

Wonderful Forms: Comparing Mayan Poverty of the Stimulus Arguments*

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Abstract

Parameters and poverty of the stimulus (POS) arguments constitute the heart of Universal Grammar (UG). Newmeyer (2005) argues convincingly that parameters do not meet the test of descriptive adequacy, leaving POS arguments as the sole support for UG. In this paper I examine a key assumption of all POS arguments, the presumed connection between POS arguments and UG (Chomsky 1975, 1981). This connection must be assumed in using POS arguments to motivate the existence of UG. A telling weakness of POS arguments presented to date is that they are constructed using data from a single language, usually English. The problem is that POS arguments by themselves do not prove whether the specific principle is part of UG or simply a feature at the grammatical periphery of a specific language. In this paper I use the comparative method to test whether the structures used in POS arguments belong to UG, and whether POS arguments can be constructed for peripheral features in languages. I show that existing POS arguments reference non-UG structures and use the comparative method to construct POS arguments for the periphery of Mayan languages. I conclude with an argument that POS arguments are an artifact of the synchronic approach to grammar and are ultimately subject to the same problems that Newmeyer identifies for parameter theory. A comparative approach to grammar provides crucial evidence for evaluating POS arguments.

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0. Introduction

Parameters and poverty of the stimulus (POS) arguments constitute the heart of Universal Grammar (UG) in generative theory (Newmeyer 2005:98). Chomsky (1981:3) spells out the connection as follows:

The theory of UG must meet two obvious conditions. On the one hand, it must be compatible with the diversity of existing (indeed, possible) grammars. At the same time, UG must be sufficiently constrained and restrictive in the options it permits so as to account for the fact that each of these grammars develops in the mind on the basis of quite limited evidence. In many cases that have been carefully studied in recent work, it is a near certainty that fundamental properties of the attained grammars are radically under-determined by evidence available to the language learner and must therefore be attributed to UG itself.

Newmeyer argues convincingly that parameters do not meet the test of descriptive adequacy, leaving POS arguments as the sole support for UG. Recently, POS arguments have also come under some criticism. Pullum & Scholz (2002) discuss the deficiencies of four POS arguments, but their paper does not address the feasibility of eventually discovering an unassailable POS argument (for rebuttals see Fodor & Crowther (2002); Lasnik & Uriagereka (2002); Legate & Yang (2002); and Crain & Pietroski (2002)). MacWhinney (2004) provides additional criticism of some POS arguments.

In this paper I examine a key assumption of all POS arguments, the presumed connection between POS arguments and UG (Chomsky 1975, 1981; Anderson 2008 and many others). This connection must be assumed in using POS arguments to motivate the existence of UG. A telling weakness of POS arguments presented to date is that they are constructed using data from a single language, usually English. No attempt is made to show how the same POS argument applies to different languages, let alone all languages. Clearly, linguists have assumed that if a POS argument is valid in one language it establishes some feature of UG directly and there is no need to investigate the same feature in another language (Anderson 2008). Chomsky claimed 'A valid observation that has frequently been made (and often, irrationally denied) is that a great deal can be learned about UG from the study of a single language, if such study achieves sufficient depth to put forth rules or principles that have explanatory force but are underdetermined by evidence available to the language learner' (1981:6). The problem is that POS arguments by themselves do not prove whether the specific principle is part of UG or simply a feature at the grammatical periphery of a specific language. Constructions at the periphery differ from language to language and are thought to be acquired from the input language rather than from innate principles. Comparative data pose two tests for POS arguments: 1. They test whether the structures used in POS arguments belong to UG, and 2. They test whether POS arguments can be constructed for peripheral features in languages. In this paper I show that existing POS arguments reference non-UG structures and that POS arguments can be constructed for the periphery of some languages, specifically for peripheral features of Mayan languages.

The paper proceeds as follows. Section one discusses the core/periphery distinction and the role this distinction plays in constructing POS arguments. Section two reviews two POS arguments that have been made for English and applies the same arguments to two Mayan languages. In section three I construct a *reductio ad absurdum* argument against POS arguments using the comparative method. The comparative method provides the means for producing an unlimited number of POS arguments at the periphery of grammar. As the number of such arguments increases, the likelihood that their solution lies in Universal Grammar is reduced, hence the *reductio*. Ultimately, I argue that POS arguments include so many language-specific constructions and constraints that they fail to support Chomsky's original conception of UG.¹ Section four presents a side of the POS argument that has not received much attention, i.e. syntactic principles that children violate. In this section I argue that responses to these known violations are inconsistent with POS arguments. I conclude with an argument that POS arguments are an artifact of the synchronic approach to grammar and are ultimately subject to the same problems that Newmeyer identifies for parameter theory. A comparative approach to grammar provides crucial evidence for evaluating POS arguments.

1. Core and Periphery

The distinction between core and periphery was proposed by Chomsky (1981) to handle the vast differences that exist between the grammatical features of the world's languages. These differences refute a simple conception of Universal Grammar since configurational and non-configurational or polysynthetic and isolating languages have few grammatical principles in common (Hale 1983; Jelinek & Demers 1994; Newmeyer 2005). By distinguishing core grammatical features from the marked periphery, Chomsky was able to postpone a reckoning with large numbers of cross-linguistic differences.

Chomsky proposed that UG is defined by the core features of grammar. In the Principles and Parameters framework, core grammar is composed of principles and parameters that hold across all languages. The search for such universals motivates much linguistic research to this day. Peripheral features are defined negatively with respect to the core. Peripheral features are not restricted by UG constraints, and vary from language to language. Since peripheral features are not supplied by UG they must be learned by children on the basis of exposure to specific languages. Children acquire core grammatical features through a process of parameter setting or maturation rather than learning their distribution in each language. Children learn the peripheral features of grammar solely on the basis of exposure to the input language(s) while they inherit a knowledge of the core grammar through biology.

In order for POS arguments to be used as an existence proof for UG, it must first be shown that the arguments reference core features of grammar. Unfortunately, Chomsky's original discussion of UG contains two distinct criteria for recognizing components of UG — a universality criterion and a learnability criterion. The universality criterion requires that core principles hold in all human languages while the learnability criterion requires a POS argument showing that the core principle cannot be acquired from exposure to evidence in the input language. These two criteria produce conflicting definitions of UG.² For example, the contrast between nouns and verbs has been claimed to be a language universal and therefore a good candidate for a principle of UG. On the other hand, children receive much evidence from the input that such a contrast plays a prominent role in the language. Nouns and verbs typically contrast in meaning, morphology and syntactic position. Innate knowledge is not required to

learn every universal principle of grammar.

On the other side, many POS arguments have been made for language specific features. Baker (1979) argued that children learning English could not acquire constraints on the dative alternation through positive evidence alone. Baker and Pinker (1984; 1989) argue that children require universal constraints to acquire these restrictions without showing if such constraints apply in other languages. Mark Baker (1988) showed that dative alternations are but a part of a broader rule of applicative alternation, and that applicative alternations differ dramatically from language to language even within a single language family. The dative POS argument provides a clear example of the use of UG to solve an acquisition problem before establishing whether the principles involved are universal.

