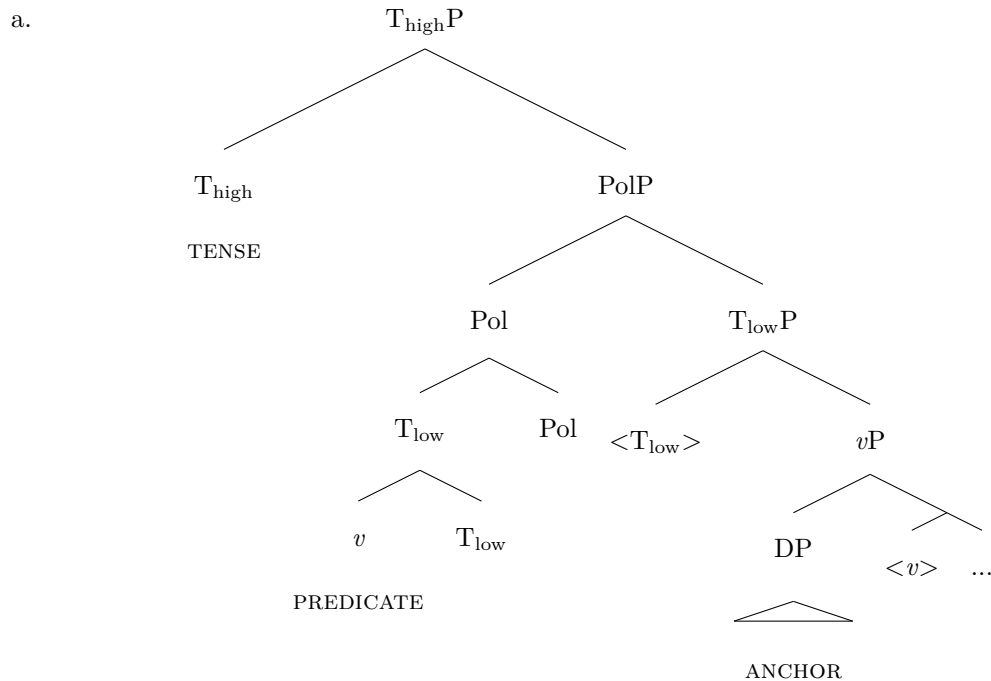
    b.   ní-or   ól...
         NEG-PST drink.PST
         '...didn't drink...'   [Irish; Ostrove 2015]

Finally, in Inuktitut, I assume that the verbal complex is a complex head created by roll-up into C (Johns 2007), as shown in (68). The roll-up is triggered by the EPP feature in C, which attracts the √; the complex head is formed by means of head-to-head movement. The complex head, containing both the predicate and tense, c-commands the anchor in its base position. Tense is merged later than

both the predicate and the anchor, and also c-commands the head of the predicate inside the complex head.[20] Note that although semantic tense is somewhat low, many of the grammatical functions of T° are performed by C, such as Case licensing and agreement (Compton 2017).

(68)   a.   *Inuktitut*
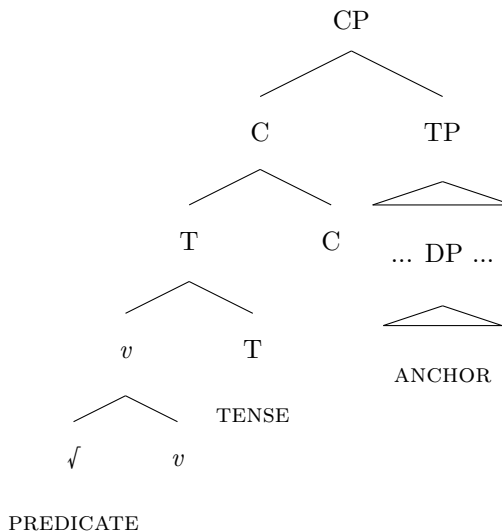
     b.   takulauqsimanngippinga(a)?

taku-		lauq-	sima-	nngit-	pinnga(a)?
see-		DIST.PST-	PERF-	NEG-	Q.2SG.1SG

         'Haven't you seen me before?'   [Inuktitut (Baffin Island); Compton 2017: 1]

Note that in both Niuean and Inuktitut, it is typically the absolutive argument which acts as anchor.

     The high predication hypothesis predicts that even predicate EPP languages require some sort of argument in the structure, although it doesn't necessarily move, but can stay in its merge position. Weather predicates are one construction which typically lacks an argument cross-linguistically. Interestingly, weather predicates do appear to contain an argument in predicate-EPP languages. In Niuean there appears to always be a case-marked nominal in weather predicates, as shown in square brackets in (69).

(69)   a.   Makalili [e   aho nei].
          cold   ABS day this
          'It's cold today.'

