EXTERNAL POSSESSION AND THE UNDISENTANGLABILITY

OF SYNTAX AND SEMANTICS

by

LUKE MADISON SMITH

(Under the Direction of Vera Lee-Schoenfeld)

ABSTRACT

Over the past decades, generative attempts to understand the formal syntactic properties of the human language faculty have become unexpectedly entangled with semantics. While classical theories assumed a wide degree of autonomy for the engine of syntax in the language faculty, empirical research into argument structure, syntactic cartography and cross-linguistic alternations has nudged the field toward an understanding of syntax fundamentally linked to a core of semantic processing. Here, I investigate External Possession as a syntactic alternation, in order to fan these flames. I argue that External Possession is a formally uniform, well-motivated and non-arbitrary alternation whose unique semantics and pragmatics come hand-in-hand with its syntactic properties. This reinforces the idea that human syntax is based on a universal structure reducible in part to semantics and pragmatics. I speculate as to the nature of this structure.

INDEX WORDS: syntax, semantics, theories of grammar, biolinguistics, possession

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DEDICATION

I suppose it would constitute a supreme lack of filial piety to dedicate this thesis to anyone save my now late mother. There's no sense in sentimentalizing it publicly, so it will be left at that. It remains to be seen if my mother's moral support in my career path was a good investment, although she was indeed enthusiastic about my work despite not really knowing what I do. Then again, the same is true of myself.

My mother always wanted to sulk timidly away from the idea of death, balking even at the idea of a funeral and the pathetic ways people try to crack a smile in 'celebrating death.' Yet I think that she missed the point, as there is reason to celebrate death, and had I one more chance to speak with her, perhaps I would tell her this.

Death is what gives life meaning. An eternal and unthreatened life is an idle eternity without vigor. I've been through enough procrastinative summers to know the apathy engendered by plenty. We celebrate death because it gives us the limits that make us make our lives meaningful. Without it we would never know the value of life, whose incalculable value comes from its very scarcity. We must know the night to appreciate the day. We must know poverty to appreciate riches. We must know despondency to appreciate companionship. And we must know death to truly appreciate life. Death is not a mistake. It is the very reason that life is worth living.

Death leaves in the living the most profound and deep coldness, a coldness I've never felt before. But that coldness exists to be rekindled in a new hearthfire, which will inevitably come. I suppose that this volume should more properly be dedicated to that rekindling and that new family which will anew sit around it.

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First, as a practical matter, I should thank my numerous consultants for their grammaticality judgments on their native languages: Laura Alarcón for Spanish and Dot-eum 'Rachel,' Kihoon and Wonbin Kim (no relation) for Korean. Kihoon was incidentally the one who first directed me to begin looking at case theory in Korean, which would eventually inspire a large portion of this project. Laura should be thanked as well for helping me make up my mind to move the hell out of the Atlanta area two years ago and out here. Rachel should also be thanked for *somehow* putting up with my constant endeared mockery.

I should also publicly thank the whole of the graduate student body of the program (and perhaps even the ROMLettes) for their supportiveness, which oft-times borders on the suspicious; I almost get the perhaps erroneous feeling that I'll be missed here. I've enjoyed looking over a lot of shoulders and assisting with a lot of projects, especially because some people have this idea that I did it for non-selfish reasons. In reality, every little article or side-note I picked up in helping someone else has come into play in my work or understanding linguistics generally, so it was always a ploy. Needless to say, the past two years have been a highly successful experiment in academic antifragility. Coming into this program, I really had only studied Latin and Greek and such, sort of knew what a phoneme was and had a vague knowledge of this Noam Chomsky guy, but that was about it as it came to my knowledge of linguistics. Hopefully this thesis is evidence of at least some marginal advancement.

Personal acknowledgements are in order for many varieties of people. Some have been great resources and partners in understanding language and interchanging ideas (Doug Merchant,

Joey Stanley, Jenni Palomäki, Martin Macak). Some have been irreplaceable friends (Mike and Rachel Olsen, Sara Carðer and again Dot-eum). Some have been serious... sometimes too serious (Josh Hanna and Lindsey Antonini) and some have gone sorely underappreciated (Trevor Ramsey and Katie Dicken). At least one has managed to fall into all of these categories—she knows who she is, wherever she is, likely brooding in that ephemeral regret and self-loathing which I will always cherish, despite her mostly pretended lack of sentimentality. I should probably also add an honorable mention of my insufferable roommate, Longlong Wang (and I suppose I should say, for posterity's sake, that that *is* his real name). But the sands of time pass and memories fade. At least that'll be my excuse when I totally forget about all of you in ten years, or at least pretend to.

I should also acknowledge my father's constant support of me in my career. When I say 'my career' I mean his no-so-subtle support of me leaving academia and getting a *real* career. At this point, however, I might be a little too deep in this wicked system to find gainful employment elsewhere, so it looks like I'm in for life (the joke's on him for supplying me with that Latin book that would eventually land me here a decade later). I am indeed worried, in a way most here unfortunately aren't, as to whether or not this path will contribute to actual society in a way that makes the billions the state wastes on education worth it (*yeah*, keep believing you guys!). That remains to be seen, but this is precisely the line of 'work' suitable for a wide, fulfilling and impactful life.

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CHAPTER 1

BACKGROUND

"The linguists have this peculiar capacity to make whatever they do seem terribly important."

–Skinner

1.1 An Ode to Skinner

It's at least worth beginning with the quote reproduced at the beginning of this document. B.F. Skinner as a psychologist and researcher would be largely the rhetorical tool of the demise of his own school of thought. Noam Chomsky's virulent 1959 review of Skinner's *Verbal Behavior* would prove a fateful shift not only in linguistics, but also in wider psychology and would trigger the rise of cognitive science generally.

Behaviorism was based on the assumption that the only truly scientific method of analyzing human action was one which ignored most of the unpredictable and unreliable vagaries of the human mind, focusing narrowly on subjects' responses to stimulus in experimental circumstances. To Skinner and other Behaviorists, the brain was an associative tool that blindly linked possible behaviors with outcomes. When it was rewarded with positive reinforcement for an action, it would incentivize the same action again in the same circumstances. When it was punished for an action, the punishment disincentized further action. This simple algorithm for learning was the whole of Behaviorist science. Thus learning, including learning language, was an issue of a person gradually being trained to use a certain

word or phrase and being punished from using ungrammatical or undesirable expressions. Lacking in this also was any implicit acknowledgement of the cognitive differences in learning between say, a human and a pigeon as a target of research.

What Chomsky noted of human language was that any person's knowledge of their native language was far too expansive to be the narrow result of psychological conditioning. At an obvious level, a speaker of a language has an immediate and exhaustive ability to diagnose whether any random string of words in their language is grammatical or not. This is not trivial. Considering there is an infinite number of ways to add and shuffle words together, any amount of reflection on this will make it seem miraculous that humans can judge and produce sentences so effortlessly without any conscious thought on their language's 'grammar.'

This point, quite obvious once noted, was fatal for Behaviorism. If people actually learned what sentences were acceptable or unacceptable in a language by conditioning, we would have to have an infinite amount of stimulus to condition them. That's to say, if there are an infinite number of potentially ungrammatical sentences in English (which there are), a child would have to be spanked by its parents an infinite number of times after using that infinite set of sentences to fully condition it into 'learning' the language. This is clearly not practical, yet we can still reject that infinite set of sentences as ungrammatical despite never having been spanked away from using them.

The take-away from this was that ‘language’ was not just a set of learned expressions or words, but a dynamic system which could ‘generate’ (hence *generative*) an infinite set of grammatical utterances (and reject all others). Language, as Chomsky often quotes from von Humboldt, is the "infinite use of finite means." That is to say, although there may be a finite number of words in a language, combining those words with a finite number of syntactic rules

can quite easily give us truly infinite possibilities in linguistic expression without infinite cognitive machinery.

The unique aspect of the human mind, as opposed to the minds of other animals, was that it had the peculiar ability to piece together syntactic rules intuitively with any amount of exposure to linguistic data. This ability, the language faculty (LF) was the core of study of the new Generative Program (GP).

1.2 The Standard Theory

The primary goal of Generative Linguistics has been disentangling the language faculty in the strictest sense from other cognitive faculties and modeling it as a separate unit. This is principally the study of 'Universal Grammar' (UG), the set of constraints and traits unique to the LF and underivable from other cognitive systems. The general idea has been that, to understand UG, it was most important to hold constant all linguistic phenomena not narrowly syntactic. This is what underlies Chomsky's 1953 description of generative syntax as a set of “techniques which enable [linguists] [...] to determine the state and structure of natural languages *without semantic reference*” [emphasis added] (242).

This lack of 'semantic reference' was particularly important for the budding program. Semantics provides much of the intuition behind introspective analyses of language, and these lay analyses could contaminate a scientific approach to the purely formal aspects of language. Chomsky thus dismisses the idea that "the properties and content of the mind are accessible to introspection," calling it "the greatest defect of classical philosophy of mind" (1972; 25).

Additionally, if we assume that the human capacity to reason and conceptualize events is independent of language, the search for UG principles in language can only be obscured by paying too much attention to the semantics of language, which are presumably not directly related to the linguistic system *per se*. Indeed, part of the main arguments for a formal account of

syntax come from the realization of 'Colorless green ideas' sentences, where semantic anomalousness clearly does not correlate with syntactic unacceptability (Chomsky 1957).

Out of these concerns and assumptions is the "Standard Theory" born. The Standard Theory was that built out of the framework of *Syntactic Structures* and culminated in the publishing of Chomsky's 1965 *Aspects of the Theory of Syntax*. Its core was a Phrase Structure component which could generate an infinite set of sentences based on rewrite rules with the capacity for recursion, the first major model of the syntax of the language faculty. After the generation of a 'deep structure' according to the Phrase Structure rules, the linguistic system was modeled as splitting into two separate channels (yielding the Reverse-Y model of grammar).

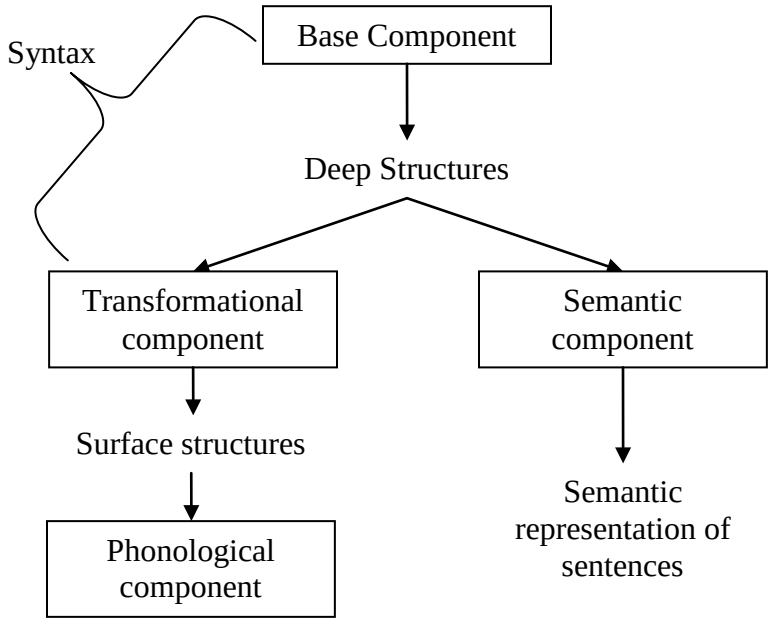

Figure 1: The Reverse-Y Model (from Searle 1972)

On one side, the deep structure would undergo syntactic transformations: perhaps passivization or equideletion or various kinds of insertions or deletions that would change the phonological output of the system which would eventually be uttered. On the other side,

however, the deep structure would be sent off to the semantic engine for interpretation. This meant that syntactic/phonological transformations and meaning were utterly distinct parts of the linguistic system, and both only tangentially dependent of the deep structure.

This was spelled out more explicitly by Katz and Postal (1964) in what would become known as the eponymous 'Katz-Postal Hypothesis.' The hypothesis brought out explicitly one of the implications of the Reverse-Y model of the LF: that the syntactic transformations that occur down the road to the Phonological Form have *no effect* on the semantics of an utterance. Thus, although passivization dramatically changes phonological form, sentences like the two below must share the same meaning because they are modeled as having the same deep structure.

(1) a. Billy loves Sally.

b. Sally is loved by Billy.

The Katz-Postal Hypothesis ran into empirical and theoretical problems quickly. One significant one had been that some aspects of language obviously linked to semantics, particularly negation, had been modeled, and could only be modeled for various reasons as being transformations. This meant that a negated sentence must share a deep structure with its truth-functional *opposite* and at first glance, Katz-Postal would have to treat them both as synonymous. Katz and Postal dealt with this saying that negated deep structures are indeed different, but only because there is a phonologically null negative operator manifest in the base generation. Still, other derived sentences seem to have obviously different meanings than their deep structure counterpart, take, for example, the effects of passivization on quantifier scope.

(2) a. Every man loves three women.

b. Three women are loved by every man.

c. An arrow hit every target.

d. Every target was hit by an arrow.