The universality and learnability modes of defining components of UG have led to different, if not contradictory, definitions of UG. This result is not surprising given that these approaches have different motivations. It would be possible to escape the problem by giving one mode priority over the other. Suppose we assume that POS arguments provide the only legitimate means of defining UG. We would then be forced to vanquish many features of human language from UG since children can learn them on the basis of exposure to the input language. These banished principles would include the lexical categories and X-bar rules for phrase structure (Newmeyer 2005 makes other suggestions). We would also have to attribute to UG any feature of grammar that could not be learned from exposure to the input. This approach leads to the *reductio* argument that I present in section three.

If we give universality priority in defining UG we relegate many language specific features to the periphery regardless of whether or not they can be learned by exposure to the input language. UG would then consist of principles that can and cannot be learned from the input language. A POS argument, by itself, would not establish whether the principle being analyzed was a part of UG. It would also be necessary to demonstrate that the feature plays a role in more than one language. The tension between the universality and learnability modes of defining UG create problems. The problems might be avoided by assuming that the modes overlap to a considerable extent. It is just this assumption that to date remains unexamined.

2. A Mayan Perspective on Two Classic Poverty of the Stimulus Arguments

In this section I present a Mayan perspective on two classic POS arguments. These arguments were originally proposed for constructions in English with the conclusion that children learning English would not be able to acquire certain constraints without the support of UG. These POS arguments beg the question of the universality of the English constraints. For this reason, I find it helpful to explore the constraints featured in POS arguments from the perspective of another language. I use Mayan languages since I am familiar with their grammars. I will only discuss two POS arguments from English in this section just as I will only discuss the arguments from the perspective of two Mayan languages — K'iche' and Q'anjob'al. I leave the task of discussing other POS arguments from the perspective of other languages as an exercise for other linguists.

2.1. Structure Dependence

Chomsky constructs a classic POS argument in his discussion of how children acquire Subject-Auxiliary Inversion (1975:32). He observed that sentences like (1a) contain two possible

targets for inversion.

- (1) a. The man who is tall is in the room.
 b. Is the man who is tall ____ in the room?
 c.* Is the man who ____ tall is in the room?

Chomsky asks how children who observe questions such as ‘Is the man in the room?’ avoid constructing a rule of subject-auxiliary inversion that targets the first auxiliary or copula in a sentence. Children with such a rule would produce ill-formed questions like that in (1c) rather than the well-formed question in (1b). Chomsky asserts (without evidence) that children never produce ill-formed sentences like (1c). He stated that children have innate knowledge of a structural dependence that blocks this type of error.

The only reasonable conclusion is that UG contains the principle that all such rules must be structure-dependent. That is, the child’s mind ... contains the instruction: Construct a structure-dependent rule ignoring all structure-independent rules. The principle of structure-dependence is not learned, but forms part of the conditions for language learning. (Chomsky 1975:32-3)

Chomsky makes two keys claims in this passage. The first is that the principle of structure dependency is available to children learning English through UG rather than through evidence from the input language. The second claim is that “all such rules must be structure-dependent.” Much of the debate about Chomsky’s example has focused on whether the input language provides children with evidence for structure dependency *for this specific construction* (Pullum & Scholz 2002). The second claim is the more important since if UG just contained a principle for *yes-no* questions in English, it would not be a universal principle. Chomsky does not discuss the other rules that are structure dependent and the degree to which evidence for their structure dependency might be available to children. One such rule is surely the rule for subject-verb agreement in English. This rule is subject to the same structure dependency as the rule for *yes-no* questions and children acquiring English receive massive evidence for structure dependent constraints on agreement. Yet the phenomenon of proximity concord (Anderson 2009:805, fn. 14) shows that even adult English speakers occasionally violate the structure dependency principle (2).

- (2) a. No one except his own supporters agree with him.
 b. A good knowledge of English, Russian, and French are required for this position.

Yes-no questions have a different structural realization in the Mayan language K’iche’. K’iche’ lacks auxiliary verbs so the question of which auxiliary verb to move never arises. K’iche’ simply adds the question word *laa* to the beginning of all *yes-no* questions (3).

- (3) Laa saq chi lee nima ja (Mondloch 1978:20)
 y/n white now the big house
 ‘Is the big house white now?’

To form *yes-no* questions K'iche' children could formulate a string-dependent rather than structure-dependent rule. The evidence from the input language is ambiguous. If a K'iche' child were to attempt a structure-dependent restriction for a *yes-no* question with a complex subject the result might look like the example in (4a) rather than the acceptable form in (4b).

(4) a. Structure-dependent construction

*saq chi lee nima ja laa k'oo chuchii' lee cho
 white now the big house y/n exist near the lake
 Intended 'Is the big house that ___ near the lake is white now?'

b. String-dependent construction

laa saq chi lee nima ja k'oo chuchii' lee cho
 y/n white now the big house exist near the lake
 'Is the big house that is near the lake white now?'

These examples illustrate the way in which the K'iche' phrase structure rules conspire to simplify a child's life. K'iche' is a verb-initial language so the main predicate will precede the subject with exceptions for topic and focus. The complexity of the subject does not effect this word order. *Yes-no* questions do not change the word order in K'iche' and so the string-dependent generalization at the heart of the English POS argument never arises for K'iche'. The verb-initial word order of K'iche' clarifies the distinction between the main and subordinate clauses. The act of composing a declarative form of the sentence in (3b) requires the K'iche' speaker to place the main predicate in sentence-initial position. A *yes-no* question is a question about the main clause and not a question about the subordinate clause. Therefore any child who can produce a declarative sentence with a complex subject knows the difference between the predicate in the main clause and the predicate in the subordinate clause. If they want to ask a question about the main predicate, they will modify it by whatever language-specific rule is necessary. This operation is a question of semantics rather than syntax.

2.2. *That*-trace Effects

Haegeman (1994: 11) asserts that children learning English are not explicitly taught that sentences which violate the *that*-trace constraint such as '*What did they think that was available?' are unacceptable. Children hear such sentences as 'They think that cumquats are available,' and 'They think cumquats are available,' as well as the questions like 'What did they think was available?' On the basis of such sentences, children would be entitled to produce sentences that violate the *that*-trace constraint. Haegeman (1994:20) notes that the *that*-trace constraint does not apply in languages like Italian.

- (5) chi credi che ___ abbia telefonato?
 who believe that ___ have telephoned
 'Who do you think has called?'

She traces the difference between English and Italian to the possibility of subject inversion in Italian (Perlmutter 1971). Subjects can appear in both the pre-verbal and post-verbal position in Italian. Haegeman postulates that languages which allow subject inversion will therefore allow the subject to move from the post-verbal position and apparently violate the *that*-trace constraint. She concludes that UG contains a *that*-trace constraint and that children acquiring languages with subject inversion will find evidence in their input language that the constraint can be violated but not children acquiring languages which lack subject inversion.

If only linguistics were this easy. By the time that Haegeman's book appeared, Gilligan (1987) had already published a cross-linguistic test of the *that*-trace/subject inversion correlation using a database of 100 languages. He found four languages that support Haegeman's hypothesis and three languages that do not. The key difficulty in testing the connection between subject inversion and *that*-trace violations turns on the definition of subject inversion. Many languages allow 'subject' inversion for topicalization and focus including the Mayan language Q'anjob'al. Q'anjob'al has a rigid verb-subject-object word order, but allows either subject or object to move to the preverbal position for topicalization or focus (England 1994). Haegeman's hypothesis predicts that Q'anjob'al will permit violations of the *that*-trace constraint, and indeed it does.