---

[20]The absolutive argument takes wide scope in Inuktitut (Bittner 1987), and is commonly assumed to occupy spec,CP. I assume that it moves to spec,CP to check case and to agree, after the high predication relation is established. Note that this movement does not satisfy my criteria to be an EPP-triggered movement, since it is not independent of case and agreement.

b. Kua tō [e   uha].
    PERF fall ABS rain
    'It's raining.'   [Niuean; Diane Massam, p.c.]

In Irish, either an expletive *é* or an existential marker *ann* is required (Kenji Oda, p.c.), as shown in

(70).

(70)   a. má tharla   é   fuar amuigh an oíche seo
            if happen.PST it.ACC cold out   this-night
            'if it happened to be cold out tonight'   [Irish; McCloskey 2014: 346]

        b. ó   tharla   trathnóna breá ann
            since happen.PST evening   fine EXIST
            'since it happened to be a fine evening.'   [Irish; McCloskey 2014: 348]

In Inuktitut, it is more problematic. Weather predicates appear in structures similar to noun incor-

poration structures, which will be discussed in more detail in Section 5.6.4. However, note that there is

an argument in initial position, although it is the root that presumably also checks the √-EPP.

(71)   a. Sila- lu- guma- juk.
            outside- bad- want- DEC.3SG
            'It looks like it's going to rain.'

            [Inuktitut (Labrador); Johns 1999, as cited in Compton and Pittman 2010: 2175]

        b. Anuri- juq.
            wind- PART.3SG
            'It's windy.' or 'The wind blows.'   [Inuktitut (Baffin); Alorut 2017, Spalding 1998]

5.6.3 Discussion

At the beginning of this section, I indicated that, under this hypothesis, two properties of language

appear to be linked: (a) whether the EPP is checked by moving a predicate to prominence, or an

argument; and (b) the order in which the predicate combines with the argument and with tense, as

repeated in (72).

(72)   a. argument-EPP languages: [[PRED + TENSE] + ARGUMENT]

        b. predicate-EPP languages: [[PRED + ARGUMENT] + TENSE]

In predicate-EPP languages, a predicate is raised to prominence, and combines with the anchor before

tense is merged. In argument-EPP languages, a nominal is raised to prominence, and the predicate combines with tense before the anchor is merged. This correlation can be explained as follows. The predicate is normally closest to T, and so, if all else is equal, is the most local potential EPP-checker and should be targeted for movement.[21] However, in argument-EPP languages, the predicate is no longer a predicate once it has combined with tense; instead, it becomes referential, as indicated by Broschart (1997). Since in argument-EPP languages the predicate must combine with tense before the EPP probes, the predicate will never be able to check the EPP.[22] This analysis is similar in spirit to both Alexiadou and Anagnostopoulou (1998) and Davies and Dubinsky (2001), who propose a contrast between two classes of languages due to the structural order of the Agr and T heads. As with their proposals, the distinction between these two classes of languages has to do with *ordering*.

One of the problems with this approach is that the predicate and the external argument already combine once, in the *v*P. Why do they have to do it again? Again, this can be explained through ordering. The predicate is not available for EPP checking until all of its arguments are saturated (in other words, not until the thematic domain is 'closed'), while the anchor is not available for EPP checking until it is an argument. So, for example, in English, the merge of the external argument into the specifier of *v*P doesn't count as EPP checking because the predicate's arguments haven't all been saturated until after it is merged. Additionally, English is a Tense > EPP language, meaning tense must be merged before the EPP probes, and the predicate hasn't merged with tense yet. In Niuean, on the other hand, when the external argument merges in the *v*P, it doesn't count as EPP checking because it gets argument status only after it is merged with the predicate; it gets its argument status from the predicate.

Chierchia (1998) suggests that N-to-D movement of proper names is triggered by a need to type shift from predicate to argument. If the nominal domain mirrors the clausal domain, then we would expect that V-to-T movement (which I argue is an EPP-driven movement in some languages) should have an analogous purpose. Perhaps this movement, along with other EPP-driven movements, occurs in order

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[21]Therefore it is surprising that the predicate-EPP type is so rare. However, this class of languages is also remarkably diverse geographically and genetically. Perhaps it is an accident of history that the language families that dominate the world are generally not predicate-EPP languages.

[22]That the predicate must combine with tense before the EPP probes falls out naturally from the order of projections in the clausal spine. If the EPP feature on the tense head, the EPP cannot probe until T has been merged. In languages where the EPP is on a higher head than tense, such as Finnish, this is a result of selectional requirements; the EPP head selects for T.

to type shift from extensional to intensional (i.e., to add an 's' to the semantic type of the constituent), by locating either the predicate or the argument in time and/or space.