The standard interpretation of (2a) is for each man, he loves three (possibly different) women, while (2b) has the reading of there being three particular women in the world which all men happen to love. Katz and Postal argue that in cases like these, both readings remain possible and thus no semantics have actually changed in passivization. What changes is the standard implicature associated with each sentence. Of course, had this not been the case, plugging that theoretical hole (or any other) would be as easy as positing another invisible operator.

Chomsky (1965) highlights some other diseconomies of the Standard Model. One problem was that the Phrase Structure rules were liable to over-generate expressions that were not actually acceptable on semantic grounds; he provides several examples (76).

(3) a. the boy elapsed

b. the harvest was clever to agree

c. John is owning a house

d. John solved the pipe

Although noting that these *could* conceivably be ruled out as unacceptable on mere semantic grounds, Chomsky employs ‘syntactic features’ and selectional constraints to weed them out. That is to say, he expands each lexical entry to include extra syntactic features which encode quasi-semantic information about a lexical item. Thus 'John' is marked for being [+Human] while 'harvest' is [-Animate] and thus [-Human]. Thus if we state that the predicate 'was clever' requires a [+Human] subject, we can rule out (3b) while accepting a "John was clever to agree."

This is a peculiar choice. At this point, all lexical entries now must encode data for a set hierarchy of syntactic features which, at best, only reproduce what the semantic engine would be

doing regardless. Then again, it is not even clear in *Aspects* if Chomsky intended to create merely a model which could produce a set of grammatical utterances regardless of machinery or a model that completely recapitulated the actual psycholinguistic processing in language. If he strove to do the latter, programming these features into the lexicon would be an enormous diseconomy, and not necessarily an example of a psychologically real model. Yet if the latter were not his intension, the entire Chomskyan program is scarcely more than an attempt to reproduce output which assumedly "[interprets] success as [merely] approximating unanalyzed data," to evoke Chomsky's criticisms of computational approaches to cognitive science.

1.3 Semanticizing Syntax

As time went yet further on, the Standard Theory, with its rigid division between syntax and semantics and between syntactic transformations and semantic change, had empirical shadows cast over it. In fact, much of the development within the Generative Program within the past decades has consisted in further degrading or redefining classical Chomskyan syntax in ways not often explicitly appreciated.

The main brunt of the problem with the Standard Theory, or at least the circumstantial argument against it, was that many of the allegedly autonomous traits of syntax can be directly correlated with semantics. That is to say, semantics has such a tangible effect on word placement and transformational possibilities that it seems untenable to assume the syntactic derivation was semantically blind, and only recapitulating semantics in its employment of syntactic features.

One of the first major chinks in the armor of autonomy was the discovery of robust syntactic differences between unergative and unaccusative verbs by Perlmutter (1978) and others originally working in Relational Grammar. Although both are classically categorized as 'intransitive,' the subjects of unergative verbs (*talk, walk, chirp*) are semantically agents, while the subjects of unaccusative verbs (*fall, die, come, break*) are semantically patients or

undergoers. Importantly, this semantic difference is not isolated in meaning, but will be manifest in different syntactic traits in nearly every language. In English, for example, unaccusative subjects can, like transitive objects be modified by resultative adjectives, while unergative subjects cannot.

(4) a. Billy shot him dead.

b. He fell dead.

c. *He screamed dead. (i.e. screamed himself to death)

Similar patterns are observed in other languages. Burzio (1986) notably sees a similar unaccusative/unergative mismatch in Italian, where unaccusative subjects, like objects can take the partitive clitic *ne*, while unergative subjects cannot.

(5) a. Ne ho mangiati due.

$PART_i$ have eaten two_i

'I've eaten two of them.'

b. Ne sono venuti molti.

$PART_i$ are come $many_i$

'Many of them came.'

c. *Ne hanno gridato alcuni.

$PART_i$ have screamed $some_i$

putatively: 'Some of them screamed.'

Moreover, at the foundation of the Minimalist Programme, Chomsky (1995) and Krazter (1996) argue for an independent dedicated supraverbal projection in the syntax which deals with the semantics of a verbal agent. That is to say, all languages express agenthood and seem to do so with the same syntax: agentive nominals are always generated or externally merged above all

other verbal arguments, directly below functional categories. Thus it seems to be the case that a particular node in a derivation corresponds to a particular semantic interpretation, both within and without any individual language. This becomes the 'vP Hypothesis' which is a significant way in which semantics begins to be unabashedly smuggled into formal syntax. Additionally, it lessens the demands of the lexicon to specify the nature of a verb's selectional requirement, in that agenthood is computed external to the proposition itself, in a way Kratzer construes as mirroring Neo-Davidsonian event semantics.

This development additionally helps to account for the formal differences between unaccusative and unergative subjects. If agency is assigned to nominals at a certain node, we can account for the differences between unergatives and unaccusatives by saying that their arguments are generated at different points in the derivation: an unergative subject is merged into the vP projection, while an unaccusative subject originates lower, perhaps as a complement to the V head and often rises to subject position in different languages because of the External Projection Principle or another motivator.

This is only a hop, skip and a jump from Baker's Uniformity of Theta-Assignment Hypothesis (1988). Baker suggests that, not only is the agent theta-role assigned at a specific projection in a derivation, but all theta-roles. This is important because it creates a direct analogy between the semantic structure of language and the syntactic structure. Simply enough, a different origin point in the syntax means different meaning and vice versa. The assumption here is that human language is partially composed of a set of universal theta-assigning projections that construe the argument semantics of an expression. Due to its universality, this hierarchy is presumably a component of UG, if not an emergent property of other cognitive constraints. Baker (1995) can be consulted as a review of some of the work on different proposals for the

precise ordering of this hierarchy of projections.

These developments were mirrored by an exceptionally robust inquiry into the comparative syntax of adverbials and functional heads within the Cartographic Approach. While the syntax of argument structure appears to be stable throughout languages, Cinque (1999) finds a similar stable structure in much of the circumverbal environment. Having investigated the morphology and adverb orders of around 75 languages, he shows that adverbs are arrayed in a certain constant hierarchy entirely dependent on the semantics of the adverbs in use. At the same time, verbal morphemes show the same homogeneity of structure and importantly, the structure of the two precisely mirror each other. That is to say, the syntax and morphology of verb phrases mirror a semantic structure in a very suspicious way if one actually assumes total syntactic autonomy.

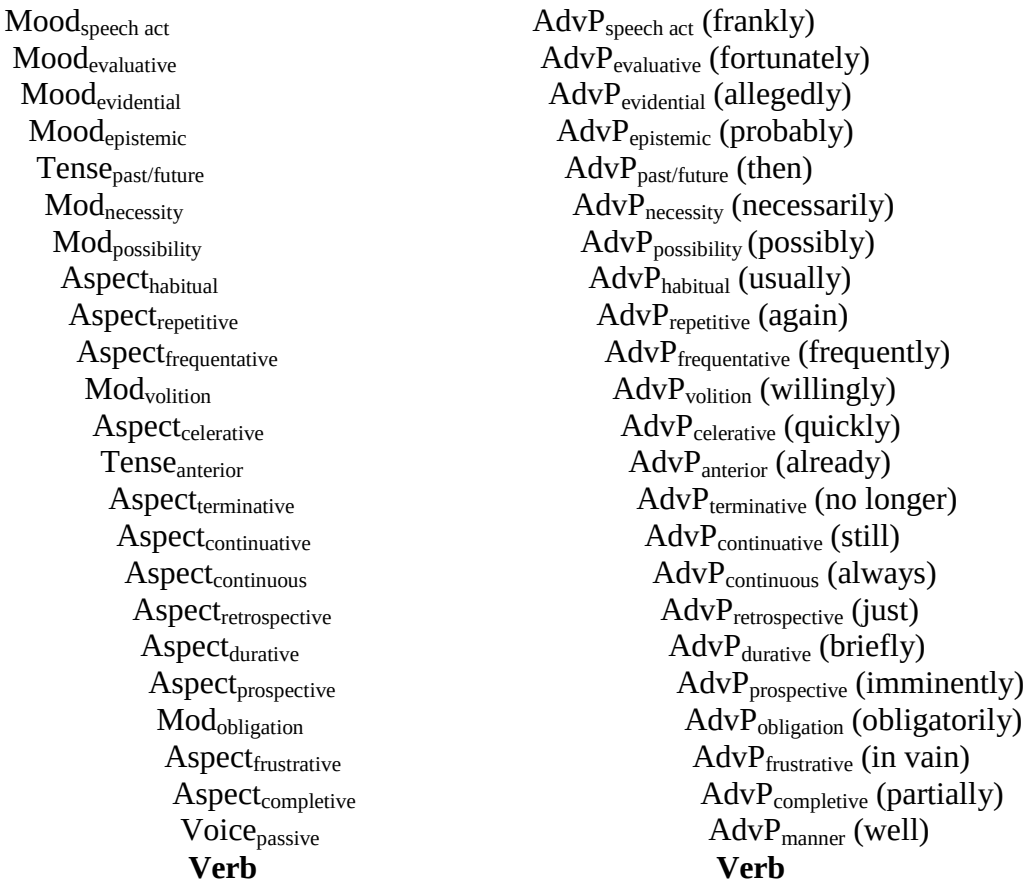

Figure 2: Cinque's Cartographies of Verbal Morphemes and Adverbs

Realizations such as this triggered an expansion of syntactic cartography to understand traditionally opaque elements of syntax and to attempt ground them in semantic hierarchies which emerged in different projections. Scott (2002) takes Cinque's methodology to craft a similar hierarchy of adjectival modifiers within nominal projections and others look into topic and focus phenomena (Benincà and Poletto 2004).

This movement towards a semantic basis of syntax makes strong, testable predictions about the nature of UG. Although languages might differ on diverse parameters that modify the surface forms of language, investigations of movement and coindexing phenomena should correspond with the idea that base generation is linked with the semantics of a verbal argument structure and functional categories. For example, since it is generally considered uncontroversial

that the agentive projection vP is higher in the syntactic derivation than the VP, where themes are generated, we should expect not to find a language, even one with canonical object-subject order, where a coindexed subject and object trigger an anaphor appearing in the agentive node and an R-expression as the complement to the verb. Additionally, we expect not to find a language where the subjects of unaccusatives model like transitive subjects while the subjects of unergatives model like transitive objects.

Moreover, with the general intuition that the semantic structure of human grammar should be mirrored in the syntax, we should find much of the following: semantically similar constructions in various languages which, although might be realized distinctly from language to language, show the same syntactic limitations despite what logical possibilities we can imagine for language.

1.4 The Undisentanglability Thesis

Again, the Standard Theory assumed a largely autonomous system of syntax which generated and judged strings with reference to 'semantics' only insofar as syntactic features happened to recapitulate the logic of the semantic structure. Semantically anomalous sentences were ruled out, strangely enough, by the selectional requirements of the syntax, rather than by the semantic engine itself.

This absolute autonomy gradually became more and more circumstantial given the robust amount of syntactic phenomena inextricably linked to semantics. My thesis here is simply that much of what we know of as syntax and semantics is absolutely undisentanglable: most if not all 'syntactic' alternations are rooted in the semantics and pragmatics of expressions. Cartographic Approaches to the syntax of human language along with UTAH-like interpretations of theta-roles have demonstrated a kind of immutable semantic hierarchy inherent in language and ‘movement’ and transformations about this hierarchy often must be conditioned by the semantics of this

structure. Therefore, in many cases, a syntactic transformation is a reflection of a semantic change.

My idea is that Generative Syntax has come to the point where one can say that the Katz-Postal Hypothesis is nearly conclusively the absolute opposite of truth. If the alternations and constructions of human language are cast on to a quasi-cartographic semantic hierarchy, we should expect not only for languages to yield formally similar semantic alternations, but we should expect that semantic or pragmatic transformations or alternations in a language should exhibit formal traits and restrictions which are largely constant, if not totally so.

To illustrate this, it's worth it to examine External Possession (EP) as a linguistic phenomenon. We will see that External Possession Constructions (EPCs) across the world's languages are not only pragmatically and semantically comparable, but they show the same syntactic 'glitches' and traits that indicate a formal similarity. This illustrates the fact that syntactic alternations are not utterly arbitrary transformations that occur to a deep structure, but are grounded in the constraints of an underlying grammatical system present in all human languages which in part motivates syntactic change.

CHAPTER 2

EXTERNAL POSSESSION CONSTRUCTIONS

2.1 Basics

All human languages can be said to have ways of encoding possession as a semantic relationship. Generally, within a given noun phrase, the possessor of that noun phrase can be realized as a syntactically subordinated element as shown below. I will refer to this type of construction, variously realized in all of the world's languages as *Internal Possession* (IP).

(6) a. Rompí [el brazo [de Billy]]. (Spanish)
broke.1S [the arm [of Billy]]
'I broke the arm of Billy.'

b. A-johei-ta [[pe-mitã] rova]. (Guaraní)
1AC-wash-FUT [[that-child] face]
'I'll wash that child's face.'

c. Mary-ga [[John-uy] dari-reul] chatda. (Korean)
Mary-N [[John-G] leg-A] kicked
'Mary kicked John's leg.'