- (6) maktxel max wal tol ____ max-ach iloni? (Pedro Mateo, pc)
 who cmp say that ____ cmp-B2 see
 'Who did I say that saw you?'

Q'anjob'al turns out to have a further wrinkle. The complementizer *tol* is optional in declarative sentences.

- (7) max wala' ____ max-ach y-il ix Malin. (Pedro Mateo, pc)
 cmp say ____ cmp-B2 A3-see CL Mary
 'I said ____ Mary saw you.'

The complementizer is not optional in interrogative sentences.

- (8) *maktxel max wala' ____ max-ach iloni? (Pedro Mateo, pc)
 who cmp say ____ cmp-B2 see
 'Who did I say ____ saw you?'

Q'anjob'al is clearly a mirror image of English with respect to the *that*-trace effect. Children acquiring Q'anjob'al will find evidence in the input language for the optionality of *tol* in declarative sentences and should then extend its optionality to questions. Q'anjob'al children cannot avail themselves of Haegeman's putative UG *that*-trace constraint to learn that the complementizer is not optional in questions.

2.3 Cross-linguistic Tests of POS Arguments

I conclude that POS arguments based on data from a single language or an uncontrolled sample of languages are not conclusive. Key assumptions of POS arguments depend on specific features of the languages under consideration. These assumptions collapse when POS arguments are extended to other languages. The challenge for advocates of POS arguments is to show that

the arguments can be extended to all of the world's languages. The difficulties that I identify in this section echo the problems that Newmeyer raises for the theory of parameters. Parameters are a good idea in theory, but the parametric principle collapses when confronted with data from the world's languages. Many POS arguments, such as the *that*-trace argument, presuppose a parametric relation between rules such that rules for e.g., subject inversion and *that*-trace violation fall together in parametric fashion. If Newmeyer is correct in identifying significant short-comings in the theory of parameters, we can expect that POS arguments based on parameters will have similar short-comings.

3. Taking the Poverty of the Stimulus Argument to the Limit

In this section I demonstrate that there can be too much of a good thing when it comes to POS arguments. I will show how the comparative method can be used to manufacture many more examples of POS arguments than Universal Grammar can possibly account for. I will argue that a superabundance of POS arguments proves that such arguments do not serve as a valid diagnostic for UG. If I can show that POS arguments can be constructed at the periphery, we must conclude that children rely upon linguistic cues to solve logical problems of language acquisition. By hypothesis, UG only consists of the core principles and parameters of grammar. Children must rely upon linguistic evidence to acquire grammatical features at the periphery of grammar. Therefore, if children can acquire peripheral features that produce POS problems, then they do so without the benefit of UG. And if children can solve some POS problems without UG then linguists cannot use POS arguments as evidence for UG.

3.1. Lexical Constraints

3.1.1. The Applicative Alternation

Baker (1979) used the dative construction to pose an early example of a POS argument. The Dative construction is known to have many types of lexical constraints (Dowty 1979; Pinker 1989). The verb in (7) allows an alternation between prepositional and secondary object forms (Dryer 1986) whereas the verb in (8) does not. A child who acquires a productive rule for the Dative Alternation will not find positive evidence that some English verbs do not undergo the alternation. Baker concluded that since children cannot use linguistic evidence to solve this problem, they must rely on UG.

- (7) a. I UPS'ed the package to Milton.
b. I UPS'ed Milton the package.

- (8) a. I delivered the book to Jena.
b. * I delivered Jena the book.

Melissa Bowerman was one of the first researchers to published examples of children's productions that violate the constraints on the English Dative rule (Bowerman & Croft 2007). Pinker (1989) and his colleagues developed Baker's argument by suggesting that the verbs that alternate belong to coherent semantic subgroups. These semantic subgroups would provide

children with the information they need to acquire the lexical constraints on Dative Alternation in English. This approach was dismissed by Dowty (1979) who concluded that the proposed semantic subgroups have too many exceptions. One difficulty with Pinker's solution is the existence of synonymous pairs of verbs with different constraints (e.g. give/*donate, tell/*report, c.f. Bowerman & Croft 2007).

A difficulty with lexical constraints is that they are notoriously fickle from one language to the next. No one has yet shown that the English type of Dative constraints apply in other languages, and without such a demonstration we are only entitled to conclude that these constraints are peripheral features of English grammar rather than core constraints that reflect universal semantic classes. The Dative Alternation is only one member of a family of alternations referred to collectively as the applicative (Dryer 1986). In addition to the Dative Alternation, the Applicative Alternation includes Benefactive, Malefactive, Locative, Addressee, Instrument and Possessor alternations. The applicative presents the POS problem for lexically-constrained alternations in its most general form. Children must discover whether an applicative alternation exists in their language, whether the alternation applies to datives, benefactives, etc., and if so, what lexical constraints apply to each alternation. What role UG plays in this process beggars the imagination.

Mayan languages have a verbal suffix *-b'e* that promotes a secondary argument to the role of primary object (Dayley 1981; Mora-Marín 2003). There are considerable differences between the Mayan languages in the scope of the applicative. It applies to dative, benefactive, malefactive, addressee and possessor arguments in Ch'ol and Tzotzil, but only to locative, instrumental and some addressee arguments in K'iche' (9).

(9) Applicative alternations in Ch'ol and K'iche'

a. Ch'ol (Vázquez Alvarez 2002:313-5)

i. Malefactive

mi k-muk-b-eñ-ety waj
 IMPFV A1-hide-APL-INC-B2 tortilla
 'I hide the tortillas from you'

ii. Addressee

mi k-su'-b-eñ-ety ty'añ
 IMPFV A1-tell-APL-INC-B2 word
 'I tell you the advice'

iii. Patient Possessor

tyi k-ts'äk-ä-b-ety aw-alo'bil
 PERFV A1-cure-VTT-APL-B2 A2-son
 'I cured your son (for you)'

b. K'iche'

i. Instrument (Dayley 1981:28)

ch'iich' x-0/-in-sok-b'ee-j aw-eech
 machete COMP-B3-A1-wound-APL-VTD A2-of
 'It was a machete that I wounded you with'

ii. Addressee (Kaufman 1990:79)

k-0/-in-b'iin-ib'e-j a-ch'aa-b'e-x-iik
 INC-3Abs-1Erg-travel-APL-ST 2Erg-talk-APL-PAS-NOM
 'I walk (while) talking to you'

Linguists have observed that both positive and negative lexical exceptions to the applicative alternation exist in various Mayan languages. Dayley (1981:59) and Garcia Matzar (1998:114) note that the applicative suffix serves a recipient function on one Tzutujil verb and an addressee role on another verb. The applicative suffix serves an addressee function on the K'iche' verb -ch'aa 'talk', but not on the verbs -tzijon 'talk, chat', -sik'ii 'call', -ta' 'ask', -cha' 'say', or -b'ii 'say'. Martin (1994:125) provides the example of the verb haqbe 'ask' from Mocho' which is one of the few verbs in the language that preserves an applicative-like suffix. Vázquez Alvarez (2002:304-5) states that in Ch'ol the verb -äk' 'give' is the only ditransitive verb that does not license the applicative suffix. Montgomery-Anderson (2005) notes several instances in Chontal where the addition of the applicative to the verb -ä' 'give' produces an unexpected meaning:

(10) Chontal (Montgomery-Anderson, 2005)

a. k-ä'-bé-n-0/ wäy-ik
 A1-give-APL-INC-B3 sleep-SUBJ
 'I make him sleep'.