5.6.4 When the only argument is an incorporated nominal

There is an existential construction in Niuean where there is not necessarily any argument other than an incorporated object, as shown in (73).

(73)   a.   na ai   fai aoga fakatufono.
              PST NEG be school government
              'There were no government schools.'   [Niuean; Massam 2009a: 175]

       b.   fa mahani ke fai   aho mitaki mo e fai   aho kelea
              SBJ   exist time good   and exist time bad
              'Usually there are good times and bad times'   [Niuean; Massam, p.c.]

However, the incorporated nominal[23] has different properties in the existential *fai* construction than in regular pseudo-noun-incorporation constructions of Niuean (Massam 2009a). First of all, in the existential construction, it is obligatorily incorporated. Secondly, it does not have the semantics of noun incorporation. It can be modified by an (extraposed) relative clause. And, finally, it can be referred to later in the discourse. I think that this last point is telling—the ability to bear reference may crucially allow it to function as an anchor.

Likewise, Johns (2007) shows that nominal roots that have been incorporated in Inuktitut are also able to be referred to later in the discourse in Inuktitut, as shown in (74).

(74)   a.   Suulut timmisartu$_i$- lior-   poq.   Suluusa- qar- poq$_i$ aquute- qar-
              Søren plane-   make- INTR.INDIC.3SG wing-   have- INTR.INDIC.3SG rudder- have-
              llu- ni$_i$-   lu.
              INF- 3REFL.SG- and
              'Søren made an airplane$_i$. It$_i$ has wings and a rudder.'

                        [Inuktitut(Kalaallisut); Sadock 1980: 311, as cited in Johns 2007: 539]

---

[23]We know it's incorporated because the DP is not case-marked, and because the post-predicate particles follow it (Massam, p.c.).

b.   Johnny uvirniru_i- liu-   laur- mat.   Nulia- nga   angirra- rami   taku-
     Johnny shirt-   make- PAST- INTR.CAUS.3SG wife- POSS3SG home-   cause.4SG see-
     llu-   ni- uk_i.
     CONJ- 4SG -3SG
     'Johnny made a shirt_i. And his wife came home and she saw it_i.'

[Inuktitut (Kalaallisut); Johns 2007: 539]

Since, in these cases, the incorporated nominal is referential, I propose that it is doing double-duty. It is both the predicate and the anchor.

5.6.5   Summary

The EPP can be checked by a variety of elements cross-linguistically. These can be sorted into two main natural classes: predicates and arguments. These two classes must operate as natural classes independent of syntactic category in the syntax. Presumably, then, whatever the role of the EPP, it can be satisfied by either a predicate or an argument. Since the only thing predicates or arguments have in common are the predication relation, I posited that the role of the EPP is to satisfy a *high predication* relation, relating the predicate to an anchor argument. Predicate- and argument-EPP languages differ in the order tense, the anchor argument, and the predicate combine, as illustrated in (75).

(75)   a.   argument-EPP languages: [[PRED + TENSE] + ARGUMENT]

       b.   predicate-EPP languages: [[PRED + ARGUMENT] + TENSE]

Predicate-EPP languages also pattern together by having a high, impoverished T°. Incorporated nominals are able to act as both predicate and anchor when they are referential.

In my EPP research, I have entertained two main hypotheses as to the underlying purpose of the EPP. The first hypothesis is that it is a requirement for anchoring (see Chapter 3). The second is that it is a requirement for asymmetry between subject and the predicate. This hypothesis is an attempt to connect both of these ideas.

5.7 High Predication and Anchoring

One of the main goals of this dissertation was to theoretically motivate the EPP. In Chapter 3, I proposed the anchoring hypothesis. I demonstrated that all of the attested EPP-checking elements have anchoring properties, and that the EPP functions by locating the utterance in time and space, by bringing an index-bearing element into prominence by moving it to the highest head of the inflectional domain. As part of this proposal, I hypothesize that *all* operations within the inflectional domain share the underlying purpose of anchoring, and, furthermore, that *all* anchoring operations occur within the inflectional domain. I then argue that anchoring is a fundamental property of human languages that separates it from other communication systems.

On the other hand, in this chapter, I have argued that the contrast between predicate- and argument-EPP languages is best understood as a high predication operation, which establishes a second relation between the predicate and one of its arguments in the inflectional domain. The high predication analysis is related to the clausal bifurcation analyses of the EPP advanced in the literature (e.g., Massam and Smallwood 1997). At first glance, these two approaches—high predication and anchoring—seem to be competing analyses of the same phenomenon. However, I have argued for them both. In this section, I integrated both analyses.