Thus a noun, such as the Spanish *brazo* 'arm' heads a projection which is additionally modified by a semantically possessive prepositional phrase *de Billy* 'of Billy/Billy's'. The same is true of the Korean *dari* 'leg' and its genitive-marked possessor *John-uy* and of the Guaraní *rova* 'face' and its possessor (albeit morphologically unmarked) *pe-mitã* 'child'.

External possession constructions, however, allow possessors to appear as verbal arguments independent of the possessum projection. This is manifest in a variety of strategies cross-linguistically. In European languages, possessors often become 'indirect objects' or 'Possessor Datives' maintaining the autonomy of the possessum (7a). Other languages employ noun incorporation of the possessum, thus reducing it as an independent entity and promoting the possessor to full and exclusive argumenthood (7b). Still others (7c) will promote the possessor to non-dative argumenthood, in ways specific to the language.

(7) a. Le rompí [el brazo] [a Billy]. (Spanish)
D broke.1S the arm to Billy
'I broke Billy's arm.'

b. A-hova-hei-ta [pe-mitã]. (Guaraní)
1AC-face-wash-FUT that-child
'I'll wash that child's mouth.'

c. Mary-ga [John-eul] [dari-reul] chatda. (Korean)
Mary-N John-G leg-A kicked
'Mary kicked John in the leg.'

Although the surface forms of these languages are quite different, it should be emphasized that in each case, the possessor climbs to verbal argumenthood and in each case, we will see the same semantic and pragmatic corollaries.

To examine external possession, I will mostly be referring to these three particular languages for their accessibility and representativeness. External possession in Spanish resembles in its appearance and its formal traits the other possessor dative languages of Europe (French, Italian, German, Bulgarian, Romanian, etc.), Guaraní is representative of languages

which show EP through noun incorporation (many Amerindian and Australian languages) and Korean is comparable to other languages with various case alternation-based EPCs (Japanese, Nez Perce, Pomo etc.). Appendix C catalogues the main EP traits of all of these languages with various sources. I will be illustrating examples from many of these languages as useful or convenient, and noting exceptions to the generalizations I made as they arise. Generally, however, as I will show, the formal traits borne in common by all of these languages are roughly analogous on the most salient points.

2.2 Pragmatics: 'Why' Does External Possession Exist?

'Why' is generally an unscientific question to ask. Nevertheless, failure to ascend to arbitrary suit-and-tie scientific standards should not constitute any kind of impediment to actual scientific inquiry. As said, as many of the world's languages encode EPCs through various means, what is an important question to ponder is why the possessors of nouns are so common to be 'externalized' in natural language, while the locations, adjectives of size, determiners and other modifiers of those nouns are *not* externalized in any systematic way cross-linguistically.

Various authors have already remarked on the 'why' of EPCs in various frameworks, in all cases, the motivation being one pragmatic in nature. Velasquez-Castillo (1996; 166), for example,characterizes EP in Guaraní as "maintaining focal attention on a given discourse participant [the possessor]" while at the same time, "maximally backgrounding an affected body-part [possessum]."As an example, take a sentence like 'I broke Billy's teeth.' Despite the fact that *teeth* heads the object noun phrase, in nearly any imaginable discursive setting, *Billy* is the most pragmatically important and cognitively salient participant for nearly any imaginable interlocutor (with the possible exception of Billy's doubtlessly money-grubbing dentist). EP allows a language to promote *Billy* such that he gains sentential prominence over *teeth*.

Thus External Possession as a pragmatic alternation bridges the gaps between two otherwise countervailing tendencies of grammar: firstly, that possessors of arguments tend to be syntactically subordinated to their possessions, yet secondly, that at a discourse level, many possessors are generally more pragmatically important or salient than their possessa. This is a problem because, while in many cases in natural language, syntactic structure mirrors the pragmatic hierarchy of language: agents are syntactically higher and, at least at an intuitive level, more likely to be topics of discourse. But this tendency is generally *not* the case in the context of possessor constructions; possessions are usually modeled as heading projections while their possessors are modeled either as projection-internal specifiers or other elements depending on the framework.

Gundel (1988), building off of the pre-generative work of the Prague School, conceptualizes the pragmatics of language such that the most leftward, generally syntactically highest element is the sentential *topic*, the discursively known and established information of the sentence, which is elaborated on by the rest of the sentence, the *comment*. A part of that comment is what is often referred to as the focus, which is new or contrastive information. Gundel importantly notes that sentential foci generally appear in 'direct object' position, generally the second most prominent nominal in the clause. Additionally, she notes that where the marking of the topic-comment structure is intonational, foci will universally receive sentential stress, rather than topics (232). It should be noted that in most cases, EPC will consist in relocating possessors to precisely this position. Note also that languages which morphologically encode the evidential information of a clause will often do so by marking the 'direct object' or focus position (cfr. with Sánchez's (2010) work on Quechua), seeing that it is

precisely this information which constitutes the addition to the dialog which might require evidential information.[1]

This topic-focus framework would be integrated in the Generative Program primarily by Rizzi (1997) through a Cartographic Approach to syntax. Rizzi proposed segmenting the 'Left Periphery' (traditionally the complementizer phrase (CP)) into a series of projections with distinct pragmatic values as illustrated below.

[1]As to the issue of evidentials, there seems to be some debate as to where the boundary of focalhood and evidentiality lies (again, cfr. Sánchez 2010). Evidentials seem to show some tell-tale signs of foci: generally only one is permitted per clause and they are barred from subordinated clauses (data from Quechua).

(54) *[Hwan-pa papa-ta-m miku-sqa-n-ta] yacha-ni. (Sánchez 2010; 48)
[Juan-G potato-A-EV eat-NOM-S-A] know-1S
putatively: 'I know [that Juan eats potatos$_{FOCUS}$].'

Not to mention the semantic and pragmatic similarities alluded to above (both add and qualify information). It might be the case that what we call here focus should actually be subdivided into various grades of evidentiality.

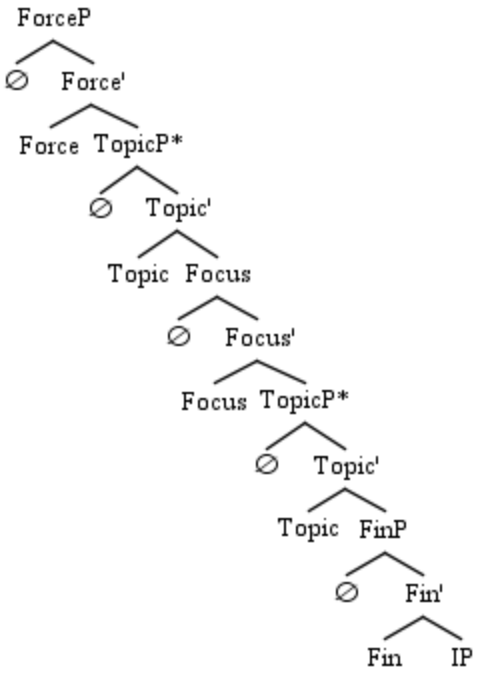

Figure 3: Rizzi's Left Periphery

Here, the ForceP designates the clausal type of the subordinatzed structure, the two iterations of TopP host sentential topics, which are, as designated by the *, recursive, FocP hosts a single possible focus and FinP determines the finiteness of the clause. This system is later simplified by Benincà and Potello (2004) who reason against Rizzi's argument for the necessity of two topic levels, arguing instead that there is a Topic field above and a Focus field below, both of whose respective component parts are pragmatically distinct, albeit non-recursive. I will evoke this structure later to model EPCs. Rizzi (2004) recapitulates the most basic form of clausal structure below, where the Topic Projection hosts a topic constituent as its specifier, and takes the rest of the sentence, the comment, as its complement. The focus projection, concordantly hosts a focus constituent as its specifier and the rest of the sentence as the complement, which Rizzi designates the "presupposition."

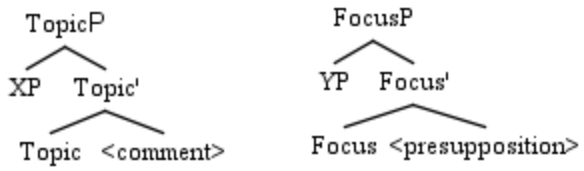

Figure 4: The Topic/Comment Structure of Language

Importantly, these ideas mirror the conception of Gundel, in that in all cases, sentential topics are the syntactically highest (or linearly most leftward) constituents in an utterance while sentential foci follow directly after or below in the syntax. The remainder of an utterance, the presuposition, is of peripheral discursive importance, but carries the semantic machinery which makes the addition to discourse meaningful.

This said, my general assumption is that External Possession "exists" in language because it brings cognitively salient possessors into greater sentential prominence and into focushood, whereas otherwise they would be syntactically subordinated to their semantic possessions. An external possessor is syntactically closer to functioning as a topic and focus, and seeing that it functions as an independent constituent, it can be more easily manipulated for topic and focus strategies. Thus in some sense, the discursive and pragmatic importance of possessors as reference points or ‘landmarks’ in Hole’s (2006) terminology ‘motivates’ the cross linguistic employment of External Possession, while at the same time, no language (to my knowledge) has constructions such as ‘External Location’ or ‘External Color’ where location or color modifiers (usually less salient) are promoted into verbal argumenthood. This is the case because the locations or colors of nominals generally have no particular discursive importance.

My point here, again, is circumstantial, but is important to understanding External Possession in that the usage of an EPC corresponds to a pragmatic promotion of the possessor generally. In some languages, particularly those with semantically neutral EPCs, externalizing a

possessor seems to have an exclusively pragmatic role, and external possessors show the characteristic limitations of topics and foci as will be discussed further below.

2.3 Thematic External Possession

There is an exceptionally large subset of the languages with EPCs where they exhibit a semantic change in a sentence as well: that is, possessor affectedness. I will call constructions like these thematic external possession constructions (TEPC) as opposed to those without semantic changes which I will call *athematic* EPCs (AEPC), which seem to be more rare typologically speaking. TEPCs in all given languages share a common semantic and pragmatic character. Although there is much semantic and truth-functional overlap with their IP equivalents, an EPC designates that the raised possessor is specially affected by the verbal action. We'll treat this as the possessor being marked as [+affected] in being externalized, while internal possessors are undetermined as to affectedness. The semantics of this alternation are illustrated in the Northern Pomo examples in (8) from O'Connor (1996; 137).

(8) a. [[hayu yaču?] ʔuy-nam] mo:w xabe-wih baneh (IP)
[dog OBL eye-DET] he rock-INST hit
'He hit the dog's eye with a rock.'

b. [hayu yačul] mo:w xabe-wih [ʔuy] baneh (EP)
[dog ACC] he rock-INST [eye] hit
'He smashed the dog's eye with a rock.' (potentially causing damage)

In (8a), the possessor, hayu 'dog,' serves as the possessor of the object, but being unexternalized, is not entailed to be specially affected by the hitting. In (8b), seeing that *hayu* has raised, we are to conclude that the action has affected or damaged a dog in such a way as to be permanent or at least important. This affectedness often is interfaced with or is conditioned by the animacy or consciousness of a possessor nominal, as illustrated in Spanish in (9).

(9) a. Abrieron su estómago. (IP)
opened.3p 3 stomach
'They opened his stomach.' (While perhaps he was unconscious or dead.)

b. Le abrieron el estómago. (EP)
D opened the stomach
'They opened his stomach.' (He was alive and conscious.)

For this reason, TEP is limited or nearly limited to human or empathizable animals in various languages (or perhaps cultures), but even non-animate and non-personified possessors can be raised in various contexts. Guaraní, which usually limits TEPC to humans and body parts like in (10), also allows non-living possessors to be raised if there is a semantic sense in which their nature is significantly changed as in (11) (data from Velasquez-Castillo 1996; 154)

(10) a. Pe-mita resay o-syry rei-pa. (IP)
that-child tear 3AC-flow easily-TOT
'The child's eyes are watering.'

b. Hesay-syry pe-mitã. (EP)
3IN=tear-flow that-child
'The child is crying profusely.'

(11) a. Pe-yvyra rogue o-kui. (IP)
that-tree leaf 3AC-fall
'The leaf fell off the tree.' (No big deal)

b. Pe-yvyra hogue-kui. (EP)
that-tree 3IN=leaf-fall
'The leaves of that tree are falling.' (Because it's fall.)

The only difference in Guaraní between (11a) and (11b) is simply whether the possessor is externalized (by incorporating the possessum). Where it is, we must assume that the leaf-falling is fundamentally changing the tree, most plausibly because continuing falling will eventually fully denude it. Thus although trees are generally unconscious, they can still be marked as being [+affected] if they are significantly changed. Kin terms can also condition PR to emphasize psychological or emotional affectedness in Spanish (12) and Guaraní (13). These can also be compared to (10) above.

(12) a. Se murió mi madre. (IP)
REFL died my mother
'My mother died.'

b. Se me murió la madre. (EP)
REFL me died the mother
'My mother died (on me).'