b. 'u-x-é 'uy-ä'-bé—0 ja'
 A3-go-INC A3-give-APL-INC-B3 water
 'It's going to rain'

The Mayan applicative construction illustrates the full scope of the POS problem that children confront with this alternation. Children must first learn if the alternation applies to dative, benefactive, possessor or instrumental arguments, and if so, whether any lexical exceptions exist. Each of these steps poses a classic POS problem and predicts that children would either massively overgeneralize or undergeneralize the applicative alternation. Adult speakers of these languages are very forceful in acknowledging the constraints. The only solution to their dilemma would appear to be UG since it can be argued that the children do not find positive evidence for the constraints on the applicative in their language. The difficulty is that the constructions and their lexical exceptions are so diverse that one is hard-pressed to believe that all of the variants are pre-specified in UG. There is no parameter available to organize the degree of variation found in applicative constructions across the Mayan languages. Children must learn the language-specific constraints that apply in their language without the benefit of UG. The comparative approach clearly shows that these constraints can change over time. Such change is not predicted by an innate grammar that presumably changes over eons rather than centuries. The

variation and the constraints are products of cultural rather than biological change.

3.1.2. The Causative Alternation

The causative alternation provides another example of a type of argument structure alternation that poses a logical problem for language acquisition. Some English verbs have both transitive and intransitive argument structures (11), whereas others do not (12). Children learning English must learn which verbs alternate their argument structure in this fashion and which do not. A POS argument can be constructed for the causative alternation since children only find positive evidence for the alternating verbs. They do not find evidence for the non-alternating verbs (cf. Bowerman & Croft 2008; Pinker 1989).

- (11) a. I dropped the plate.
b. The plate dropped.

- (12) a. * I fell the plate.
b. The plate fell.

The causative alternation is more complicated than the examples in (11) and (12) suggest. The causative alternation results in a change to the verb's argument structure. A causative alternation adds an agent argument to an intransitive verb while an anticausative alternation removes an agent argument from a transitive verb. Another dimension of the causative alternation is the type of change that takes place. A lexical alternation substitutes different verbs, e.g. come::bring. A morphological alternation adds a derivational suffix to either the intransitive or transitive stem, e.g. be rich::enrich. A zero type of derivation accounts for verbs that do not change form between transitive and intransitive contexts, e.g. spin::spin. A periphrastic alternation adds another clause, e.g. appear::make appear. The direction of the alternation is clear in the case of overt morphological and periphrastic types of alternation, but is difficult to discern in the case of lexical and zero derivation types of alternation. Table 1 provides examples of these alternation types in English.

Alternation Type	Intransitive	Transitive
Lexical	'The box came'	'You brought the box'
Morphological: zero	'The rotor spun'	'Robin spun the rotor'
Morphological: overt	'The pudding is rich'	'The trip will enrich you'
Periphrastic	'The coin appeared'	'The magician made the coin appear'

Table 1. Types of causative alternations in English

Each of these types of causative alternation are moderately productive in English. Children must learn which type of alternation applies to each verb. If they fail to constrain the causative alternation correctly, they will produce overgeneralizations such as 'Salt clings it together' and 'Bert knocked down' (Bowerman and Croft 2008:281). In the absence of overt correction, children would require UG to acquire such constraints (Pinker 1989).

Mayan languages display a similar complexity, c.f. Table 2.

Alternation Type	Intransitive	Transitive
Lexical	Kapetik ‘it is coming’	Kuk’am b’ik ‘s/he brought it’
Morphological: zero	Kachupik ‘it goes out’	Kuchupuh ‘s/he put it out’
Morphological: overt	Katb’inik ‘you walk’	Katub’inisaj ‘s/he walked you’
Periphrastic	Katmuxanik ‘you swim’	Xub’an katmuxanik ‘he made you swim’

Table 2. Causative constructions in K’iche’

While English has several types of causative alternations, the process is more complicated in the Mayan languages (Pye 1993). The Mayan language K’iche’ uses the causative suffix *-is* to derive the causative form of one class of intransitive verbs (13).

- (13) a. k-0-poqow-ik
 INC-3B-boil-IV
 ‘It is boiling.’
- b. k-0-a-poqow-is-a:j
 INC-3B-2A-boil-CAUSE-DTV
 ‘You are boiling it.’ (= cause to boil)

A small number of intransitive verbs in K’iche’ change argument structure without adding the causative affix (14). I group these verbs together because they share the feature of alternating between intransitive and transitive verb forms by a derivational process that is distinct from the regular affixal causative process (c.f. Dayley 1985).

- (14) a. x-0-in-tzaq-oh
 COM-3B-1A-drop-TTV
 ‘I dropped/lost it.’
- b. x-in-tzaq-ik
 COM-1B-fall-IV
 ‘I fell.’
- c. x-0-a-tzali:-j
 COM-3B-2A-return-TV
 ‘You returned it.’
- d. x-at-tzali-j-ik
 COM-2B-return-IV
 ‘You returned.’

A third class of K'iche' verbs makes use of the absolutive antipassive construction to effect an anti-causative alternation. The absolutive antipassive is typically used to focus on an action rather than the result of the action (Mondloch 1981). With many K'iche' verbs, the antipassive acts as an anticausative (15).

- (15) a. k-0-u-chaku;-j
 INC-3B-3A-work-DTV
 'He/she is working it.'
- b. k-0-chaku-n-ik
 INC-3B-work-ABS-IV
 'He/she is working.'
- c. x-in-a-tze'-j
 COM-1B-2A-laugh-DTV
 'You made me laugh.'
- d. x-at-tze'-n-ik
 COM-2B-laugh-ABS-IV
 'You laughed.'

A fourth class of intransitive verbs in K'iche' does not undergo any of these processes. The only way to express a transitive notion with the members of this set is to use a complex sentence containing the matrix verb *-b'an* 'do/make'. Examples of periphrastic verbs are shown in (16).

- (16) a. k-in-pet-ik
 INC-1B-come-IV
 'I am coming.'
- b. k-0-in-b'an k-at-pet-ik
 INC-3B-1A-do INC-2B-come-IV
 'I will make you come.'
- c. k-in-muxan-ik
 INC-1B-swim-IV
 'I am swimming.'
- d. k-0-in-b'an k-at-muxan-ik
 INC-3B-1A-do INC-2B-swim-IV
 'I will make you swim.'

Children learning K'iche', then, must discover which of these alternation types a verb undergoes. All of the intransitive verbs allow the periphrastic construction, but the meaning denotes a cause that is less direct than that encoded by the affixal forms when they exist. K'iche' children will hear affixal forms of the verbs in the first three classes, but not for the periphrastic

class. It is this class that poses a POS problem for the K'iche' causative. The second and third types of alternations pose a different POS problem. The absolutive antipassive construction is a type of anticausative since it derives intransitive verb stems from transitive verb stems. Many transitive verbs do not undergo this anticausative alternation, so K'iche' children face a different type of POS problem in discovering which transitive verbs prohibit this use of the anticausative construction.