Although I propose that every operation within the inflectional domain has an anchoring function, each operation already has a function in the clause independent of anchoring, with the exception of the EPP. In this way, when I extend the anchoring function to all inflectional operations, the underlying function of the EPP, once again, becomes a problem. Why would only the EPP have anchoring alone as a function, when the other operations all have dual functions? In fact, I think the alternate function of each operation is integrated with its anchoring function, which is what gives each operation its unique characteristics, as discussed in Section 3.3.2. For example, aspect and mood both have interpretive effects at LF, providing information about the time structure and realis of the event, while also acting as anchors in the clause. The anchoring and non-anchoring functions of these operations are closely related, but distinct. I therefore propose that high predication, establishing a relation between the predicate and an index-bearing argument, is the non-anchoring function of the EPP.

5.8   Conclusion

In this chapter, I demonstrated that the order of the functional heads in the clausal spine, as well as the features that appear on those heads, can have an effect on what element checks the EPP in a given language or a particular context. I discussed only a few ways that this variation occurs, and some of those only briefly. As mentioned in Chapter 2, the categories in the typology are not discrete categories, and there is much variation from language to language. However, I hypothesize that all of the variation in EPP type discussed throughout this dissertation could be accounted for along similar lines.

There were two ways that clausal architecture varies that I discussed briefly. First, I showed that the head on which the EPP feature appears, and its position in the spine, has consequences for the EPP properties of a language. Second, I discussed how different clausal structures can affect what may check the EPP due to locality constraints.

I discussed more extensively a cluster of properties associated with the class of predicate-EPP languages, proposing a new parameter that characterizes this class. I argued that predicate-EPP languages are characterized by the lack of non-finite clauses, a high T bundled with C, and a defective D. I argued that these are all the result of a defective T head. I illustrated these properties with case studies from Niuean, Irish, and Inuktitut, and discussed the obstacles to extending the category to include Gitksan, Mazahua, and Mandarin. I then proposed that argument- and predicate-EPP languages have a different ordering of heads in the clausal spine that correlates with these differences.

This chapter has continued in the same broad theme as Chapter 4, by looking for correlations between EPP type and other properties of a language. Across these two chapters, I have demonstrated that such correlations exist.

Chapter 6

Conclusion

New discoveries in science will continue to create a thousand new frontiers

for those who still would adventure. — Herbert Hoover

One never notices what has been done;

one can only see what remains to be done. — Marie Curie

In this dissertation, I investigated EPP effects in over two dozen languages from nine different languages[1] based on data collected from both published materials and elicitation. I define the EPP as the obligatory move of some element into the inflectional domain from the thematic domain. In Chapter 1, I described the diagnostics I used to systematically identify an EPP-triggered movement in a particular language and, in Chapter 2, I developed a typology of the forms that are attested cross-linguistically. The EPP can vary across three dimensions both inter- and intra-linguistically: (a) whether an argument or a predicate raises, (b) whether the goal is a head or a phrase, and (c) whether the entire predicate is pied-piped. In Chapter 3, I argue that the underlying purpose of the EPP is for anchoring, by raising an element marked with an index to a position of prominence. I propose that anchoring is the underlying purpose of the inflectional domain, and that it is a property that distinguishes human language from other communication systems by creating the possibility of displacement (that is, the

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[1] I discussed EPP effects from the Austronesian, Eskimo-Aleut, Finno-Ugric, Indo-European, Japonic, Otomanguean, Semitic, Sinitic, and Tsimshianic language families.

ability to communicate about things outside of the immediate context). In Chapter 4, I show that the null subject type of a language and its EPP type are not coextensive. For example, French, Brazilian Portuguese, and Spanish all have the same EPP type, DP EPP, but have different null subject properties. Rather, null subjects are licensed by the left periphery through factors such as topicalization, register, and clause type. In Chapter 5, I show how various properties of the clausal spine interact with EPP type cross-linguistically. For example, predicate-EPP languages have a high, defective T which tends to result in the following four properties: (a) a lack of non-finite clauses, (b) a preverbal T, (c) a T bundled with C, and (d) a lack of a definiteness contrast.

I argue that the EPP is a critical component of the clausal architecture due to its anchoring function by comparing the various instantiations of the EPP cross-linguistically, its commonalities with other operations in the inflectional domain, and its nature as an operation that relates the thematic and inflectional domains through movement. This research contributes to our understanding of clausal architecture and how it relates to human cognition, both by arguing for a syntactic mechanism which creates the possibility of displacement, and also by accounting for the properties of broad typological classes by proposing small variations in a clausal spine with universal properties. Furthermore, I provide systematic ways of identifying the EPP, which was previously a poorly understood and unmotivated operation.

