

1 *Introduction*

1.1 Variation and invariance in Generative Grammar

Perhaps one of the most revolutionary tenets that Generative Grammar assumed from its outset was the idea that all languages share common underlying grammatical features, a belief that helped address the puzzling way in which children learn languages. In particular, as Chomsky has repeatedly observed (see Chomsky, 1975, 1988, for example), children learn grammatical rules and patterns for which they have little, confusing and sometimes contradictory evidence (the so-called poverty of stimulus or Plato's problem). Furthermore, they do not assume certain grammatical rules that could be generalized from the available data.¹ Chomsky has concluded from these observations that much of the grammatical knowledge we have must be innate, and that the grammars of languages are much closer to each other than it would seem at first sight. Both of these conclusions together suggest an explanation for why the acquisition process seems so effortless and on target: if children come with an innate predisposition for languages that contains fairly specific and delimited principles, then they can simply make sense of the linguistic input around them, guided by such innate principles. The tenet that languages are underlyingly close has led to important discoveries about similarities in apparently very different patterns across languages.

While languages may show surprisingly similar abstract patterns, we also observe obvious surface variation. For example, aspect plays a comparatively small role in the verbal morphology of English compared to the elaborate aspectual distinctions of the Russian paradigm. This tension between underlying similarity and surface variation has been formalized in many different ways over the years. In the 1980s framework of Generative Grammar, principles represented the invariant component of languages and parameters the variation dimension.

¹ Needless to say, the poverty-of-stimulus argument remains a controversial issue in the broader cognitive-science community.

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To take a particular example of this approach, English or Spanish speakers usually ask questions by displacing the question-word to the beginning of the clause, whereas Chinese speakers leave those questions words in the same position as in a declarative, as we see in (1)–(2).

- (1) ¿A quién piensa Pedro que viste? (Spanish)
 to whom thinks Pedro that saw.2SG
 ‘Who does Pedro think that you saw?’
- (2) Zhangsan yiwei Lisi mai-le **shinwe** (Chinese)
 Zhangsan thinks Lisi bought what?
 ‘What does Zhangsan think Lisi bought?’

Closer examination of these languages suggested that both types have similar properties, and that the difference may be related to the stages of the derivation (see Huang, 1982): English and Spanish displace the question-word before the question is overtly pronounced, whereas Chinese does so after it is overtly pronounced, at the level of Logical Form (LF). Thus, an invariant principle (question-words must take scope over the clause) can be expressed in two ways: through overt or covert movement.² While the validity of the generalization proposed by Huang has subsequently been challenged, it exemplifies well the overall research strategy within the generative paradigm, as well as a specific formulation of how a common underlying principle can yield superficial variation through a parameter.

As noted, having a common underlying principle with a limited range of variation facilitates the process of L1 acquisition: if the child’s knowledge includes the notion that question-words must take scope over the rest of the clause, determining whether they move overtly or covertly becomes a matter of processing the available input.

Within the Principles and Parameters version of the 1980s, the Null Subject Parameter (NSP) was one of the most studied and formalized instances of invariance~variation. This parameter tried to account for the fact that subjects are obligatorily overt in some languages but not in others.

1.2 The Null Subject Parameter

The NSP attempts to provide a unified analysis for the observation that clauses require obligatorily overt subjects in some languages like French and English but not in others (Spanish, Irish, Italian, Chinese), as illustrated in (3)–(4).

² In more recent theoretical approaches, the difference can be cast in terms of where the copy of the question-word surfaces overtly.

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- (3) a. We left.
 b. *Left
- (4) a. Chuirfeadh Eoghan isteach ar an phost sin. (Irish)
 put.COND. Owen in on that job
 ‘Owen would apply for that job.’
 (from McCloskey and Hale, 1984, 490, ex. 4)
- b. Chuirfidís isteach ar an phost sin. (Irish)
 put.3.PL.COND in on that job
 ‘They would put in on that job.’

One could simply propose a typological description of this difference along the lines of (5). While this is a reasonable statement of the facts, it raises some questions, such as why speakers interpret *chuirfeadh* ‘would put’ in (3b) as having the same type of subject (agent, theme) as in (3a), regardless of whether the actual subject is present or absent.