This problem is similar to the problem K'iche' children face in acquiring the applicative alternation. While the causative and anticausative alternations are more productive than the applicative alternation in K'iche', there are lexical exceptions to all of them. These lexical exceptions create the POS problem for K'iche' children acquiring the causative and anticausative alternations. Verbs that participate in more than one of these alternation types (e.g. *miq'-is-aj*, *miq'-oh* 'heat something'; *tzalij-is-aj*, *tzalij* 'return'; *xojow-is-aj*, *xoj-oh* 'dance') further complicate the acquisition problem. It is important, then, to list the verbs that do not participate in these alternations. This is typically the information that is missing from dictionaries of Mayan languages. I provide this information for the exceptional verb classes in four Mayan languages in (17). The verbs that allow the morphological alternation are shown with an *-is/-s* suffix. The class of zero alternating verbs corresponds to the alternation in (14). The periphrastic class corresponds to the alternation shown in (16). An asterisk indicates verbs that speakers find unacceptable with the morphological suffix and which, therefore, belong to the periphrastic class of verbs in that language. A blank indicates that no information is available for that item.

(17) Exceptional verb classes in Mayan languages

	English	K'iche'	Mam ³	Ch'ol ⁴	Yucatec ⁵
Causative	'walk'	b'in-is	b'et-s	xän-t-es	b'i-s 'take'
	'dance'	xojow-is	*	*	
	'die'	kam-is	b'iyon	chäm-s/jisan	kfin-s
	'enter'	ok-is	okxa	ochel-s	'ok-s
	'cry'	oq'-is	oq'-s	uk'-is	'ok' ??
	'go'	e-is	*	*	
	'green'	rax-ar-is	chax-s		yá'aškun-s/t
	'arrive here'	ul-is	ul ti'na	*	'ú'u-s
	'whiten'	saq-ar-is	saq-s	säk'	sahk-úun-s/t 'bleach'
	'sleep'	war-is	wat-s	wäy-is	wèen-s
Zero	'go out'	chup	yuptz'a'n	yajpel	tupcah 'extinguished'
	'finish'	k'is	b'aj-s	ujty-is	tsó'ok-s
	'lower'	qaj	*	ju'b-s	
	'fly'	rapap	*	wejl-is	
	'move'	silob'			
	'turn'	sutij	sutana	sutk'in	sutcah 'revolve'
	'return'	tzalij	ti'n ajtza	*	
	'fall'	tzaq	tz'aq-s	yän-s	lú'ub'-s
	'destroy'	wul	b'achu'n	jem	

Anticausative	‘work’	chakuj	aq’na’n		
	‘laugh’	tzej	*	tse’tan	
	‘break’	q’apuj	pa’n	xul	
Periphrastic	‘leave’	el		lok’/lok’-s	hó’o-s
	‘play’	etz’an	saqchb’e’n	*	
	‘tire’	kos	siky-s		ká’an-s
	‘swim’	muxan	*	*	
	‘arrive there’	opan			kóoh-s
	‘come’	pet	tzaj tina	*	táa-s
	‘yellow’	q’anar	xhq’an-s	k’añ’an	k’àank’an-kúun-s
	‘black’	q’eq’ar	q’aq-s		‘ée’k-un-s
	‘breathe’	uxlan	*	jap ik’	
	‘stroll’	wakat			
	‘talk’	ch’aw	yol-s	pejkan	
	‘eat’	wa’	txi’ waana	uch’-is	

There are many cross-linguistic differences across this sample of languages. K’iche’ and Mam do not apply the causative suffix to the verb ‘eat’ while this is acceptable in Ch’ol. K’iche’, Mam and Ch’ol do not causativize the verb ‘come’, but Yucatec does. K’iche’, Ch’ol and Yucatec causativize the verb ‘die’, but not Mam. All four languages causativize the verb ‘sleep’. The comparative method clarifies the degree to which the causative category has changed over time in the Mayan languages. The causatives create a POS problem within each language, but the variation between languages rules out a UG solution. The only possible conclusion is that children can solve the POS problem created by causative alternations on the basis of the input language. Pye (1993) provides data on children’s overgeneralizations of the causative alternation in K’iche’.

3.1.3. Other Lexical Alternations

The applicative and causative constructions are just two of many verb argument constructions that are subject to lexical constraints. The passive and antipassive alternations in the Mayan languages have a similar behavior with a welter of language-specific lexical exceptions (cf. Pinker 1989 for English; Pye & Quixtan Poz 1989 for K’iche’). My personal favorite is the unresolved distinction between the intransitive verbs in K’iche’ which take the -iik nominalization and those which take -Vm (Mondloch 1981). Melissa Bowerman (1988) observed that the English reversative prefix *un-* and resultative particles provide other examples of this paradox. It is possible to take off a sweater, turn off a light, or cut off a conversation, but not to *steal off a loaf of bread, *bridge off a gorge, or *confess off your sins. Children cannot learn these constraints on the basis of positive evidence, so these constructions serve as further examples of POS arguments. The English constraints on the reversative prefix and resultative particle constructions are specific to English, so UG presumably does not encode these constraints among its principles and parameters. Bowerman (1988) provides many examples that show children learning English violate these constraints. I conclude that lexical constraints exist

at the periphery of all languages, and that children solve these POS problems without the aid of UG.

3.2. Syntactic Structure

Linguists have long acknowledged that lexical constraints on rules pose difficulties for a theory of grammar (Dowty 1979). POS arguments based on syntactic constraints such as structure dependency and *that*-trace constraints appear to be more universal in nature. In this section I provide examples of syntactic constraints that are language specific, but which still pose POS problems.

3.2.1. Verb Complements

Verb complementation provides an arena in which much variation is found within and between languages (Noonan 1985). English, for example, has the complement forms shown in (18). Children acquiring English must learn which type of complement is compatible with each matrix verb. This task would be easy if each matrix verb only selected one complement type. The alternation between complement types creates a POS problem (19).

The complement types in (19) illustrate two POS problems. The first is the potential for overextending, for example, an infinitive complement type to a verb that restricts this type of complement. The second POS problem is illustrated by the examples (19.b.i) and (19.c.ii). The verb *see* selects a complement clause with a bare verb in (19.b.i) while the verb *think* selects a complement with a verb inflected for tense in (19.c.ii). Both of the complement verbs refer to past events so children learning English must discover when to use bare verbs and when to use inflected verbs in their complement clauses.

Children will hear some matrix verbs select different complement types and face the logical problem of ruling out such alternatives for other matrix verbs. Children could take a conservative approach to the problem and confine themselves to complement types they hear in the input language for each verb. The heart of generative theories of language acquisition is the assertion that children are not conservative learners (Bowerman 1988; Pinker 1984, 1989). There is no reason to think that children would overgeneralize past tense forms of verbs or the causative alternation, but not overgeneralize forms of verb complementation. Children cannot use the language they hear to constrain these types of complementation, and so the argument leads to the conclusion that verb complement types must be specified in UG.

(18) English Verb Complement Types

- | | |
|--------------------|--|
| a. To infinitive | 'I want to visit you.' |
| b. Bare infinitive | 'She saw you enter the store.' |
| c. Gerund | 'We heard you talking on the phone.' |
| d. Progressive | 'Bill is taking the train.' |
| e. Perfect | 'Sue has visited Cincinnati.' |
| f. Finite | 'Charlie said (that) you ate the pizza.' |

(19) English Verb Complement Alternations

- a. *Hope*
 - i. We hope to see you.
 - ii. We hope that you make it.
- b. *See*
 - i. She saw you enter the store.
 - ii. Bill saw you going upstairs.
 - iii. She saw that you bought a coat.
- c. *Think*
 - i. Bill thought to send Mary a card.
 - ii. She thought you entered the store.
 - iii. She thought that you bought a coat.
- d. *Want*
 - i. I want to visit you.
 - ii. I want you to put on a coat.
 - iii. I want the clothes washed and dried.
 - iv. I want you working in the garden.