6.1 Recurring Themes

6.1.1 Referentiality and Deixis

As discussed in Chapter 3, most EPP-checking elements have referential or deictic properties. For example, Holmberg (2005) notes a contrast between referential and non-referential adverbials in Finnish (discussed in Section 2.2.2.3), and the class of person, location, and time that Ritter and Wiltschko (2014) observe also seems to be deictic in nature. All of the things that can check the EPP are able to be marked with an overt index in sign languages (Schlenker 2015). Nonetheless, this class of elements is not entirely referential because QPs, which are not referential, can also check the EPP. However, QPs

can be marked with indices. I therefore proposed that the EPP is checked by an index.

Although I argue that Person belongs to the class of anchors, it has also traditionally been included in the class of Phi features. It is clear that gender and number have different properties than person (e.g., Baker's 2011 SCOPA). Wechsler (2011) argues that the Number and Gender features form a subset of the Phi feature bundle, which he calls the 'Concord' features, but also calls the entire Phi feature bundle as a class of 'Index' features. This predicts that gender and number can function as anchors without person, which does not appear to generally be the case, cross-linguistically. However, the alternative appears to be a feature structure whereby Person belongs to two different feature bundles, Phi and Index, simultaneously. This could perhaps explain why movement seems to be necessary in EPP anchoring operations (i.e., Person moves from a head with a Phi feature bundle and incorporates into one with an Index bundle).

6.1.2   Overtness

A recurring theme in this dissertation is the relation between overtness and the EPP. First, both in Section 1.1.4.2, and again in Section 3.1.3, I demonstrated that the EPP could not be completely explained as a phonological constraint, despite many attempts to do so in the literature. I also argued in Section 3.4.2, following Holmberg (2005), that null elements are able to check the EPP, which allowed me to maintain that the EPP is checked in clauses of all types, including non-finite clauses, as discussed in Section 1.5.2. Some examples of null elements that check the EPP include the null event argument in Hungarian (É. Kiss 2002), as discussed in Section 2.2.2.1; null subjects in non-finite clauses and imperatives, as discussed in Sections 3.4.1 and 3.4.4, respectively; and null subjects in some *pro*-drop languages, as discussed in Chapter 4. In Section 3.4.3, I argue that dependent anchoring operations, including subjects of non-finite clauses and of imperatives, occur by means of a formal relation with an antecedent and are systematically silent. Finally, in Chapter 4, I argue that NSL type and EPP type are not coextensive, based on synchronic and diachronic case studies of several Romance varieties and Swedish. At the end of Chapter 4, I hypothesize that null subjects are licensed, instead, by the left periphery.

6.1.3 Finiteness

Finiteness has been part of the discussion of the EPP from the beginning, as the EPP was part of the motivation for proposing PRO. In this dissertation, I discussed non-finite clauses in Section 1.5.2, when I argued that the EPP must be checked in clauses of all types, including non-finite clauses, as long as the head bearing the EPP feature is present in the clause. In Section 3.4.1, I argue that a special kind of anchoring, called dependent anchoring, occurs in non-finite clauses, and that, because of this special anchoring operation, the subject of non-finite clauses are not overt. Earlier in Chapter 3, in Section 3.3.7, I suggest that the pseudofinite construction discussed by Cowper (2016) might be an instance of dependent anchoring in Case. Finally, first in Section 2.1.3, and then again in more detail in Chapter 5, I discuss a correlation between predicate-EPP type and the lack of a finiteness distinction. I argue that a high, defective T head can explain the shared properties of predicate-EPP languages, including the lack of a finiteness contrast.

6.1.4 The Nature of Agreement

Subject-verb agreement was also a recurring theme in this dissertation. First, in Section 2.1.1.2, I argued that the agreement in D-on-V EPP languages checks the EPP. Since the entire *v*P moves in both of Richards and Biberauer's (2005) nominal pied-piping EPP languages, rich agreement is the crucial feature that distinguishes them, as discussed in Section 2.1.1.3. In fact, they demonstrate that the loss of agreement coincides with the beginning of the systematic use of expletives in the history of Dutch and Afrikaans. The presence or absence of agreement also alternates with EPP type in Arabic (Section 2.2.1.1) and Italian (Section 2.2.2.4) Thus, rich agreement is an indicator of at least some EPP types. However, this is complicated by the fact that this is a one way condition—a D-on-V EPP language must have rich agreement, but a language with rich agreement does not necessarily have D-on-V EPP—and by the difficulty in characterizing what exactly constitutes rich agreement.

Rich agreement is also a defining characteristic of consistent NSLs. However, as with D-on-V EPP, this is a one-way correlation. Finnish, for example, has rich agreement but is classified as a partial NSL. As such, there has been contention as to what, exactly, constitutes rich agreement, as discussed in

Section 3.2.5. A comparative analysis of languages that do and do not behave as though they have rich agreement indicates that rich agreement is an underlying syntactic property that is not always reflected in the same way morphologically. Despite the fact that both consistent NSLs and D-on-V EPP languages share the characteristic of rich agreement, I demonstrate that consistent NSLs are not necessarily D-on-V EPP languages in Chapter 4.