- (5) Languages of the world vary among those that have obligatory subjects and those that have optional subjects.

An alternative approach is to assume that clauses in all languages have subjects and the variation comes from whether the overt expression of that subject is obligatory or not. The explicit formalization of this proposal was initially formulated as the **Projection Principle** (Chomsky, 1981, 38), a principle that suggests that the lexical properties of the words determine the shape of a clause throughout its derivation. For example, a transitive verb like *eat* is marked in the lexicon as assigning two theta roles, so it will require two syntactic arguments (subject and object) to realize those theta roles and those arguments must be realized at all times. In other words, if a given head is lexically specified as assigning a theta role, that role must be assigned to a syntactically realized constituent, and this constituent must be present at all levels of representation.

The Projection Principle makes thematic subjects obligatory in all clauses in all languages because a verb like *chuirfeadh* ‘would put’ in (4) assigns a theta role, hence it must have a syntactic argument to bear that role, regardless of whether it is overt or null, otherwise the Projection Principle will be violated.³

This formulation does not account for why syntactic subjects seem to be obligatory in languages like English even when the subject is semantically vacuous, as in (6)–(7). Since *seem* in (6a) does not assign an interpretation

³ The Projection Principle does not directly derive the requirement that the subject appear in Spec, IP. In the Principles and Parameters framework, this is a by-product of the fact that nominative case was assigned in Spec, IP.

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(i.e. a theta role) to its subject, the Projection Principle does not require an overt argument; however, the absence of the expletive *it* renders the example ungrammatical, as seen in (6b).

- (6) a. It seems to be raining.
 b. * Seems to be raining.

The situation is slightly different for the expletive in (7a): the verb *surprise* does assign two theta roles, one of them to the indirect object *me*, the other to the clause *that you couldn't finish your meal*, but the expletive in the preverbal subject position arguably does not receive a separate theta role. In fact, when the clausal subject appears initially, as in (7b), the expletive is no longer possible. This suggests that the clause is the thematic subject both in (7a) and (7b), and that the expletive is somehow doubling that subject in (7a). Likewise, it shows that the presence of the expletive in (7a) is not related to the Projection Principle, since the subject theta role is assigned to the clause.

- (7) a. It surprised me [that you couldn't finish your meal].
 b. [That you couldn't finish your meal] surprised me.

The facts just described regarding expletives led to the principle in (8), which essentially captures the fact that even non-theta-assigning verbs require an overt expletive subject in English and other languages. The qualification that the subject must be in Spec, IP is meant to derive the difference between (7a) and (7b). In the first case, the clausal subject is not in Spec, IP, therefore an expletive is required.

- (8) All clauses must have a subject (in Spec, IP).

The Projection Principle (the requirement that thematic arguments be present throughout the derivation) and the requirement that clauses have subjects constitute the **Extended Projection Principle** (EPP) (see Chomsky, 1986, 116 and Svenonius, 2002, 9 for a summary), although EPP is frequently used with the more restricted meaning that clauses require subjects.

Once one assumes a principle like the EPP, it follows that languages are much more similar than what (5) would suggest, and it also follows that clauses don't really ever lack a subject, they simply have ones that are syntactically present but not overtly realized. In this way, the examples in (4a–b) and (3a) above have similar underlying representations, perhaps along the lines of (9). In (9a), *pro* represents a null subject in Irish, and it appears in the position where overt subjects usually appear in that language.

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- (9) a. *chuirfidís pro.*
 b. We left.

Once one assumes some invariant principle like the EPP, the research questions shift in a completely different direction: given that English-like and Irish-like languages are substantially identical at the level of semantic representation, what is it that allows Irish to have a null subject? As we will see below, many answers have been given to this question, but one traditional and influential intuition was that the inflectional information on the verb identifies the null subject in the Irish example but not in the English ones. Irish is particularly suggestive in this respect, because it has two types of tenses, those that have distinctive person and number morphology and those that do not. Null subjects are only possible with those that have distinctive morphology (see McCloskey and Hale, 1984).