There is evidence that children learning English make errors in their production of verb complement constructions. Bowerman (1988:82) provides one example produced by her daughter E at age 7;3: 'Christy insisted me to make a house' (= insisted that I should make ...).

The logical problem of acquiring verb complement types is revealed in its full generality when we examine complementation across a family of languages rather than just looking at English. The Mayan language family provides evidence of the variation that can be found in verb complementation. Mayan languages have several types of verb complements. The indicative type of verb complement has inflections for aspect, agreement and indicative status. There is a difference between matrix verbs which select or do not select a complementizer with indicative complements. Verbs of motion select the subjunctive form of a verb complement. Subjunctive complements are inflected for agreement and dependent status. Verbs may also select a variety of nominalized complements. Nominalized complements may or may not be inflected for agreement or nominalization. The Mayan complement types are shown in Table 3.

Contexts of Use	Eastern Mayan		Q'anjob'alan		G. Tzeltalan		Yucatecan
	K'IC⁶	TEK⁷	Q'AN⁸	TOJ⁹	TZE¹⁰	CH'O¹¹	YUC¹²
Completive	IND	IND	IND	IND	0	IND	IND
Incompletive	IND	IND	IND	IND	0	NOM	NOM
Progressive	IND/NOM	IND	NOM	IND/NOM	NOM	NOM	NOM
Inceptive	NOM	0	IND	NOM	NOM/SUB	NOM	NOM
Adverb	IND/NOM		IND/NOM	IND	NOM	NOM	NOM
Desiderative	IND	IND	IND	NOM	0/NOM	NOM	NOM
Perception	0		0/NOM	NOM	IND/NOM		
Causative	IND	NOM	SUB	NOM/SUB	NOM/SUB	NOM	NOM
Potential	IND/SUB		SUB	SUB	SUB	SUB	SUB
Dependent	SUB	NOM	SUB	SUB	SUB	SUB	SUB

Table 3. Mayan Verb Complements

I provide examples of alternative complement constructions for the K'iche' progressive verb in (20). The K'iche' progressive verb allows both of these complement types. The complement in (20a) is the indicative type with inflection for aspect and agreement, while that in (20b) is the nominalized type that lacks inflection for aspect.

(20) K'iche' verb complement alternatives

- a. *tajin k-in-atin-ik* (Sis Iboy 1997:115)
 PROG INC-B1-bathe-IND
 'I am bathing.'
- b. *k-in-tajin pa atin-eem* (Sis Iboy 1997:118)
 INC-B1-PROG PREP bathe-NOM
 'I am bathing.'

Mayan children can acquire these complement types by analyzing parental speech. The POS argument enters when the children observe matrix verbs selecting a variety of different complement types. At that point the children will be tempted to overgeneralize the types of verb complement for each matrix verb. The POS argument suggests that the children cannot use evidence from the parental language to constrain their overgeneralizations, so the children must rely upon UG. But, UG cannot account for the variation in complement types we find between these different Mayan languages. Therefore, UG will not provide children with a reliable guide for constraining verb complementation. The conclusion is that children do not require UG to solve the POS problem created by the varieties of verb complementation.

The comparative approach introduces another difficulty that is not apparent when attention is focused on a single language. The cross-linguistic differences that are evident in Table 3 indicate the ways in which Mayan speakers at one time or another have reanalyzed the complementation requirements in various contexts of use. No single parameter or set of parameters can explain the variation in complement types which exists in the Mayan languages. Note the alternate use of nominalized and subjunctive forms in Tzeltal in the inceptive where Ch'ol uses a single nominalized form and Q'anjob'al uses an indicative form. We would expect

to find evidence of parameter setting among children acquiring the Mayan complement structures, but this is not the case. If Universal Grammar restricts the options that children select from, what force explains the variation found in complementation within the same language family? Universal Grammar offers no explanation for grammatical reanalysis. If Universal Grammar cannot account for historical change it is not universal.

3.2.2. Subject Raising

Subject raising produces another syntactic POS problem. Subjects may raise out of subordinate clauses in a number of contexts. These constructions have been analyzed as examples of exceptional case marking in recent grammatical frameworks. Some subject raising constructions for English are shown in (20). Violations of subject raising constraints in English are shown in (21).

(20) English subject raising constructions

- a. I want her to succeed.
- b. I believe her to be exceptional.
- c. I expect him to come.
- d. I let him stay.

(21) Exceptions to English subject raising

- a. * I tried her to leave.
- b. * I bet him to win.
- c. * I saw her to swim.

Mayan languages have a variety of subject raising constructions. Some examples of subject raising constructions in Ch'ol are shown in (22). The examples in (22 a, b, c and d) show the auxiliary verbs *muk'* and *chonkol* with non-raised and raised subjects. The auxiliary in (22e) only allows intransitive complements to have non-raised subjects (Gutiérrez Sánchez 2004:17), while the auxiliary in (23) only permits an intransitive complement with a raised subject (Vázquez Álvarez 2002:121). The POS problem for children is to discover which constructions allow the option of subject raising, which forbid it and which require it. The Ch'olan option of subject raising creates a logical problem of acquisition since children cannot learn the constraints on subject raising on the basis of positive evidence alone. The POS problem these structures create in Ch'ol is actually much worse. Gutiérrez Sánchez (2004:231 and 236) notes that the existential verb *añ* is an exception to the subject raising option with the auxiliaries *muk'* and *chonkol*. The existential verb only appears with *muk'* and *chonkol* in the non-raised form. Children acquiring Ch'ol have to learn the lexical exceptions for the auxiliaries that allow the option of subject raising.

(22) Subject raising constructions in Ch'ol

a. Incompletive Auxiliary (Gutiérrez Sánchez example 24a, p. 13)

muk' k-majl-el
 INC A1-go-NOM
 'I go'

b. Incompletive Auxiliary (Gutiérrez Sánchez example 25a, p. 13)

muk'-oñ tyi majl-el
 INC-B1 SUB go-NOM
 'I go'

c. Progressive Auxiliary (Vázquez Alvarez example 54b, 109)

chonkol k-wäy-el
 PROG A1-sleep-NOM
 'I am sleeping'

d. Progressive Auxiliary (Vázquez Alvarez example 56a, 111)

chonkol-oñ tyi wäy-el
 PROG-B1 SUBD sleep-NOM
 'I am sleeping'

e. Incompletive Auxiliary (Gutiérrez Sánchez example 37b, p. 17)

mi k-lets-el
 INC A1-climb-NF
 'I climb'

f. Prospective Auxiliary (Vázquez Alvarez 61b, 115)

keje k-wäy-el
 PROSP A1-sleep-NOM
 'I am about to sleep'

g. Prospective Auxiliary (Vázquez Alvarez 62a, 116)

*kejel-oñ tyi wäy-el
 PROSP-B1 SUBD sleep-NOM
 Desired interpretation: *'I am about to sleep'

h. Prospective Auxiliary (Vázquez Alvarez example 63a, 117)

mi j-keje tyi wäy-el
 INC A1-PROSP SUBD sleep-NOM
 'I am about to sleep'

i. Inceptive Auxiliary (Vázquez Alvarez example 67b, 119)

a-tyech-0 wäy-el
 A2-INCEP-B3 sleep-NOM
 'You are beginning to sleep'

The subject raising constructions in Ch'ol create a second POS problem as illustrated in the examples in (23). Vázquez Alvarez states that subject raising in the terminative construction is obligatory for intransitive verbs, but is optional for transitive verbs. Children acquiring Ch'ol cannot acquire such a constraint on the basis of positive evidence alone, and so the distinction between subject raising for transitive and intransitive verb complements in Ch'ol creates another POS problem.