Finally, in Chapter 3, I hypothesize that all operations that occur in the inflectional domain are related to anchoring. This is predicted to include subject-verb agreement, since it is typically assumed to occur within the inflectional domain. In D-on-V EPP languages, rich agreement is related to the EPP, and so is necessarily an anchoring operation; however, I predict that subject agreement also acts as an anchor of some kind in other types of languages. This also means that person features belong to the natural class of anchors and provides a potential solution to the problem of defining rich agreement. Since EPP anchors bear an index, it could be this index which is the defining feature that defines rich agreement.

6.1.5   Information Structure

Information structure is often encoded in the left periphery of the clause. According to Ritter and Wiltschko's (2014) model, the left periphery of the clause is the linking domain, which functions to link the existing structure to the larger structure. If the hypothesis that all operations within the inflectional domain are related to anchoring, and that all anchoring operations occur within the inflectional domain (see Section 3.3), is correct, then it would be reasonable to also test whether a similar hypothesis could be formulated with regards to the left periphery and the linking function.

In Chapter 4, I investigated the relationship between null subjects and the EPP, and concluded that EPP type and null subjects are not co-extensive. Rather, I proposed that operations within the left periphery are responsible for the licensing of null subjects through providing an antecedent that enables dependent anchoring of the subject. My proposal is based on the observation that the possibility of a null subject seems to be determined by a combination of four factors cross-linguistically—clause type, discourse/topicalization, agreement, and register—of which three are information structure or discourse

operations. Preliminary research on agreement markers in Amharic imperatives and on the licensing of null subjects in Japanese indicate that the particular structure of the left periphery can influence the overtness of person marking lower in the clause.

I demonstrated that there are two different agreement patterns involving non-nominal subjects exhibited cross-linguistically which illustrate an interaction between information structure and the EPP, noting that the topic-orientation of a particular clause seems to have greater influence on its EPP properties than its null subject status. Non-nominal subjects that remain in the EPP position control agreement and have nominal properties, as described by Davies and Dubinsky (2001) (see Section 2.1.1.1 and Section 4.1.1). However, non-nominal subjects that are subsequently topicalized do not exhibit these properties, as demonstrated in Brazilian Portuguese and Finnish (Section 4.1.3). Both patterns can also occur in the same language. For example, although English generally has the pattern described by Davies and Dubinsky (2001), whereby non-nominal subjects have nominal properties, English locative inversion constructions (Section 2.2.2.2) exhibit the same pattern as Brazilian Portuguese. Likewise, Fernández-Soriano (1999) demonstrates that Spanish also exhibits an alternation between the two types. That both patterns can occur in the same language indicates that this alternation does not depend on properties of the language, but on the construction itself. What it is about the structure that triggers this difference remains unclear, however. Fernández-Soriano (1999) argues that the relevant contrast is related to argumenthood for Spanish; however, I think that all of the constituents that check the EPP in these languages are arguments in some sense,[2] as discussed in Section 2.3. Likewise, this alternation cannot be attributed to information structure alone, as even those constructions where the non-nominal subject does not move into a specialized topicalized position have special information structure properties.

In particular, in a case study on Brazilian Portuguese in Section 4.1.3, I show how dependent anchoring and information structure interact in a particular way to cause its properties as a partial null subject language, following Sheehan's (2007) analysis. In particular, Sheehan (2007) assumes that the topic of a clause can be null due to the deletion of the specifier of the root node of a sentence. This null topic can license embedded subjects lower in the clause through dependent anchoring, so long as there

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[2]Recent psycholinguistic research by Rissman, Rawlins, and Landau (2015) indicates that argumenthood is somewhat gradient.

is no intervener. As a topic prominent language, topics which raise to check the EPP do not control agreement on the verb, parallel to Finnish and to locative inversion constructions in English.

6.1.6 Binding Variables

In this dissertation, I have discussed several coreferential relationships in the syntax, such as cases of dependent reference, and the licensing of null subjects. Positing a coreferential relationship between two syntactic objects raises the question of how this relationship is encoded. There are two main possibilities, either a binding relationship or movement. In this dissertation, for the most part, I have assumed or argued for a binding relationship rather than a movement relationship. In Section 4.1.3, I discuss some evidence from Sheehan (2007) that null subjects in Brazilian Portuguese are bound variables. In Section 3.2.2, I adopt Schlenker's (2011) arguments for a binding analysis of QPs, which allows me to maintain that all EPP checkers, including QPs, bear an index, and that it is this index which checks the EPP. Furthermore, in Section 3.2.3.3, I proposed that the contrast between the two English expletives is that expletive *there* is a bound variable, receiving its reference internally to the clause, while expletive *it* is a free variable which receives reference to an arbitrary point from the assignment function at LF.