1.3 Variation in the Minimalist Program

With the advent of the Minimalist Program (MP) in the early 1990s (Chomsky, 1993 and much subsequent work), much of the theoretical machinery that made it possible to express parametric variation was eliminated. Given the stated goal of simplifying the overall theoretical model, parameters no longer have an independent place in accounting for variation across grammars. Rules or principles that only apply at certain levels of representation are also avoided. As a result, the analysis of overt/covert *wh*-movement suggested in previous sections would need to be retooled because it relies on different levels of representation. Rather, the MP restricts variation to two perhaps related sources: differences in specifications of lexical items and where copies of items surface. For example, in early minimalist formulations, the difference between verb movement in French and English was related to the strength of a lexical feature of inflection, which resulted in attracting the verb in French but not in English. Feature strength is a property of individual lexical entries (in this case inflection). In the case of *wh*-movement in English vs. Chinese, the difference is not whether the *wh*-word moves earlier or later: it moves in both languages at the same time, but in English the lower copy of that movement is deleted, whereas in Chinese, the lower copy remains.

Over the past several years, other theoretical constructs have changed radically. The notion of agreement has become central in articulating syntactic relationships between constituents, but unlike in earlier versions, agreement is disconnected from movement in recent proposals (see Hornstein, 2009

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and most specifically Linares, 2012), so that two elements can agree at a distance. As a result, the triggers for constituent movement are now even less obvious than before, and in general they have been subsumed under the notion of EPP features, a shorthand term for describing that a constituent has moved.

All of these changes have forced researchers to undertake a radical revision of the NSP within minimalist ideas: from proposals that eliminate *pro* as an independent theoretical construct to revisions and parametrization of the EPP (Alexiadou and Anagnostopoulou, 1998; Tomioka, 1999; Ordóñez and Treviño, 1999; Manzini and Savoia, 2002; Holmberg, 2005; Saab, 2009; Barbosa, 2009; Biberauer *et al.*, 2010; Sigurðsson, 2011 among many others). Extending empirical coverage of the null subject phenomenon outside of the better-known cases has been less of a concern, with some important exceptions. One of them relates to the evolution of NS varieties into overt-subject grammars in cases such as European and Brazilian Portuguese (Kato, 1999, 2000; Duarte, 2000; Kato and Negrão, 2000; Modesto, 2000, 2008; Barbosa *et al.*, 2005; Camacho, 2008, 2010a), and Caribbean and non-Caribbean Spanish (Cabrera, 2007; Camacho, 2008, 2010a), as well as other languages or constructions (Cole, 2000, 2009; Nicolis, 2008; Holmberg *et al.*, 2009; Shlonsky, 2009; Camacho and Elías-Ulloa, 2010; Roberts, 2010b; Camacho, 2011).

1.4 Macro- and micro-parameters

The original formulation of the NSP illustrates a very broad parameter that narrows down the possibilities offered by Universal Grammar. In some sense, one can view these macro-parameters as dividing languages from the top down, and having consequences over large sets of grammars. For example, as Baker (2008a) suggests, there might be a single parameter that will distinguish between head-initial vs. head-final languages, or another one that will separate non-configurational polysynthetic languages from configurational, isolating ones. Furthermore, macro-parameters provide a natural framework to explain the process of first language acquisition, because they allow for a ‘cascade effect’ (see Smith and Law, 2007): once a macro-parameter is set, many others may follow without further input. For example, if a language is head-initial, the child will only need to learn that parameter once, and not individually for each category.

The original view of macro-parameters has faced the inexorable results of research over the past few decades. In the words of Pica (2001, v–vi): “Twenty years of intensive descriptive and theoretical research has shown, in

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our opinion, that such meta-parameters [e.g. the Null-Subject Parameter, or the Polysynthesis Parameter] do not exist, or, if they do exist, should be seen as artifacts of the ‘conspiracy’ of several micro-parameters.” In this view, parameters determine variation in a small scale, and even when it seems that they apply to large-scale differences, that is only because of the cumulative effect of several micro-parameters. This perspective, which Baker (2008b, 156) calls the Borer–Chomsky conjecture, is instantiated in the idea “that all parameters of variation are attributable to differences in the features of particular items (e.g. the functional heads) in the lexicon.”