(23) Ch'ol terminative auxiliary constraints (Vázquez Alvarez, 122)

a. Terminative Auxiliary with intransitive complement (Vázquez Alvarez example 70b, 121)

ujty-i-y-ety tyi wäy-el
 TERM-IND-EPN-B2 SUBD sleep-NOM
 'You finished sleeping'

b. Terminative Auxiliary with transitive complement (Vázquez Alvarez example 71a, 120)

ujty-i (-y-ety) a-mek'-oñ
 TERM-IND (-EPN-B2) A2-hug- B1
 'You stopped hugging me'

Vázquez Alvarez summarizes these constraints as shown in Table 4.

Aspectual Auxiliary	Intransitive Complements	Transitive Complements
<i>Mi</i> – INC	Aux A-V	Aux A-V-B
<i>Muk'</i> – INC	Aux A-V ~ Aux-B tyi V	Aux A-V-B
<i>Chonkol</i> – PROG	Aux A-V ~ Aux-B tyi V	Aux A-V-B
<i>Ujtyi</i> – TERM	Aux-B tyi V	Aux A-V-B ~ Aux(-B ₁) A ₁ -V-B
<i>Keje</i> – PROSP	Aux A-V ~ A-Aux tyi V	Aux A-V-B
<i>Tyech</i> – INCEP	A-Aux V	A ₁ -Aux A ₁ -V-B

Table 4. Auxiliary complement constraints on subject raising in Ch'ol

The subject raising constraints in Ch'ol produce a particularly complex POS argument. One possibility is that universally some auxiliary verbs allow subject raising while others do not. The difference between the Ch'ol auxiliaries *mi* and *muk'* argues against a UG solution, but other languages might display similar constraints. Unfortunately, there is not a lot of data for the Mayan languages on this topic, but the little evidence that exists strongly suggests that constraints on subject raising are a language specific affair. Sis Iboy (1997) provides the following examples for K'iche'. They show that subject raising is optional with the progressive auxiliary in K'iche' for both transitive and intransitive complements.

(24) Subject raising in K'iche' progressive constructions

a. tajin x-e-qa-to'-o (Sis Iboy 1997:115)

PROG CMP-B6-A1-help-IND

'We are helping them.'

b. x-in-tajin chi u-to'-ik (Sis Iboy 1997:118)

CMP-B1-PROG PREP A3-help-NOM

'I was helping him/her.'

c. tajin k-in-atin-ik (Sis Iboy 1997:115)

PROG INC-B1-bathe-IND

'I am bathing.'

d. k-in-tajin pa atin-eem (Sis Iboy 1997:118)

INC-B1-PROG PREP bathe-NOM

'I am bathing.'

I have incorporated the K'iche' examples of subject raising in progressive constructions along with examples from Ch'ol, Tojolab'al, Awakateko and Poqomchi' (after Kaufman 1990) in Table 5 to demonstrate the range of variation in subject raising to be found in Mayan progressive constructions.

Language	Intransitive Complements	Transitive Complements
K'iche'	Aux B-V ~ B-Aux Prep V-NOM	Aux B-A-V ~ B-Aux Prep A-V-NOM
Poqomchi'	Aux A-V-NOM ~ Aux-B Prep V-NOM	Aux-B A-V-NOM
Awakateko	B-Aux Prep V-NOM	B-Aux Prep A-V-NOM
Q'anjob'al	Aux A-V	Aux-B A-V-ANT
Tojolab'al	Aux-B V-NOM	Aux-B A-V-NOM
Ch'ol	Aux A-V ~ Aux-B Prep V	Aux A-V-B
Yucatec	Aux A-V-NOM	Aux A-V-NOM-B

Table 5. Subject raising in Mayan progressive constructions (Kaufman 1990:87-93)

Table 5 shows that subject raising with intransitive complements is possible in K'iche', Poqomchi' and Ch'ol, and only possible with transitive complements in K'iche' and Awakateko. The difference between K'iche' and Poqomchi' in this respect illustrates a semantic change that has occurred with transitive complements in Mayan progressive constructions. The absolutive prefix that appears on the progressive auxiliary in K'iche' cross-references the subject of the event while the absolutive suffix that appears on the progressive auxiliary in Poqomchi' cross-references the object of the event. This difference in semantic roles creates another acquisition problem for children learning Mayan languages, but in this case, children should be able to use evidence from the context to decide on the correct interpretation of the progressive affix.

The differences between the Mayan languages show that constraints on subject raising in the progressive construction are not universal. A single parameter will not capture the different constraints that exist for intransitive and transitive complements. Nor does it allow for change. Mateo-Toledo (2003) provides the following example from Q'anjob'al that demonstrates a case of incipient subject raising. While speakers judge the sentence to be questionable, the double marking for the subject of the intransitive complement provides a mechanism for subject raising. Such examples would be ruled out completely by Minimalist conceptions of efficiency. The example provides further evidence that the constraints on subject raising in Mayan languages occur at the periphery rather than at the core, and thus constitute examples of POS problems that children solve without Universal Grammar.

(25) Incipient subject raising in Q'anjob'al (Mateo-Toledo 2003, example 63)

??lanan hach ha-jay-i
 PROG B2 A2-come-IND
 'You are coming.'

3.3. Summary

In this section I provided examples of lexical and syntactic rules with language-specific constraints. These examples are only the tip of the iceberg for the Mayan languages. Again, I can offer another personal favorite. K'iche' and other Mayan languages have different types of particles that follow the verb. These particles appear in specific orders. K'iche' has a set of directional particles that specify the path of motion (b'i-k, la-oq), an irrealis particle (ta-j), emphatic (k'u-t), adverbial (chi-k), modal particles (b'a, na), and a locative proadverb particle (wi-h) that is used when a locative or instrumental phrase is focused. Examples of K'iche' particle combinations are shown in (26).

(26) K'iche' Text (Norman 1976:43)

a. jawchi' in-k'oo **chi** **wi** wa' (no. 24)
 where B1-exist already ploc here
 'Where am I here?'

b. na xee **ta chi** wa' k'oo-lik (no. 25)
 neg below irr already here exist-st
 'He was not here.'

The acquisition of K'iche' particle orders poses a learnability problem that is identical in nature to the problem of acquiring the auxiliary verb order of English. K'iche' speakers produce sentences with different combinations of particles, but seldom produce sentences containing the full set of verb particles. It is easy to see how K'iche' children acquire the individual particles, but exceedingly difficult to see how the children determine the order between all of the different combinations of particles. I have not explored verb particle orders in other Mayan languages, but I would be surprised if all Mayan languages have the same order. I conclude that the comparative method is useful for exposing POS problems at the periphery of related languages.