(13) c. Che-memby-rasy. (EP)
1IN-son-ill
'My son is sick.'

d. Pe-kuña-karai i-memby-kuña-porã. (EP)
that=lady 3IN-offspring-woman-pretty
‘That lady has a beautiful daughter.’

This said, TEPCs are not permitted in contexts where the predicate has no conceivable direct physical or psychological effect on the possessor. Thus, in the below Korean data from Cho and Lee (2003; 5), TEPC is possible with the verb *ttaeyeotda* ‘hit’ where John can be said to

be affected by the action, while impossible with the psych predicate *saranghaetda* ‘loved’ where John is utterly unaffected by Mary’s love.

(14) a. Mary-ga John-eul eolgur-eul ttaeryeotda. (EP)
Mary-N John-A face-A hit
‘Mary hit John’s face.’ or ‘Mary hit John in the face.’

b. *Mary-ga John-eul eolgur-eul saranghaetda. (EP)
Mary-N John-A face-A loved
putatively: ‘Mary loved John’s face.’

2.4 External Possession and Aspect

Various authors have noticed examples like the above to correspond to a distinction of lexical aspect. Telic predicates like *hit* seem to be much more likely to show TEPC than atelic predicates such as *love*. Indeed, Haspelmath (1999) characterizes EP in Europe as falling about a situation hierarchy where ‘patient-affecting’ predicates are most likely to trigger EP, followed by ‘dynamic non-affecting’ predicates, but lastly, and perhaps impossible in the languages of Europe, ‘statives,’ which seem to implicitly cover atelic verbs. Haspelmath illustrates this with the following judgments from Roldán (1972) (Spanish) and Wierzbicka (1986) (Polish) respectively.

(15) a. *A estos autores les es errada la constucción. (EP)
to these authors 3p.D is wrong the construction
putatively: ‘The construction of these authors is incorrect.’

b. *Widziałem mu zęby. (EP)
saw.1s him.D teeth
putatively: ‘I saw his teeth.’

Although a generally sound typological generalization, in many senses, this cline is epiphenomenal. While many ‘dynamic ‘non-affecting’’ predicates are apparently barred from hosting EPCs, proper context can allow for an acceptable affectedness interpretation. As Haspelmath notes in a footnote, other languages such as Portuguese and Italian accept examples like the above with greater liberty. Additionally, in most cases a situational interpretation can allow EP from otherwise non-affecting predicates as below.

(16) %Me vieron los libros. (EP)
me saw.3p the books
‘They saw my books.’

Tuggy (1980) notes that sentences like that above become acceptable in certain situations; i.e. (16) is something which “a bookkeeper, especially if dishonest, could say of the company auditors,” and in that context EPC would be licensed. Martin (1999) shows a similar example from Creek, uttered by a radio announcer “encouraging quilt makers not to be shy about having their work seen at an upcoming competition” (241).

(17) …nâkitilómha nâk an-hiciphoyáłis kónccin owât… (EP)
quilt thing 1S-see.IMPERS.FUT think.2s when
‘…if you’re thinking, they’ll see my quilts and things…’

External possession is acceptable here because, due to possible embarrassment, the possessor can be understood to be affected by the verb despite it not being something that physically transforms him. What is important here is simply to note that it is the semantics of an event which condition TEPCs, and it is not the case that certain verbs uniquely lexically condition the use of the construction in any language.

Still, TEPCs from pure statives are nearly totally absent in natural languages.[2] Tomioka and Sim (2007) implicitly treat this as a result of event semantics. In the case of Korean, they model external possession as an extra event projection *affect* above the main verb phrase which is read into the eventuality of the lexical predicate. This *affect*, which has an eventive reading, would clash with any purely stative predicates, resulting in the aforementioned ungrammaticality of (14b) as well as assumedly stative examples in other languages.

Thus we should expect that a verb should be able to license TEPCs so long as it can conceivably be said to have an eventive interpretation. Thus in a language like Spanish with a grammaticized perfective/imperfective aspectual distinction, even quasi-statives can be finagled into an eventive interpretation with perfective aspect and proper context.

(18) Nos *eran/%fueron coreanos los padres. (EP)
2P.D $were_{IPFV}$/$were_{PFV}$ Korean the parents
with *eran*: (putatively) 'Our parents were Korean (to our benefit/chagrin).'
with *fueron*: (highly situational) 'Our parents went Korean on us (this one time).'

2.5 Formal Representations of TEPC

We can be specific about the semantic difference between TEPCs and IPCs in the framework of Neo-Davidsonian event semantics. As stated, thematic external possession adds to the possessor an *affectedness* reading, entailing that it has been specially affected by the verbal action. We can reproduce the contrast here in the Korean examples from (6c) and (7c).

(6) (c) Mary-ga John-uy dari-reul chatda. (IP)
Mary-N John-G leg-A kicked
'Mary kicked John's leg.'

[2] There might be exceptions to this in the examples illustrated in (13), but confer with Velasquez-Castillo (1996) for a wider discussion of the case of Guaraní.

(7)	(c)	Mary-ga	John-eul	dari-reul	chatda.	(EP)
		Mary-N	John-A	leg-A	kicked	

'Mary kicked John in the leg.'

We can represent the semantics of (6c) below in (6'). The event is one of kicking, performed by an agent *Mary* on a patient *leg* where *leg* is a possession of *John*. The only differential semantics between (6c) and (7c) is that of the addition of an affectedness conjunct in (7') designating the affectedness of *John*.

(6') ∃e | kick(e) & agent(e, Mary) & patient(e, leg) & poss(leg, John) |

(7') ∃e | kick(e) & agent(e, Mary) & patient(e, leg) & poss(leg, John) & affectee(e, John) |

First, it's important to note that the possible worlds in which (7') is true are a subset of the worlds where (6') is; the addition of the *affectee()* conjunct only restricts further (7c)'s truth conditions. Construing the verb of an EPC as a Neo-Davidsonian event also accounts for the unacceptability of atelic and stative predicates with the construction, such as (14b) and (15a). Thus, in (14b), we may not have a TEPC seeing that the predicate *saranghaetda* 'loved' is atelic, not eventive.

2.6 The Absolutive Limitation

External possession constructions can be shown to occur in a variety of syntactic conditions, but show, particularly in the case of thematic EP, principled boundaries. As König and Haspelmath (1997) note, and as illustrated below, a language which allows for EPCs will permit them from objects of transitive verbs, examples of these can be found back in (7). Additionally, EPCs are possible in the subjects of unaccusative (non-agentive intransitive) verbs as below (Spanish, Korean, Hebrew and German respectively).

(19) a. Se le rompió el brazo a Billy.
REFL 3S.D broke the arm to Billy
'Billy broke his arm./Billy's arm got broken.'

b. Mary-ga dari-ga bureojida.
Mary-N leg-N broke
'Mary broke her leg./Mary's leg broke.'

c. ha-kelev ne'elam le-Rina. (Borer and Grodzinsky 1986)
the-dog disappeared to-Rina
'Rina's dog disappeared.'

d. Der Arm ist mir eingeschlafen. (Lee-Schoenfeld 2006)
the arm is me.D in.slept
'My arm fell asleep (on me).'

This allowance, however, does not necessarily extend to unergative verbs, which cannot yield TEPCs despite surface similarities, as illustrated in the same languages as well as Creek below.

(20) a. *Le habló la boca a Billy.
3S.D spoke the mouth to Billy
putatively: 'Billy's mouth spoke.' (fine as 'The mouth spoke to Billy.')

b. *Mary-ga ip-i malhaetda.
Mary-N mouth-N spoke
putatively: 'Mary's mouth spoke.'

c. *ha-kelev hitrocec le-Rina. (Borer and Grodzinsky 1986)
the-dog ran-around to-Rina
putatively: 'Rina's dog ran around.'

d. *Der Hund ist Lena hermgelaufen. (Lee-Schoenfeld 2006)
the dog is Lena.D run.around
putatively: 'Lena's dog ran around.'

e. *ifá án-wokhacóks. (Martin 1999; 237)
dog 1S-barks
putatively: 'My dog is barking.' (acceptable as 'The dog is barking for me.')

The same is true of transitive agents, which as noted by Haspelmath (1999), constitute the most typologically rare form of external possession. I will argue, and model that thematic external possession from agents is impossible for principled reasons(while athematic external possession is possible although rare for pragmatic reasons). This is illustrated below in Spanish, Korean and Creek.

(21) a. *La pierna me rompió el vaso.
the leg me.D broke the vase
putatively: 'My leg broke the vase.' (fine as 'The leg broke the vase on me.')

b. *Mary-ga dari-ga John-eul chatda.
Mary-N leg-N John-A kicked
putatively: 'Mary's leg kicked John (to Mary's chagrin).'

c. *John ifá-t itóci-n in-káhcis. (Martin 1999; 237)
John dog-N stick-O broke
'John's dog broke the stick.'

Creek additionally highlights the fact that it is the agentivity of the possessum which bars TEPCs—*not* necessarily dual-argumenthood of a verb. That is to say, while possessors of agents are non-externalizable, possessors of experiencers are in appropriate contexts.

(22) łákko-t ací-n am-iyâcis.
horse-NOM corn-OBL 1S-wants
'My horse wants corn (on me).' (Or 'The horse wants my corn.')

2.7 Modification of Possessa

Additionally, as a part of the reduced autonomy of possessa in TEPCs, many languages disbar possessa from being modified by non-restrictive adjectives. In the cases of European possessor datives, this noticed of French by Guéron (1985; 50), of Spanish by Kempchinsky (1992; 700) and of Italian by Cinque and Krapova (2009; 128).

(23) a. Je lui ai lavé les cheveux (*blonds).
I him.D have washedthe hairs (blond)
'I washed his (*blond) hair.'

b. Le lavé la (*bella) cara al niño.
him.D washed the (beautiful) face to.the boy
'I washed the boy's (*beautiful) face.'

c. Gli hai fotografato la (<*bella>) bocca (<*bella>).
him.D have photographed the (beautiful) mouth (beautiful)
'You photographed his (*beautiful) mouth.'

This restriction is not merely a feature of European languages, but it is comparable to similar limitations in EPCs in other languages. Siloni (2002; 171) and O'Grady (1991; 82) notice the same of Hebrew and Korean EPCs respectively.

(24) a. *ha-rofe badak l-o ‘et ha-roš ha-pacu’a
the-doctor examined to-him A the-head the-wounded
putatively: ‘The doctor examined his wounded head.’

b. *ha-rofe badak l-a ‘et ha-yad ha-švura
the-doctor examined t-her A the-hand the-broken
putatively: ‘The doctor examined her broken hand.’

c. *Sue-ga gi-n meri-ga joda[3]
Sue-N long-ADJ hair-N be.good
putatively: ‘Sue’s long hair is good.’

These can be compared to the similar status of noun incorporated possessa in Guaraní, which still cannot take any form of modification.

(25) a. *Ai-po-akatua-pete la-mitã.
3AC-hand-right-slap the-child
putatively: ‘I slapped the child’s right hand.’

b. *Che-resa-tuicha-se.
1IN-eye-big-VOL
putatively: ‘I want to have big eyes.’

At an intuitive level, it should be clear that the possessa in the noun incorporation examples have visibly lost their syntactic autonomy, but it might be worth considering the possibility that even possessa in the other examples of EPC are similarly ‘incorporated.’O’Grady

[3]Tomioka and Sim (2007) use judgements that seem to contradict O’Grady’s here in that the possessum can be modified by an adjective or relative clause. My own consultants, however, agreed with O’Grady’s judgments and rejected the examples that Tomioka and Sim presented as being grammatical. O'Grady marks this particular example with a ‘?’ for reduced or questionable acceptability.

(1991) similarly treats possessa in EPCs as syntactically deficient nominals, referring to them generally as more like ‘adverbials’ than anything else. A Korean consultant of mine chimed in a similar intuition: possessa in EPCs are closer to being parts of the verb than independent arguments. That said, it might be an interesting line of study to look into the prosody of EPCs to see what kind of phonological phrase boundaries could be surmised.

2.8 Distributed Plurality

In a similar vein, the agreement relationships of possessa in EPCs vary from their IP equivalents. EPCs generally show *distributed plurality*, in that if the possessum is plural, there must be at least two possessa per possessor. This is illustrated in Spanish below with data from Kempchinsky (1992; 700).

(26) a. El médico les examinó la garganta. (EP)
the doctor 3P.D examined the throat
‘The doctor examined their throats.’

b. *El médico les examinó las gargantas. (EP)
the doctor 3P.D examined the throats
putatively:‘The doctor examined their throats.’

Garganta ‘throat’ must be singular in this case seeing that each possessor has only one. Of course, it is possible to have a pluralized possessum, but only in the case that each possessor has two or more of the affected body-parts/possessions. We see this restriction found in Spanish in other possessor dative languages (French from Vergnaud and Zubizaretta 1990).

(27) a. Le médicin leur a examiné la gorge.
the doctor 3P.D has examined the throat
‘The doctor examined their throats.’

b. *Le médicin leur a examiné les gorges.
the doctor 3P.D has examined the throats
putatively: ‘The doctor examined their throats.’

c. DerArzt guckt den Kindern in den Hals.
thedoctor looked the.D children.D in the throat
‘The doctor looked at the children’s throat.’