Baker (2008a) points out that if only macro-parameters existed, languages should cluster around a positive or negative value of the parameter, with nothing in between, and with no mixed cases. However, this is obviously not the case for any of the proposed macro-parameters. For example, very few if any languages are consistently head-initial or head-final in all possible instances, as one would expect from a macro-parametric setting. Rather, they vary with respect to directionality depending on the type of category, or depending on a subset of items within a category (for example unergative vs. unaccusative verbs).

Another argument against the macro-parametric view comes from the idea that they can be reduced to a generalized set of micro-parameters. For example, Kayne (2005, 7) suggests that “the systematic obligatoriness of pronominal agreement morphemes in Mohawk is just an extreme example of what is found to a lesser extent in (some) Romance.”

However, Baker (2008a) points out that if all variation is micro-parametric, we should find a full range of variation depending on how widely the micro-parameter extends across categories. As a result, we should have languages that generalize the micro-parameter to all possible categories (like polysynthesis in Mohawk) on one extreme, and languages where we only find it in a few constructions, at the other extreme, with all different possibilities in the middle. What we shouldn’t find in principle is languages that cluster along one or another point in the continuum. Thus, there is no particular reason why a language should show head-initial features on all prepositions, or on N–Adjective combinations, since these outcomes would simply be the result of a collection of potentially independent micro-parameters. This observation leads Baker to argue both for macro- and micro-parameters: macro-parameters determine clusters of identical patterns and micro-parameters show some degree of variation at the edges of those clusters.

The position we will develop in this book is that the cluster of properties initially correlated with the NSP do not form a macro-parameter in the

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above sense. Rather, the essential correlation we will sustain is that inflectional richness (defined in terms of morphological structure) will determine whether a language has or lacks NSs. In some sense this is a macro-parameter, although, as we will see, it is not of the yes/no variety, but rather a scale along which languages define the possibility of having NSs. This second sense (the point in the scale at which individual languages define the possibility of having NSs) can be seen as a micro-parameter. As we will see, this view also includes languages like Chinese, which have null subjects but no inflection to identify them.

1.5 Organization of the book

Baker (2008a) notes that “History has not been kind to the Pro-drop Parameter as originally stated.” However, from a certain point of view, the evolution of the NSP presents an ideal illustration of how theory can change in a dynamically developing discipline such as linguistics, and of how theory can trigger a wealth of empirical discoveries that, in turn, force changes in the initial proposals. From this point of view, examining the evolution of the NSP can be an important lesson in the challenges and achievements of theoretically driven linguistic research. With this perspective in mind, the first part of this book introduces the core properties of the NSP. Chapter 2 presents the syntactic and interpretive properties originally associated with the parameter, as well as the general typology of null subject languages. Chapter 3 reviews what some of the leading proposals on NSs predict regarding the association of those core properties. As we will see, not all of those properties ended up correlating with the availability of NSs. Chapter 4 introduces existing proposals on how the EPP is satisfied in null-subject languages (NSLs). Specifically, I will review approaches that endorse the independent availability of a null pronoun *pro*, those that assume that *pro* does not exist, but rather that subject-properties are encoded in verbal inflection (the pronominal agreement hypothesis), and those that suggest that *pro* is the product of ellipsis.

By the end of the first part, I hope to have a clear picture of the essential properties of the NSP, the minimal syntactic primitives required to account for them, and also an illustration of the rapidly evolving, sometimes contradictory nature of theory-construction within generative grammar.

In Part II, I address the issue of how NSs are identified. Chapter 5 discusses NSs identification in connection with overt morphological inflection, and Chapter 6 looks at discourse identification when morphology fails. Chapter 7 considers a number of instances where the null/overt contrast determines the

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distribution of subjects, and Chapter 8 examines the parallelism between overt subjects and dislocated elements. Finally, Chapter 9 introduces research related to acquisition of NSs and how the theory presented in the rest of the book interacts with those findings.

This book presupposes a basic understanding of linguistic theory although I have tried to explain all concepts as clearly as possible. Some background in generative linguistics is helpful but not absolutely required.

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