6.2 Some Implications

6.2.1 Movement and Locality

An ongoing problem in the field of syntax is the nature of movement. It is still a mystery why some operations require movement, some operations have movement sometimes, and some operations never have movement. Within the Government and Binding approach, it was thought that syntactic objects could only agree under a spec-head relationship, which is why movement is obligatory. However, further research revealed that an agreement relationship could be established over some distance under c-command. Researchers have proposed contrasts between overt and covert movement, between strong and weak features, and the like, in order to derive the contrast between operations requiring or not requiring movement. But these approaches only obfuscate the underlying problem of why things move

under stipulative theoretical mechanisms. We are still left with the question of why some movements are overt and others are covert, or why some features are weak and others are strong, etc.

This dissertation advances research in this area in two ways. First, the EPP feature has often been used to trigger mysterious movement operations that are poorly misunderstood. More clearly defining the EPP and the diagnostics to identify it will allow researchers to distinguish between the class of EPP-triggered movements and, as of yet, unmotivated movements. In turn, this will allow us to be more rigorous about identifying which movements are yet to be explained, and being more systematic in our attempts to explain them. Second, because the EPP is unique in that it seems to be an operation that always requires movement cross-linguistically, perhaps it can be used as a starting point to better understand why things must move. It seems that, for the EPP, locality to the border between the inflectional and linking domains might be the crucial factor, which is why movement may be required. Thus, a possible hypothesis may be that an operation that combines elements across domains requires movement.

We have also seen cases where a constituent can move for more than one reason. For example, a topicalized phrase can move to a topic position by passing through the EPP position, thus satisfying both requirements, and blocking the movement of the more local thematic subject. In other cases, a phrase can raise to the subject position for the EPP, and simultaneously check Case and agreement features. It is only when we control for the other operations that we can identify which syntactic operation is actually responsible for the movement, and which can be satisfied by long distance. In both cases, these parasitic operations, if not properly controlled for, can give rise to specious analyses.
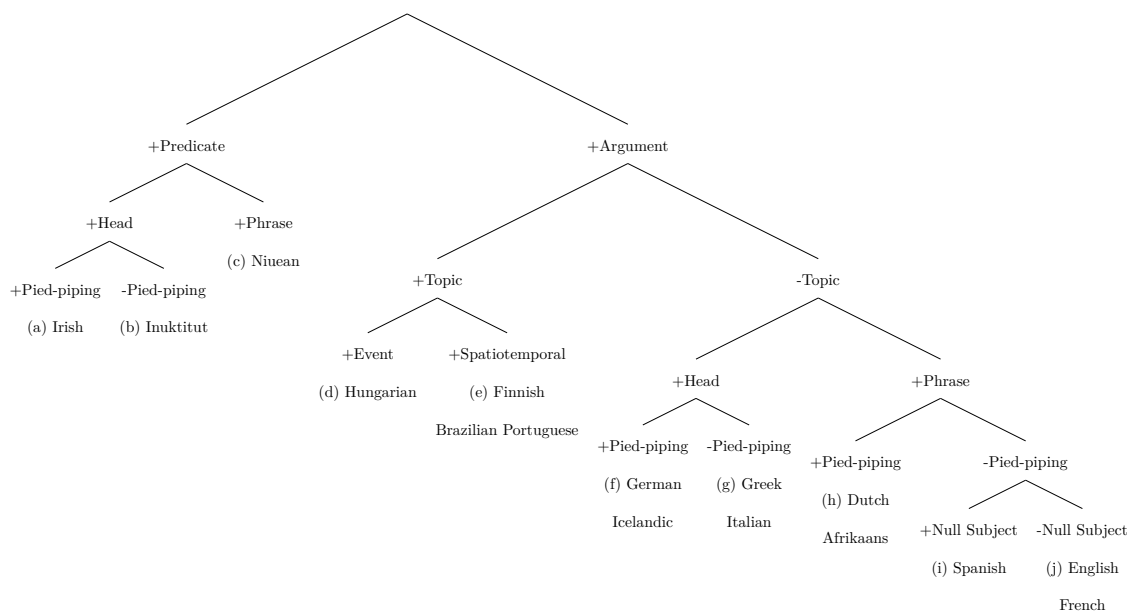
6.2.2 Universals and Parameters

The vast diversity of languages, at first glance, seems to be problematic within the framework of Universal Grammar, whereby there is a genetically-endowed language-specific component underlying the human capacity of language. The Principles and Parameters theory (Chomsky 1981) addresses this problem by proposing that Universal Grammar is composed both of invariant grammatical components (principles) and of parameters that can be set differently in particular languages. During the

process of language acquisition, children decide how to set the parameters based on the language in their environment.