Evans (1999) incidentally shows that possessumplurality is totally barred from Mayali’s noun incorporation constructions, thus despite it being possible for a person to have two hands, (28a) is not acceptable, despite a Spanish equivalent (28b) being possible.

(28) a. Abanmani-bid-garrme-ng daluk.
1/3ua-hand-grasp-PP woman
‘I grabbed the two women by their hands.’
NOT: ‘I grabbed the woman by her two hands.’

b. El médicole examinó las manos.
the doctor 3S.D examined the hands
‘The doctor examined her hands.’

Thus within thematic external possession constructions, we can see a number of seemingly arbitrary formal constraints. The possessa of externalized possessors must be interpreted as being distributed, and are generally not available for adjectival modification. Additionally, TEPC is illicit from agentive nominals, despite being possible from theta positions without a proto-agent role. There is also a general correspondence of TEPC only with eventive and telic predicates. All of these can be counted as the general glitches that accompany the semantic change of thematic external possession.

2.9Athematic External Possession

As stated beforehand, however, there are various languages which display a formally similar brand of EP without the corresponding semantic changes. I have termed these constructions *athematic external possession constructions* (AEPCs). AEPCs do not show these same syntactic glitches that TEPCs do, however they both share the similar pragmatics which I introduced in sections 2.1-2. In TEPC, where affectedness is mandatory in EPCs, like in French or Italian, non-affected possessors are barred from the construction as noted in (29) from Kayne (1977; 159) and Picallo and Rigau 1999; 1015).

(29) a. *Tu lui aimes bien les jambes. (EP)
you 3S.D love well the legs
putatively: 'You love his/her legs.'

b. *Gli ho dimenticato il nome. (EP)
3S.D have forgotten the name
putatively: 'I forgot his name.'

However in languages with AEPCs where possessor affectedness is irrelevant, the equivalents of the above are acceptable. Thus, these sentences and many like them are indeed possible as shown in the Bulgarian examples from Stateva (2002; 649) and Cinque and Krapova (2009; 129).

(30) a. Az mnogo mu xaresvam novata šapka. (EP)
I very much 3S.D like new hat
'I love his new hat.'

b. Ne mu pomnja fizionomijata. (EP)
not 3S.D remember face
'I don't remember his face.'

Because of the lack of semantic conditioning, the related surface level restrictions on EPC, such as its non-acceptability with statives and non-affected possessors evaporate. Deal (2013; 408) provides examples of this in Nez Perce, (reproduced below) where in both cases, the externalized possessor is not at all conceivably affected by the action. Additionally, we see a stative predicate in (31a), defying the generalizations of TEPCs made in section 2.4.

(31) a. Weet ‘e-cukwe-ney’-se Luk-ne tiim’es? (EP)
Q 3O-know-EP-IMP Luke-OBJ book
‘Do you know the Book of Luke?’

b. pee-x-te-ne’ny-u’ Coosef-ne temikees naaqc hiisemtuks-pe. (EP)
3-see-go-EP-FUT Joseph-OBJ tomb one moon-LOC
‘They will go to see Joseph’s tomb next month.’

In addition to different semantics, AEPCs also lack the formal properties of TEPCs shown in (2.6-2.8).Haspelmath’s aforementioned generalization that EPC cannot occur from agentive nominals may be true of TEPCs, but languages with AEPC clearly show counter examples. Maasai, which marks possessor externalization with indirect object inflection on the verb, shows that a salient possessor of a subject can indeed trigger EP (Payne 1997; 414-415).

(32) a. áa-ból ɔl-páyyàn ɔ-sandúkù. (EP)
3>1-open S-man.NOM S-box.ACC
Possessor of subject interpretation: “My husband will open the box.”
Possessor of object interpretation: “The man will open my box.”

b. áa-yyér ɔl-páyyàn in-kírí. (EP)
3>1-cook S-man.NOM P-meat.ACC
'My husband will cook the meat.'
(anomalously as 'The man will cook my meat.')

Aissen (1999) models Tz'utujil as being canonically VOS, but topic and focus strategies can bring constituents, specifically externalized possessors into focalization which is consistently regionalized to the left of the verb head linearly. She, as Payne does of Maasai, notes the existence of AEPC from unergative subjects in Tz'utujil, mentioning however that there seems to be at least somewhat of an idiolectal or contextual variation in the acceptability of these sentences.

(33) a. %Jar Aa Lu' tzijooni [ja r-k'ajoolec_i] chi pa ja moloojrii'iil.
the Mr. P. speak the 3A-son at in the meeting
'Pedro's son spoke at the meeting.'

b. %Januu-chaaq'$_i$ nsamaj [r-mee'aal ec_i] pa klinika.
the 1S-brother work` 3S-daughter at clinic
'My brother's daughter works at the clinic.'

The variable acceptability might, however be more in the irregular pragmatics of these expressions. In a similar example,(34) showing EPfrom an agentive subject, Aissen quotes a speaker commenting that 'it's odd because you expect the sentence to be about the father' (187).

(34) ?Janata' ninsamaj r-maal.
the father 1S.work 3S-cause
'I'm working on account of my father.'

The speaker's intuitions of the awkwardness of the sentence seem to corroborate the idea that *janata'* 'father' functions as a discourse topic or focus.[4] It would be strange to set a topic for which the comment had little bearing and added questionably relevant information. (33b) for example can be compared to an English sentence like, "As for my brother, his daughter works at the clinic." A sentence like this forces a frame where 'my brother' is commented on by an action which would be relevant to him only in a highly contextual discourse environment.

AEPCs also do not show either a mandatory distributed reading of the possessum (35a), or the disability of being modified by non-restrictive adjectives (35b) (Bulgarian data from Cinque and Krapova (2009; 130)).

(35) a. Ako jadete mnogo, šte si napălnite stomaxa/stomasite…
if eat.2P a lot will REFL fill.2P stomach/stomachs
'I you (P) eat a lot, you (P) will fill your stomachs…'

[4] It should be said that although Aissen models Tz'utujil EP as being primarily motivated by pragmatic (and not semantic) factors, she does on several occasions refer to externalized possessors as being 'affected' mirroring work done on what I have called TEPC. I do not, however, think that Tz'utujil EP is an example of TEPC in my definition, nor that it can be said that possessors are 'affected' on a semantic/truth-conditional level in the language. Some of Aissen's examples show that possessors are not so much 'affected' as they are discursively relevant (numbers from the original).

(13) a. Jun ak'aal k'axaxiruuqul chaaq'a'.
a child be.heard 3S.voice in night
'A child's voice was heard in the dark.'

b. Jun aachi k'utmaj to rpalaj pa wentana.
a man appear DIR 3S.face at window
'A man's face was seen at the window.'

It may be in many cases that discursive relevance might imply some degree of affectedness, but this seems to be an implicature, as opposed to the ironclad restriction of semantic affectedness applied in examples of TEPC here such as (29).

b. Mnogo ti mrazja toja loš xarakter.
a lot 2S.D hate.1S this bad character
'I really hate this bad character of yours.'

c. Ne moga da ì opiša krasivata kosa.
not can.1S MOD 3S.D describe.1S beautiful hair
'I cannot describe her beautiful hair.'

These distinctions between TEPC and AEPC are not unimportant. We can see that a semantic difference between two superficially similar constructions yields a set of formal, syntactic differences with no obvious relation to the semantics of the construction itself. This will be shortly addressed.

Summing up, however, both thematic and athematic external possession constructions differ from internal possession constructions in pragmatics and the actual constituency status of the possessor nominal form, while thematic external constructions differ from internal and athematic external possession constructions in terms of truth functionality. Figure 5 illustrates these distinctions.

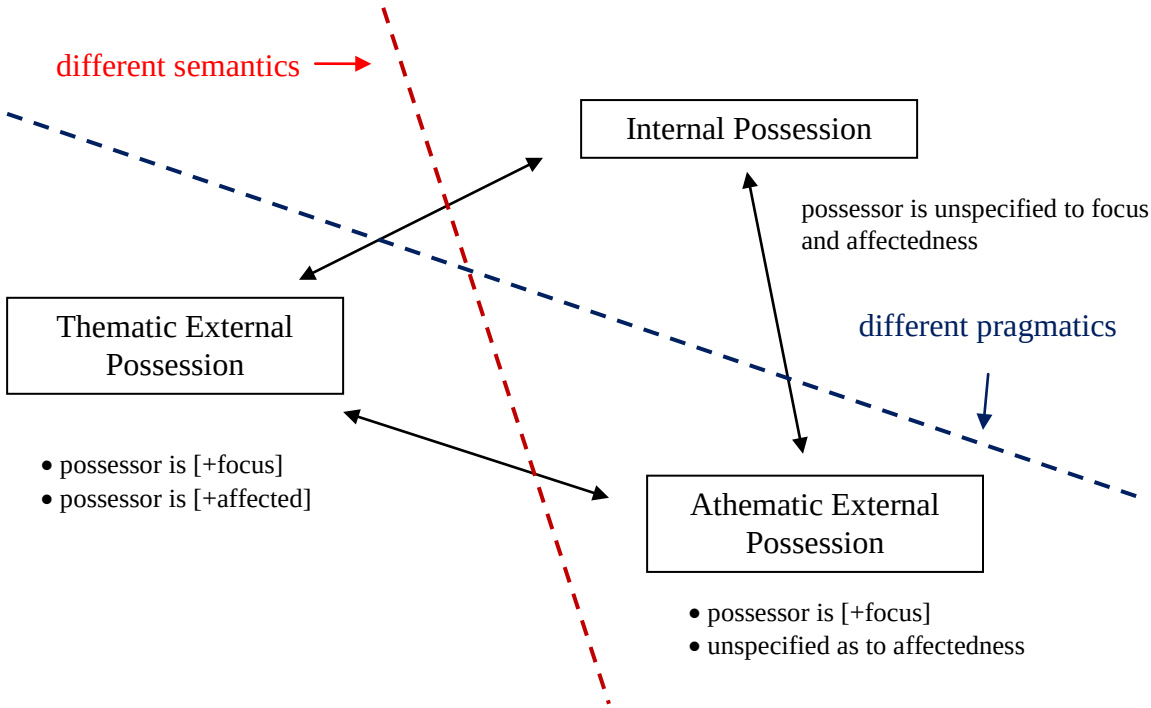

Figure 5**:** External and Internal Possession Constructions Contrasted

The semantics which separate TEPCs is that possessor must take an *affected* reading (as argued in section 2.3).Thus as I have modeled above, TEPCs have more stringent truth-conditions than AEPCs and IPC; ergo, the possible worlds where an TEPC is true is a subset of the world where its IP equivalent is. The pragmatic distinction between IP and EP is indicated in Figure 5 as the possessors being marked for *focus* in the latter cases. It might be the case that focushood is not the proper way to construe this difference in pragmatics, but as I argued in sections 2.1-2, EP does bring possessors to higher discourse prominence

2.10 Modeling External Possession

As to the issue of formal modeling, it should behoove us to ask first whether or not External Possession actually exists independently in human language. When EP (under the name of Possessor Ascension) began to be studied under Relational Grammar in the 1970s (starting with Perlmutter and Postal (1972)), there was at least some question as to whether EP was an

alternation in itself or an epiphenomenon of other traits of language. Tuggy (1980) makes the latter argument, saying specifically of Spanish that what seemed to be Possessor Ascension was really the interaction of two separate phenomena: ethical datives and possessor deletion, the latter of which can occur without an affected possessor as Tuggy illustrates below.

(36) Levantó la mano.
raised the hand
'He raised his hand.'

Tuggy makes a case in favor of what superficially looks like EP being an epiphenomenon in Spanish, but the argument simply cannot apply to languages which show EP in noun incorporation or with non-dative case alternations. That is, in languages withoutethical datives, an externalized affectee must be interpreted as the semantic possessor of the theme even though its marking does not designate in essence any theta-role associated with affectedness outside of that construction. To recall the Korean examples, an affected possessor of an object becomes accusative marked, yet accusative case is not the marker of any general construction in the language similar to ethical datives.

We can also see that externalized elements *must* be interpreted as the possessors of the theme nominal. Thus in (37) in Korean, *John* cannot be ‘externalized’ when the theme DP has another possessor realized as shown by Vermeulen (2005; 210).

(37)	*Mary-ga	John-eul	Bill-eul	dari-reul	chatda.	(EP)
	Mary-N	John-A	Bill-A	leg-A	kicked	

putatively: ‘Mary kicked Bill’s leg to the chagrin of John.’

This shows that in isolated contexts, the externalized element must indeed correspond to an argument of the theme noun phrase. Similar evidence against this proposal can be found in

Landau (1991), where even acknowledging context-sensitive double possessors like (38a) (where Sigal could've lent his glasses to Rina), in situations where only one possessor of a possessum is logically possible, EPC is not allowed as it forces a possessive, not a merely benefactive reading.