4. Errors of Commission

POS arguments begin with the claim that children obey some principle of grammar that they cannot acquire through positive evidence from the parental language. POS arguments have a logical inverse – cases where children do not initially obey a presumed universal principle of grammar. These cases can be considered as part of the POS argument since they show that children do not have immediate access to all of the core principles of grammar. There are many examples of these cases in the acquisition literature, including those where children have ample positive evidence (c.f. MacWhinney 2004; O’Grady 1997). They include errors with pronominal case (Rispoli 1999), binding (Jakubowicz 1984; Wexler & Chien 1985), subject-auxiliary inversion (Ingram & Tyack 1979), passives (de Villiers & de Villiers 1973) and the complex NP constraint (Wilson & Peters 1988). This evidence constitutes *prima facie* evidence against UG. Linguists have dismissed such cases with a number of ad hoc excuses, e.g. maturation (Gleitman 1981), lexical confusion (Matthews 1983) or pragmatic confusion (Hyams 1999). Considered in the context of POS arguments, they reveal the more general problem of accounting for the difference between the principles of grammar that children obey and those that children do not obey. The excuses that linguists make for children’s errors apply with equal force to all POS arguments. Without the actual acquisition evidence in hand, linguists should refrain from making claims that children know some feature of grammar innately.

5. Conclusion

POS arguments constitute a central support for UG. The goal of this paper has been to examine the assumed connection between POS arguments and UG by investigating the cross-linguistic status of the constructions used in POS arguments. POS arguments for UG are only as good as the connections between the syntactic principles in the arguments and core grammar. Evidence that the principles appealed to in POS arguments are part of UG must be supplied independently of the POS argument. Otherwise, the POS arguments are circular (Sampson 1989, 1999). To date, linguists have not expended much effort to establish the universal status of the principles that feature in POS arguments.

I used two approaches to examine the cross-linguistic status of POS arguments. The first approach examines a POS argument from English against the ‘same’ construction in another language. This approach exposes a prime difficulty of cross-linguistic research which is how to determine which structures to count as the same in different languages. This difficulty also exposes a crucial weakness of POS arguments. If linguists have difficulty deciding which core principles operate in different languages then UG will not help children decide whether a particular instantiation of a core principle is operative in a specific language.

A cross-linguistic approach to POS arguments leads to a conclusion which echoes Newmeyer’s conclusion that parameter theory cannot be maintained in light of empirical evidence. The differences between languages do not fall into the neat patterns claimed by advocates of parameter theory. Instead, languages are free to mix and match rules in complex patterns. Grammar has a fractal quality that remains relatively undocumented despite decades of linguistic effort. My suspicion is that grammatical variation can be found between languages as well as between dialects and even between speakers of the same dialect. Kayne (2000) takes a step in this direction with the development of microparameters. Newmeyer’s arguments against parameters apply with equal force to POS arguments that reference parameters. POS arguments

are empty without a serious effort to respond to the cross-linguistic variation observed in the world's languages and dialects.

The Comparative Method offers the only objective means of cross-linguistic analysis available to linguists. I used the Comparative Method in this paper as a second approach to examine POS arguments. Detailed comparisons across related languages bring to light a host of language-specific constraints that pose POS problems for children acquiring these languages. Because these constraints exist at the periphery it is easy to overlook the substantial problems they raise for language acquisition. We cannot dismiss these problems simply because they lie at the periphery. There are many syntactic constraints that cannot be acquired through exposure to the input language regardless of their status as core principles. All that is required to construct a POS argument is a grammatical rule that is constrained in some fashion. The only evidence for such constraints is negative — the absence of the rule's output in a specific context.

The Comparative Method exposes a host of language particular constraints on syntactic rules. Since the constraints differ between related languages we can be confident that such constraints change over time. The Comparative Method inevitably exposes a diachronic dimension to POS arguments that remains hidden as long as linguists focus their attention on a single language. One positive outcome of my otherwise negative result is the identification of a new field of linguistic research — investigating the history of grammatical constraints. This research would contribute to our understanding of the dynamic nature of language, a nature that is beyond the scope of static models of grammar. Language change can be wonderful!

Abbreviations

All Mayan examples are shown in the practical orthography developed by the Proyecto Lingüístico Francisco Marroquín (Kaufman 1976) with a single exception: I use <'> rather than <7> for the glottal stop. The other orthographic symbols have their standard IPA values except: <tz> = /ts/, <ch> = /tʃ/, <b'> = /bʰ/, <tz'> = /tsʰ/, <ch'> = /tʃʰ/, <x> = /x/, <j> = /x/, <ä> = /ʔ/. I use the following abbreviations throughout the article:

1	first person singular	IMP	imperative
2	second person singular	INC	incompletive aspect
3	third person singular	INSTR	instrumental suffix
4	first person plural	IRR	irrealis
A	ergative cross-reference	NEG	negation particle
ANT	antipassive suffix	NOM	nominalization suffix
APL	applicative suffix	PASS	passive suffix
IND	indicative status suffix	PLOC	locative focus particle
B	absolutive cross-reference	POSS	possessive relational noun
CL	classifier	POT	potential particle
CMP	completive aspect	y/n	yes/no question particle
EMP	emphatic particle	ST	status suffix
EXC	exclamation particle	T	tense
FAM	familiar particle	V	vowel
SUB	subjunctive suffix	VTD	derived transitive verb status suffix
K'IC	K'iche'	TEK	Tektiteko (B'a'aj)

Q'AN	Q'anjob'al	TZE	Tzeltal
CH'O	Ch'ol	YUK	Yucatec
TOJ	Tojolabal		

Endnotes

* The title of this paper echoes that of Stephen Jay Gould's book 'Wonderful Life' which documents the variety of life forms that came into existence during the Cambrian explosion as preserved in the Burgess Shale. The focus of Gould's story is Harry Whittington's reinterpretation of the Burgess fossils as alien life forms lacking modern parallels. Whittington's discoveries would not have been possible without the method of comparative morphology. Gould's title, of course, echoes Darwin's famous view of life quotation that 'from so simple a beginning endless forms most beautiful and most wonderful have been, and are being, evolved' (Darwin 1859).

¹ Chomsky's views on UG continue to evolve (Newmeyer 2003; 2005:10). Hauser, Chomsky and Fitch (2002) suggest that the recursive property of language might be the sole component of UG. They speculate that traditionally recognized components of UG might be the by-product of the interface with the sensory-motor system. Needless to say, POS arguments lose their force as the UG domain shrinks.

² Newmeyer (2005:9) discusses the problem from a different perspective.

³ The Mam causatives were checked with Ana Elizabeth Lopez Ramirez who speaks the San Ildefonso Ixtahuacán dialect of Mam.

⁴ Gutiérrez Sánchez (2004). The causatives were checked with Asunción Lopez Perez who speaks the Tila dialect of Ch'ol.

⁵ Yucatec has two causative suffixes -s and -t. The -s/t note indicates that the verb takes both forms (Bricker et al. 1998).

⁶ England (1994), Kaufman (1990), Par Sapón (2007) and Sis Iboy (1997).

⁷ Pérez Vail & Simón Morales (2007).

⁸ Pedro Mateo Pedro (pc)

⁹ Louanna Furbee (1976; pc)

¹⁰ Gilles Polian (pc), Sántiz and Polian (2007)

¹¹ Asunción Lopez Perez (pc), Vázquez Alvarez (2002)

¹² Barbara Pfeiler (pc)

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