In more recent years, the theory of Principles and Parameters has changed considerably, for two major reasons. First, investigation of closely related language varieties has uncovered that language variation is more fine-grained than previously thought, leading researchers to propose a variety of 'microparameters.' Second, under the goals of the Minimalist Program (Chomsky 1995), the richness of a Universal Grammar that contains several parameters seems implausible. These two issues have led to research programs investigating the structure and origins of parameters. A common idea, called the Borer-Chomsky Conjecture, is that parameters are encoded on individual lexical items, which are therefore learned, rather than encoded by Universal Grammar; however, Baker (2008) argues that there is empirical reason to maintain that there are macroparameters that have consequences for a language's structure that cannot be linked to a single lexical item. On the other hand, Roberts's (2012) theory of emergent parameter setting, whereby children make a series of binary decisions regarding the structure of the language in their environment that become progressively more fine-grained, can account for both micro- and macroparameters. These parameters are not encoded in Universal Grammar, but are proposed by children in response to their language environment.

Although there is evidence of broad classes in the EPP typology, as predicted by Baker's (2008) approach, like the difference between predicate-sensitive and argument-sensitive EPP, there is also wide variation within each broad class. This suggests that the parameters are organized hierarchically (cf. Dresher's 2009 successive division algorithm or Roberts's 2012 emergent parameter hierarchies), perhaps as in (1), rather than in a fully cross-classified typology. We can make predictions about how these parameters are realized in language based on the structure of the hierarchical typology.

(1)   *A Hierarchical Typology of EPP Type*


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                                            ●
                                   ╱                  ╲
                              +Predicate            +Argument
                             ╱        ╲            ╱          ╲
                        +Head        +Phrase    +Topic        -Topic
                       ╱     ╲       (c) Niuean  ╱    ╲        ╱      ╲
                +Pied-piping  -Pied-piping  +Event  +Spatiotemporal  +Head    +Phrase
                (a) Irish     (b) Inuktitut (d) Hungarian (e) Finnish
                                                  Brazilian Portuguese
```

+Head
 ╱   ╲
+Pied-piping   -Pied-piping
(f) German   (g) Greek
Icelandic   Italian

+Phrase
 ╱   ╲
+Pied-piping   -Pied-piping
(h) Dutch   ╱   ╲
Afrikaans   +Null Subject   -Null Subject
            (i) Spanish   (j) English
                            French

As discussed in Section 2.2, there appear to be alternations between different EPP types intra-linguistically, both synchronically and diachronically. These alternations provide evidence that the different EPP types are equivalent on some level. However, not all alternations are created equal. Some alternations are systematic and widespread within a language, like the Arabic word order alternation, whereas others are more marginal, occurring in highly restricted syntactic contexts, such as the obligatory second person singular pronoun in the subjunctive in Italian. I predict that alternations that are closely related in the typological hierarchy (i.e., sisters), should be more common cross-linguistically, and also more likely to be systematic, whereas alternations across more distant portions of the typological hierarchy are more likely to be rare and, when they occur, marginal.

Thus, in the EPP, we actually have broad evidence for multiple theories of parameter setting. The broad divisions between argument and predicate EPP provide evidence for a macroparameter in Baker's (2008) sense. However, this division is both localized on a head (the highest head in the inflectional domain), consistent with the Borer-Chomsky Conjecture, and is also mirrored across syntactic categories (e.g., defective T in predicate-EPP languages is mirrored in the nominal domain, realized as defective D). Within the broad macroparametric classes, there are also successively more fine-grained sub-classes, consistent with Roberts's (2012) emergent parameter hierarchies.

6.3   Conclusion

In this dissertation, I defended the following four hypotheses. First, I argued that the EPP is universal. That is, it exists in all natural human languages. I argued that this is the null hypothesis, and that there is not sufficient evidence to reject it. Second, the EPP has a variety of attested types cross-linguistically, based on the type of element that checks it. In Chapter 2, I proposed a typology with seven attested types, although there are sub-types within each category. Third, the type of EPP that a particular language exhibits is a direct result of other properties of the language, such as the structure of the clausal spine. Finally, the EPP is a requirement for anchoring. That is, the EPP functions to connect the utterance to the real-world context by tracking links to referential elements in a grammatically formalized way. The anchoring hypothesis provides a way to connect the formal, abstract grammatical rules to human cognition, and provides a possible motivation for the abstract rules. All together, these four hypotheses also provide a framework which both explains and constrains the variation and universals found cross-linguistically in the domain of EPP phenomena.

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