(38) a. Gil šavar le-Rinaet ha-miškafayim šel Sigal.
Gil broke to-RinaA the-glasses of Sigal
'Gil broke Sigal's glasses on Rina.'

b. ha-amargan šina le-Rinaet ha-šem šel ha-mofa/*šel Galit.
the-manager changed to-RinaA the-name of the-show/of Galit
'The manager changed Rina's name of the show.'
putatively: 'The manager changed Galit's name on Rina.'

The possibility of a grammatical interpretation of (38a) *does* give strong evidence to the idea that the possessor dative does have a different derivation site than a prepositional possessor, seeing that both are possible in one sentence. But importantly, the non-grammaticality of the 'Galit' interpretation of (38b) should also show that there is a semantic operator or empty category linking *Rina* to the theme DP and thus disabling a base-generated reading of 'The manager changed Galit's name for Rina.' To be clear, *Rina* in (38b) *must* be obligatorily interpreted as the possessor of *ha-mofa* 'the show,' and thus another nominal *Galit*, may not be.

Once we establish that we can look at External Possession as one linguistic unit, the next question that should arise is whether EP can be treated as an instance of raising or control. Kayne (1977) and Guéron (1985), both writing of French as well as Borer and Grodzinsky (1986) writing of Hebrew vie for the control alternation. French and Hebrew, being both languages with TEPC and ethical datives offer the possibility of characterizing ethical datives and EP as a singular phenomenon, in a way similar to Tuggy's model (1980). In these control-based

frameworks, the externalized possessors generally are modeled as being base generated as ethical datives, and EPCs are licensed by the fact that these datives c-command a coindexed *pro*-form in the possessor slot of the theme nominal.

An exclusively control-based analysis of EP becomes less effective when dealing with EP in languages with noun incorporation like Mayali or Guaraní or languages like Korean with a non-dative case alternation. That is to say, in these languages, there is no good reason for thinking an externalized possessor is base generated in the same way an ethical dative could be. As noted before, Korean has no benefactive accusatives, despite the fact that accusative-marked nominals function as beneficiaries/affectees in EPCs. This makes a derivational/raising theory of EP more desirable seeing that these beneficiary accusatives do not exist independently.

Raising accounts of EPCs are generally more common among researchers working on AEPCs. Deal (2013; 401) makes a strong argument for a derivational account of EPC from Nez Perce (with AEP), where she first notices that EP is generally obligatory.

(39) a. Weet ‘e-cukwe-ney’-se Luk-ne tiim’es? (EP)
Q 3O-know-EP-IMP Luke-OBJ book
‘Do you know the Book of Luke?’

b. *Weet ‘e-cukwe-ce Luk-nim tiim’es-ne? (IP)
Q 3O-know-IMP Luke-G book-OBJ
putatively: ‘Do you know the Book of Luke?’

Wherever an EPC is available in Nez Perce, the IPC equivalent of the sentence with a standard genitive is grammatically impossible. (39b) shows this ungrammatical internal possession in which *Luk*-nim ‘Luke’s’ is a genitive possessor interior to a noun phrase headed by *tiim’es* ‘book.’ To be well formed, a possessor *must* be externalized into becoming an oblique-

marked argument of the verb, as in (39a). Verbal arguments can only occur with IP where there is an additional nominal blocking extraction into the upper clause.Thus Deal (403) notes that in the case of ditransitives, the externalized possessor may only be construed to be the possessor of the syntactically highest nominal (the goal/beneficiary), and not of the theme.

(40) a. ‘ew-‘nii-yey’-se Angel-ne pike taaqmaał.
3O-give-EP-IMP Angel-OBJ mother.N hat.N
‘I’m giving Angel’s mother a hat.’
*‘I’m giving a/the mother Angel’s hat.’

b. ‘aayat-om hi-kiwyek-ey’-se ‘iin-e picpic cuu’yem.
woman-ERG 3-feed-EP-IMP 1S-O cat.N fish.N
‘The woman fed my cat the fish.’
*‘The woman fed a/the cat my fish.’

Deal interprets these data to mean that possessor externalization is absolutely obligatory in Nez Perce, save situations where it is impossible due to Relative Locality (a DP (the possessor) cannot move to a position yet higher than another DP (the beneficiary)). Deal motivates this movement on the theoretical grounds of Case assignment, saying that *Luk* ‘Luke’ in (39b) must raise in normal conditions to receive objective case. Only where raising is impossible due to locality constraints can the possessor be assigned genitive case*in situ* as a last resort measure. This approach mirrors Landau’s (1999) account of external possession in Hebrew, granted that Landau belabored under the not necessarily correct assumption that EP in Hebrew is athematic.

Generally, most models of AEPCs tend to raising analyses and models of TEPCs tend to control, albeit with some exceptions. Lee-Schoenfeld (2006) models German EP as raising to a

theta-assigning projection below the agentive vP and above the primary verbal shell. Like Landau and Deal, she treats it as motivated by need for abstract Case. Models similar to this can be found in Rodriguez (2010) of Portuguese and in Henderson (2014) of Chimwiini.Tomioka and Sim (2007) however, dismiss derivational accounts on *a priori* grounds, saying in a way reminiscent of Katz-Postal, that "the semantic difference between the two patterns indicates that it is unlikely that they are derivationally related" (4). Still, this as a theory-internal dispute might not utterly negate the aforementioned benefits of using raising to account for AEPCs.

Regardless, there are some interesting ramifications of taking a raising/derivational approach to EP. While possessors in European languages appear as clausal datives, externalized possessors in Korean can be nominative 'subjects' if externalizing from an unaccusative or adjectival predicate. These nominatives are specially available to embedded control structures (O'Grady 1991; 80).

(41) a. Mary-ga$_i$ [*ec*$_i$ eolgur-i yeppeu-e-ci-lyego] noryekaetda.
Mary-N [*ec* face-N pretty-INF-become-C] tried
'Mary tried to become pretty in the face.'

b. [*ec*$_i$ iir-eul ha-si-daga], eomeoni-ga$_i$ son-i geochir-eo-cheotda.
ec this work-A do-HON-while mother-N hand-Arough-INF-became
'While [she was] doing this work, mother's hands became rough.'

This is important data for a raising approach to EP. In (41a), we would assume that *Mary* is externally merged as the DP-internal possessor of *eolgur* 'face,' which is raised into a subject-like position inside of the subordinated clause. However, interestingly enough, this raised *Mary* is suppressed by the *Mary* of the matrix clause. It would be somewhat difficult to account for the subordinated *Mary*'s disappearance assuming a non-movement theory of control.

Assuming a movement theory of control constructions, *Mary* is generated in the DP, is raised into the subordinated clause's VP,then is raised once more into the matrix clause. However without a movement account of control, it is not clear why the raised *Mary* disappears when raised. The same problem exists in (41b), where if no movement is assumed for the control structure, an extra *eomeoni* 'mother' should be expected where the empty category is glossed as appearing.

For similar reasons, it might be best to remain agnostic as to whether external possession is an example of a raising on control phenomenon, especially in the wake of numerous movement theories of control which have called into question the very idea of a distinction between the two (Hornstein and Polinsky 2010). Probably the most comfortable stance is one holding that the differences and contrasts between raising and control, as two theoretically distinct but eerily similar linguistic systems, mostly amount to little more than a competition of metaphors. For those reasons, it might be worth it to leave the question open to more specific analysis elsewhere and keep ourselves to doing what we have done in describing linguistic phenomena: using whatever metaphor is most convenient at the time.

2.11 The Syntactic Specifics

Regardless, there are some uniformities that can be surmised from the work on EP which can shed light on its formal restrictions. A good theory of EP should not only contain a system which accounts for extant acceptability judgements in different languages, but one that interfaces the semantics of the construction such that we can understand why TEPCs and AEPCs yield such formally different characters.

Starting with TEPC, most model EP as a construction where there is correspondence with or movement to a supra-VP node on the part of the externalized possessor. It is an issue of control for Tomioka and Sim (2007) and an issue of raising for Landau (1999) and Lee-

Schoenfeld (2006), but the models are analogous. In each case, the possessor is eventually hosted in a projection beneath the agentive vP and above the VP. Importantly, for Lee-Schoenfeld and Tomioka and Sim, this projection is overtly semantic, assigning a beneficiary/maleficiary theta-role in Lee-Schoenfeld's case and functioning as a phonologically null *affect* verb in Tomioka and Sim's. If we assume a structure like this, we not only account for the differential semantics of the construction, but we solve for why TEPC is categorically impossible from agentive DPs. That is, while possessors may extract from or c-command theme nominals which are generated in the VP, they may not do so with respect to agentive nominals which are generated further up in the derivation than the *affectee* projection.

While I said that all EPCs are pragmatic in that they bring possessors to discourse prominence, TEPCs add the extra semantics of affectedness. This can be modeled as simple movement[5] to a theta-assigning node. The movement thus tends to locate the possessor in the 'object position,' i.e. canonical focus position (Gundel 1988). To complete the circle, and bring EP into line with Cartographic Approaches to topic and focus, we can say that the hierarchically highest nominals (in our case, usually the agent and externalized possessor) gain a covert relationship with the specifiers of Topic and Focus projections, making the agent of the clause the sentential topic, and the possessor, not the possessum the focus.

AEPCs, as I said earlier, are *merely* pragmatic, and change no truth-functionally important semantics of a sentence. Instead of movement to a theta-assigning node that would assumedly change the semantics of an utterance, it's easy enough to model AEPC as being movement of a possessor nominal to a Topic and Focus projection à la Rizzi (1997). This is

[5]Again, I don't preclude possibilities of control in EPCs, but I'll be referring to EPCs as 'movement' or 'raising' for sake of simplicity. There's no need for me to remention each metaphor where here, the distinction is not utterly important for my analysis.

precisely what Aissen (1999) does for AEPC in Tz'utujil; externalized possessors, in a way mirroring the pragmatics of TEPCs, are modeled as becoming foci[6], while other elements, including the subject can be promoted to topichood if the discourse environment is such to warrant it. This puts the pragmatics of AEPCs and TEPCs in perfect symmetry, while still maintaining the semantic differences. Therefore, we can model AEPC as singularly a process of interfacing with a left periphery, and for this I will use the structure below reminiscent of Benincà and Poletto's (2004) derivation of Rizzi'sorginal (1997) model. TopP and FocP are modeled as being recursive, yet as per Benincà and Poletto, this is only a simplification for modeling purposes, when in reality the Topic and Focus fields are divisible into a variety of pragmatically distinct projections whose distinctions are subtle, but not fundamental for our analysis here.

[6]Aissen reasons externalized possessors must be foci, seeing that unlike topics, they can easily be rendered indefinite in Tz'utujil and other languages.

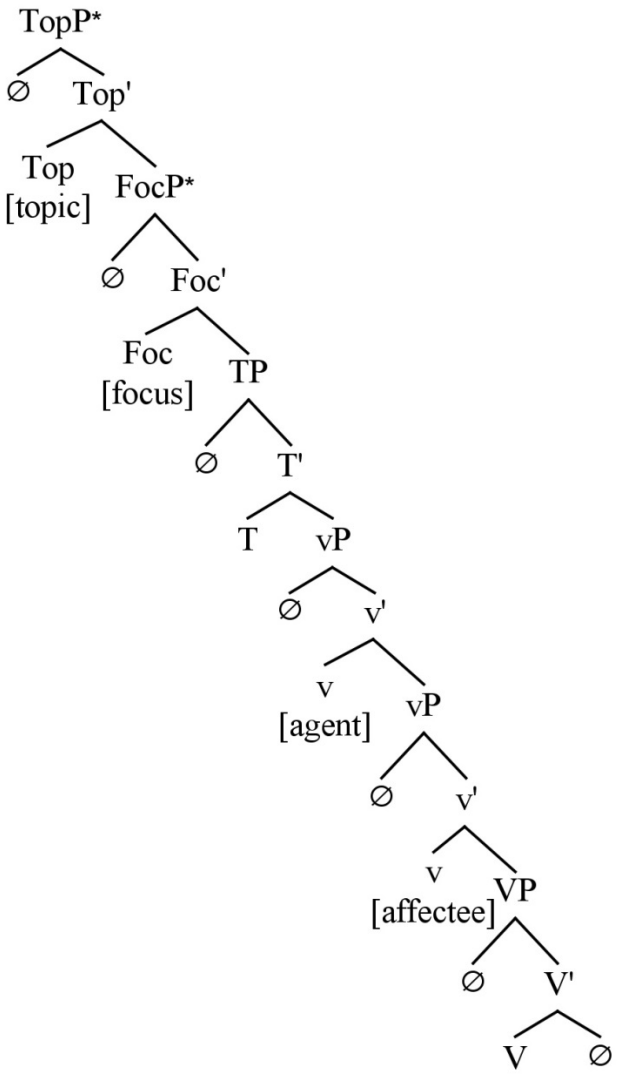

Figure 6**:** The Structure Sufficient for Modeling External Possession

Most importantly, assuming a structure like this, we can still make sense of the formal differences between the two constructions. Again, TEP is impossible from agentive nominals because that would require movement downward in the derivation. To show the contrast here in Korean, refer to examples (7c) and (21b) reproduced again below.

(7) c. Mary-ga John-eul dari-reul chatda. (EP)
Mary-N John-A leg-A kicked
'Mary kicked John in the leg.'

(21) b. *Mary-ga dari-ga John-eul chatda. (EP)
Mary-N leg-N John-A kicked
putatively: ‘Mary’s leg kicked John (to Mary’s chagrin).’

We can spell these sentences out visually using the lower portion of the structure in Figure 6. Below we see a derivation (7c).

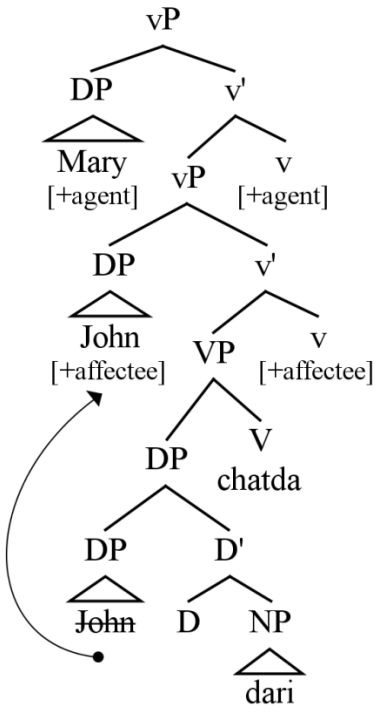

Figure 7: Thematic External Possession from Themes

Here, *John* is generated as a possessor of *dari* 'leg' and raises to a vP marking affectedness. This movement is licit seeing that *John* is externally merged below this affectedness projection. This contrasts with ungrammatical examples like (21b) illustrated below.

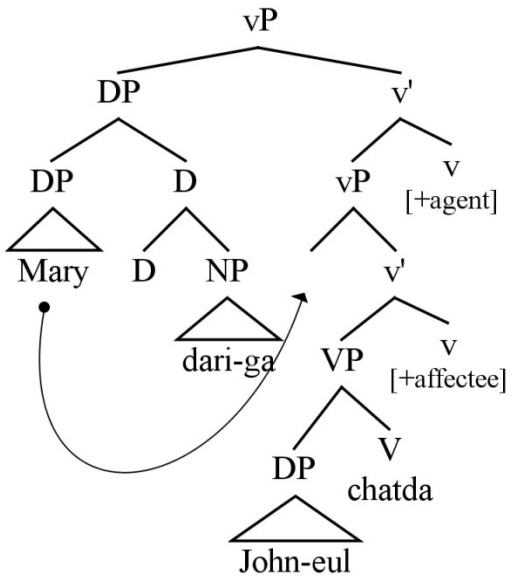

Figure 8: (Unacceptable) Thematic External Possession from Agents

Here, movement is illicit seeing that *Mary* would be moving down the clausal spine to a node which does not c-command the moving DP *Mary*. This kind of downward movement is not obviously present elsewhere in human language and is wholly incompatible with Minimalist syntax.

But agent EP in *athematic* constructions is still a possibility, given that the topic and focus projections are syntactically higher than the agentive vP. This can account for the data given of Tz'utujil and Maasai showing EPC from agentive clauses. It is indeed worth asking why more languages with AEPCs don't use agent EP more frequently, given the fact that it is not syntactically barred. I would attribute this to a lack of pragmatic motivation: note that possessors which are already generated within the syntactically highest nominal projection already have a decent modicum of discourse prominence. Externalization should be less effective than it would be from a theme nominal. It also might be worthy of note that both Tz'utujil and Maasai are canonically verb-initial languages, while *subject*-initial languages may need less in the way of nominal promotion for pragmatic reasons.

Aside from the lack of pragmatic justification to justify highly productive AEPC from transitive subjects, there is also reason to consider computational limitations of sentences. Transitive sentences like (32) result in inherent ambiguities in that the externalized possessors can be interpreted as either the possessors of subjects or objects. This leads Payne (1997; 415) to surmise that speakers would often avoid transitive EPCs in elicitation contexts due merely to the lack of clarity in that context.

There is one other important difference between the modeling of TEPCs and AEPCs. Assuming a recursivity of the topic domain assumed in Rizzi (1997), we might expect there to be discourse oriented languages with AEPCs which can yield a number of externalized possessors in a single clause. This actually is the case of Japanese, where possessor may be recursively topicalized/focalized (Uehara 1999; 48).

(42) a. John-ga oneesan-ga kami-ga totemo kirei-da.
John-N sister-N hair-N very pretty-be
'John's older sister's hair is very pretty.'

b. John-ga oneesan-ga syuzin-ga totemo hansamu-da.
John-N sister-N husband-N very handsome-be
'John's sister's husband is very handsome.'

Without taking into account a difference between TEP and AEP, Japanese would be a bizarre challenge for Haspelmath's (1999) typological generalizations of EP in that, as illustrated below, Japanese EP is actually *impossible* from theme nominals (Uehara 1999; 47), while Haspelmath assumes that EP from theme nominals is a precondition for EP elsewhere.

(43) *Mary-ga John-o oneesan-o hometa.
Mary-N John-Asister-A praised
putatively: ‘Mary praised John’s sister.’

This shows us that possessor externalization to a node lower than the agentive vP is not licensed in Japanese, while movement to a topic/focus projection still is. This is consistent with the structure I have hypothesized, in which we can illustrate (42a) below.

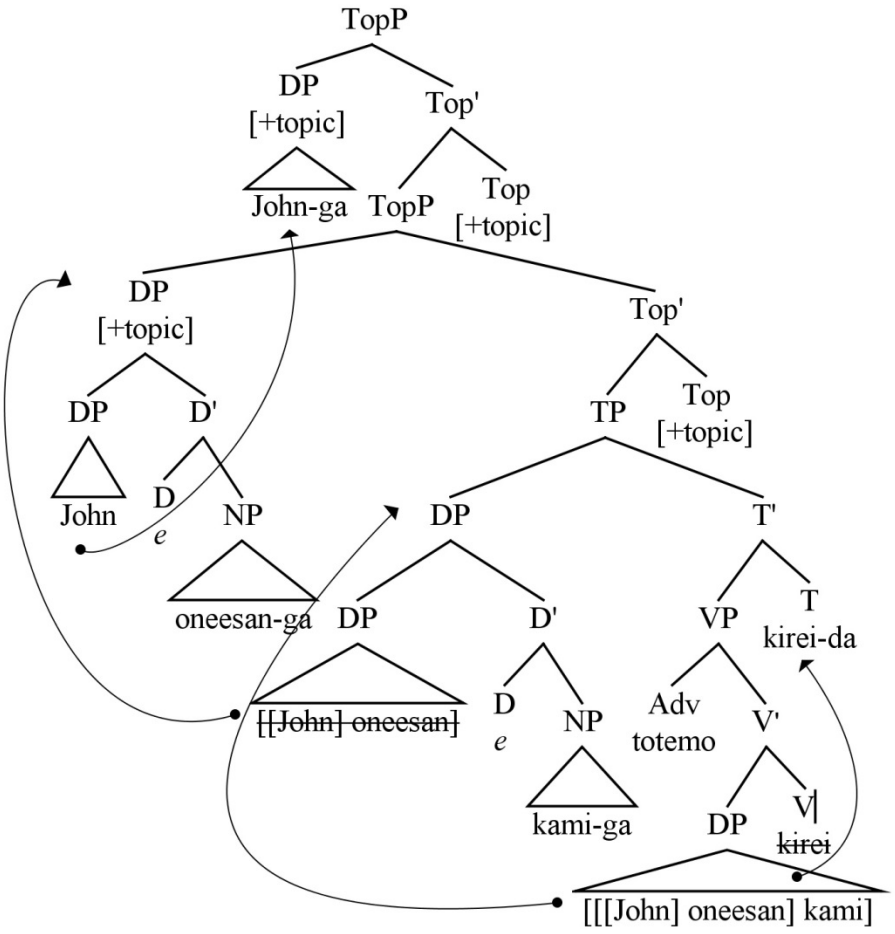

Figure 9: Recursive Topicalization of Athematic Possessors

Here, there is apparently a kind of recursive pied-piping of possessor nominals, in that the theme noun raises to spec TP only to have its possessor *[[John] oneesan]* topicalized to the lower TopP, after which *John* is topicalized into the higher TopP. A derivational analysis like

this, however, implies, although not necessarily correctly, that the theme nominal remains penetrable to syntactic manipulation significantly after external merge, potentially jeopardizing its consistency with a phase-based approach to syntax. This might stimulate a temptation to rely on a base-generation or control-based account of recursive AEPC as in (42), even though as Uehara notes, there remains an obligatory possessor interpretation in these sentences, equivalent to Landau's aforementioned examples of Hebrew in (38).

Interestingly enough, some of my Korean consultants rejected TEPC as we have modeled it here and as it is found in the literature. Those who did, however, would *still* accept double nominative constructions in a way consistent with the grammar of Japanese. This should be a good indication of the fact that there are formal differences between TEPCs and AEPCs in that acceptance of one needn't imply acceptance of the other. It's not the case that TEPC and AEPC condition slightly different semantics or implicatures read into the same construction, but they are independently formally and semantically distinct constructions which are relatively stable across languages.

Summing up, we can, with a relatively small structure, account for some of the numerous differential traits between thematic and athematic external possession. Because we have modeled TEP as being movement to an affectedness projection above VP and below the agentive vP, we can account for the lack of TEP from agentive clauses. Seeing that we have modeled AEP as simple movement to much higher topic and focus projections, there is no such restriction in those cases, indeed, the recursivity of the left-periphery is recapitulated by the potential recursivity of AEP in some languages. Thus assuming this structure, the formal traits of EP are not so much learned idiosyncrasies as much as emergent properties of the underlying structure of language. We should expect then, that any construction in language which semantically encodes

affectedness, should show a similar discontinuities with agentive nominals, derivable from the fact that agentivity is encoded higher in the derivation than affectedness (implying a cartography of argument structure equivalent to UTAH).

What is important of EP is that the semantic and pragmatic data which it encodes corresponds to a set of unexpected formal properties which are common to all languages, whether they encode EP through noun incorporation, possessor datives or other means. These formal properties attest to a consistent underlying structure/cartography of human language partially visible in the comparison of alternations and cross-linguistic data. Semantic or pragmatic changes in a language, in thematic or athematic external possession, correspond to a set of formal constraints which are specific not to the surface appearance of the EPC, but its semantic and pragmatic value. In this way, language structure and syntax, as I have argued, is largely undisentanglable from the semantics and pragmatics of its utterances.

CHAPTER 3

THOUGHTS ON THEORY

Now that we've discussed external possession, it's worth thinking about some of the implications of its traits and formal properties. The larger point I am trying to make is that the seemingly idiosyncratic syntactic traits of a construction or the language faculty (LF) in general are not necessarily isolated rules, but principled results of a layer of semantic representation in human information processing. Cartographic Approaches to syntax have yielded a highly successful predictive mechanism for analyzing the semantic/syntactic nature of language, and I think that it's worth expanding this line of inquiry into the domain or verbal argument structure in earnest. That is what I have attempted to do here.

This has important implications for the study of UG. Syntacticians are accustomed to approaching UG as if it is indeed a set of neurotic rules that the human language faculty sets on expression. UG is often, mistakenly I think, thought of independent and unmotivated rules: the External Projection Principle, binding conditions, Relativized Minimality, etc. which have been posited and kept or fallen out of favor over the years. Part of the reason that these principles must be formulated, I think, is the legacy of the Standard Theory to deemphasize the highly active, if not ubiquitous interface between syntax and semantics/pragmatics.

However External Possession, what with its systematic limitations and properties, shows us that these seemingly random formal traits of language are systematically related to and sometimes derivable from the semantic hierarchy implicit in human language. As soon as we

acknowledge a thematic/semantic hierarchy in argument structure (one of agent>affectee>theme), we immediately make claims about the formal traits of syntax and the possibilities of nominal movement and coreference. We also immediately make claims about the possibilities of human language and how expressions can vary according to their semantics. In the case of EP, these predictions fit tightly with the data: possessor extraction is impossible from agentive nominals down to the lower affectee node, AEPC is potentially recursive, syntactic prominent equals pragmatic prominence, etc.

This is not only true of External Possession, but of other alternations, which in general, put languages in the contortions closest to experimental circumstances. Dative alternation can be referred to as another common example. The formal differences between the two alternating forms of English dative alternation (‘Mary taught John French’ versus ‘Mary taught French to John’) can be seen replicated equivalently in a variety of the world’s languages with semantically analogous alternations: Spanish (Demonte 1995), Dutch (Colleman 2010), Korean (O’Grady 1991), etc. External Possession is not unique, but a representation of the general case.

Now in my conception, UG, and syntax as a whole is entirely epiphenomenal or emergent. That is to say that all of the happenstance ‘principles’ and ‘constraints’ we can propose of language, each one should be derivable from an understanding of the semantic structure underlying language or its externalization scheme, which I assume to be highly simple. Of course this is not to liken my conception to so-called ‘Emergent Grammar,’ where grammar is a magical outcome of language use, but I mean that language is *emergent* in that its formal properties are based singularly on the semantic cartography and computational structure. Given the semantic processing of the human mind, the LF could not have evolved in our species very differently from what it is now.

We should also be clear that this is actually a statement of language significantly *more* 'nativist' than traditional Chomskyan linguistics. For Chomsky, the traits of language are idiosyncrasies of a recently developed LF at the cutting edge of human evolution. They are only peripherally and incidentally related to other cognitive capacities. My idea, however is that effectively every aspect of language is tied into cognitive faculties far deeper and far more immutable in the human cognitive system than traditional Generative Linguistics has assumed.

3.1 Towards a Fuller Model of Syntax

I should probably make clear my general intuitions on syntactic modeling. Again, I view Cartographic Approaches as fundamental to understanding the linguistic system, but not necessarily in the way Cinque (1999) or others working within the Minimalist Program seem to. To me, the painstakingly specific nature of the cartography of adverbials, verbal morphology or argument structure is not syntactic or narrowly linguistic in nature, but is a part of the human mind generally. Independent of language, we *must* conceive of a mechanism that humans and other animals employ to conceptualize events and make semantic and pragmatic judgments. I am stating that a semantic cartography is precisely what must exist in the mind generally, and its appearance in language is epiphenomenal on the fact that we must linearize language in a way that recapitulates the cognitive structure of our minds.

Minimalist syntax models the linguistic system as upward structure building. 'Merge' selects two linguistic units and combines them, creating a derivation with syntactic demands as determined by the lexical items it has merged. To be clear, Merge as an instrument of syntax, much like Phrase Structure rules before it, *creates* the structure.Yet I am saying that the structure is independent of the linguistic system. The capacity to think and conceptualize events is prior to language, and it would seem uneconomical and unlikely to assume that we have utterly distinct mechanisms for semantic and syntactic processing. All 'syntax' is, in my conception, is a

linearization mechanism which, in a way analogous to Merge, builds upwards, yet not *creating* structure, but following an innate semantic structure and matching that structure with lexical entries and appending the lexemes leftward or rightward depending on the parameters of the language in question.

Of course even the apparently arbitrary parameters of syntax could theoretically be worked out to be semantic or pragmatic in nature. The differences between languages can be formulated as simply being whether a given language shows overt or covert movement (as has been suggested from time to time between wh-fronting and wh-*in situ* languages). This is circumstantial, but languages may only differ in whether they realize a phonological element higher or lower in a chain in a derivation.

Regardless, it is important as a methodological note to keep constant attention to the possibility of pragmatic or semantic ties of putative UG principles. Formalizing an observation in language as a merely syntactic 'principle' too often stifles the elucidation of what factors might play into it. That's to say, if we state that the sun rises because of the labors of sun hobgoblins who hoist it into the air on an invisible pulley, and that is a convenient enough theory, it might stifle further inquiry into the true mechanisms of the sunrise. In the same way, if we write off the fact that a nominal must, in many languages, raise to spec TP because of an invisible EPP force, that very uneconomical explanation, if sufficiently convenient or convincing, might stifle inquiry into other factors which might independently and coherently motivate the same phenomenon. None of this is to overlook the actual problem of motivating subject-movement, but my heuristic as to syntactic principles is to shoot on sight; it seems to be the case that many 'merely' syntactic phenomena interface cleanly with other factors of language in a way that might eventually explain them on independent grounds.

3.2 Biolinguistics and Theory Economy

Now important for any theory of the LF is theoretical plausibility in the face of the biological evolution of the LF itself. Although many cognitive faculties are involved in the production and comprehension of language, there is a narrow band of those faculties that appear to be unique to the human species. This narrow band is what Hauser et al. (2002) dub "the faculty of language in the narrow sense" (FLN), as opposed to "the faculty of language in the broad sense" (FLB), the latter of which would be all of the cognitive machinery which participates in conceptualization, theory of mind, sound discrimination, etc. This FLN is implied to be nearly synonymous with "recursion" as a property of human language or "Merge" in the Minimalist Program.

Chomskyan syntax however has been in a kind of conceptual conundrum. On one side, Chomskyan linguistics evolved with the intuition that the LF was a largely unique and privileged aspect of human cognition. The realization had been that the formal properties of language, particularly syntax, patterned in such a way that could not be directly related to semantics or other cognitive properties. This meant that syntax had to be conceived as a largely autonomous entity in the brain, which could be shown to have a complex array of independent properties and tendencies. This is reflected in the "independence of grammar" beginning in the model of Syntactic Structures, yet with it come the aforementioned epistemological problems.

On the other hand- on the evolutionary perspective, a small and economical LF is more desirable. There seem not to be any ‘intermediate forms’ between creatures with FLN and without it, and language itself seems to have arriven on the evolutionary stage immediately, if not over the course of a brief million years. This strongly suggests that the biology of language is such that there are only several, if not only one genetic parameter that separates a linguistically-capable hominid from a linguistically-non-capable one.

Thus although representing the complexities of the syntax of human language might encourage us to theorize a complex and unique LF, the evolutionary fact of language demands that the LF be biologically simple and amenable to a relatively quick evolution. Even aside from the evolutionary problem, this is a theoretical diseconomy. If we assume that syntax is fully detached from other cognitive faculties, including semantic processing, the mere diversity of natural languages forces us to model human syntax as an ever increasing and semantically blind system of arbitrary phrases. This feeds into the nasty stereotype[7] of syntacticians muttered by other linguists: that generative syntax is mostly a craft of unfalsifiable theoretical hand-waving and positing an invisible world of projections to skirt around mainly theory-internal problems. Tacking syntax down to a semantic hierarchy, however, alleviates this problem by allowing us to make refutable predictions about the possibilities of human language. Even with our cursory glance at external possession, we've made several surface-level claims about language: that TEPC from an agentive clause is impossible, that EP corresponds to an increased pragmatic salience of the possessor (not vice versa) and that externalization of non-possessor elements of arguments is not similarly motivated on pragmatic grounds and thus is substantially less likely to occur in natural language.

At that, building syntactic and semantic processing in together also substantially limits the palette with which syntacticians can solve problems which, in Popperian terms, makes syntactic modeling far more 'scientific' (meaning refutable). As Cinque (1999; 20) notes, "a restrictive theory should force a one-to-one relation between position and [semantic] interpretation (i.e., one specific and distinct interpretation for each position of 'base generation')," while later adding that "[t]he crucial point, then, is whether *all languages* have the

[7] Generally speaking, all stereotypes are true, but that's not to say they're not mean. :'(

same full array of interpretations. Although we cannot be certain, as usual, the available evidence indicates that they do" (132). That is to say, the economy and chance of falsifiability are large pluses in themselves, but even greater is the fact that language *does indeed* seem to show the otherwise highly unlikely semantic hierarchies as demonstrated by Cartographic Approaches. Cinque (1999) made this argument of adverbs and verbal morphemes, Scott (2002) made it of adjectives and I would argue that a similar hierarchy is clear in verbal argument structure, in a way that strongly substantiates a universal thematic hierarchy as proposed by Baker (1988).

Still the theoretical mess is one issue a highly autonomous syntax, but the problem posed for actual first language acquisition is a powerful one as well. If we imagine a language-learning child who searches for exclusively formal rules in language without reference to semantics, we have to acknowledge that there is effectively an infinite set of possible hypotheses, rules, and exceptions the child can generate for any given alternation or derivation in language, especially given the notorious Poverty of Stimulus involved in actual language acquisition which would be unable to fully prune back erroneous formal generalizations of language. It is much more understandable that a child's 'language acquisition device' understands and interprets linguistic data with the assumption that the variations seen in the surface form are based on the predictable semantics and pragmatics of an expression underlying it. This assumption would drastically curtail the range of hypotheses a child would implicitly make of language and thus significantly facilitate language acquisition. Given, for example, Cinque's hierarchy of adverbial projections and its position in Universal Grammar, if a child ascertains that the meaning of the word 'usually' there is no need to generate hypotheses as to whether it should be generated syntactically superior or inferior to adverbs like 'always' or 'well.' The order of *usually >always >well* (Thus 'He usually always sings well,' and *'He well usually sings always') is implicit in

the child's natural grammar. Understanding a hierarchy as we have reviewed here, the parameters that need setting in a language become functionally limited to the number of computations that can occur between elements in a chain (i.e., a child must simply decide whether wh-movement is covert or overt, whether head-movement is, whether external possession is etc.). In essence, this implies that all languages demonstrate the same transformations, varying only as to whether they are overt or covert on the 'surface representation.'

Still at first blush, it might seem that we have exacerbated the problem of the evolution of the LF. That is, if we assume that there are inherent syntactic positions in the architecture of language that are related to semantic notions: an affectedness projection, an agency projection, universal projections for verbal tense, mood and aspect, etc., we seem to be saying that the language faculty is an incredibly complex one, and thus more unlikely to arise in the few millions of years separating man from other apes. I think this interpretation is not only wrong, but patently backwards.

In the terminology of Hauser et al., I would say that the complexities revealed by Cartographic Approaches to syntax as well as the exploration of the semantics of argument structure here are actually parts of the Faculty of Language in the Broad Sense. When we posit "overlaps" like this between the systems of syntax and semantics, we are in effect exporting the complexities of the module of syntax (effectively the FLN) to the module of semantics (effectively the FLB). Our minds' capacity for reasoning and semantic processing are assuredly not specific to language, and indeed to one degree or another are shared with all other animals- thus we have no reason to assume this faculty is simple, consistent or economical seeing that it has evolved over the course of billennia.

The evolutionarily recent and economical FLN I would argue is simply a small linking mechanism which matches the 'projections' on the semantic hierarchy with lexical items and linearizes them in such a way consistent with whatever 'parameters' an I-language might have. This is the bare minimum of added cognitive processing sufficient to distinguish animal and human verbal capacity and it thus efficiently deals with the evolutionary problem of language: it cuts down the FLN into a small but fundamental role of linking the semantic hierarchy underlying human thought to linear order. This linking role is a much more plausible evolutionary product than a highly pristine and autonomous syntactic engine implicitly conceptualized at the beginning of the Generative Program.

There are several important notes to make on this. If this is a reasonable statement on the nature of the syntax of language, then it can first be said that syntactic analysis is not so much of a venture into an insular language faculty, but into the general cognitive traits of humans. This includes the facts we have addressed here with alternations such as thematic external possession. TEP is not mere syntax, but a syntactic alternation that expresses a discursively and truth-functionally different construal of events than its alternative. The universals of EP might be superficially syntactic, but if the structure of human language is based on the semantics behind it, that same superficial syntax is generally a window into the semantic and conceptual processing of humans. In the same way, despite athematic EP not varying from IP on semantic grounds, we still see that the formal syntactic changes occur in tandem with pragmatic shifts, and these differ in a systematic and principled way from both TEP and IP.

Additionally, if this hierarchy of conceptual processing is indeed not part of the FLN, but the FLB, we can reasonably assume that animals which are cognitively similar to humans should bear a conceptually similar cognitive repertoire. Presumably, the complexity of the 'functional

heads' we see in the architecture of language is a gradually-evolved cognitive structure present in many if not all our close relatives to some degree or another. The only difference between humans and nonhuman animals is the small FLN which matches the elements on this semantic hierarchy with linguistic signs and linearizes and externalizes them in a language-specific way.

Let's also be clear of what I mean by 'externalize.' Language is, obviously, phonetically encoded and enunciated (externalized) for purposes of communication, but importantly, it is also 'externalized' from the lower levels of cognition into the conscious mind. While the event semantic hierarchy shown by syntactic cartography may exist in the depths of the unconscious mind, beyond the access of intuition and for the apparent strict purposes of event and entity evaluation, language, however, serves to externalize this hierarchy in a piece-meal fashion into the realm of the conscious portion of the brain. Language brings to our awareness very complex semantic dependency relationships, interestingly enough, without giving us a conscious understanding of the *actual* processing that goes into them. This is why students in a class on formal semantics can have immediate and intuitive judgments of the conditional acceptability of complex tensual and aspectual interrelations, but not necessarily understand the formal constraints that go into them, even if these formal constraints are mirrored, at one level or another in the abyss of the human information processing system. Language, thus, raises a portion of this system into the realm of our conscious understanding; without it, very complex event comprehension would still occur, but not at a level amenable to meta-cognition. This might, as it happens, serve as a purpose of language equally if not more important than language as a mode of interpersonal communication.

3.3 Experimental Possibilities

We can make arguments from economy of theory and biological plausibility, but perhaps a more direct vantage point to the reality of a theory is psycholinguistic research into how precisely the human mind goes about processing syntax and semantics.

It's important to be clear on terminology. It's common for psycholinguists to talk about the substantial psycholinguistic differences known between 'semantic' and 'syntactic' processing, but the 'semantics' spoken of here are not the same which I intend. Most psycholinguistic research into semantics focuses on specifically *lexical* semantics, and most active research done covers the retrieval of lexical items and their interactions with each other, this retrieval being manifestly different in psychological nature from syntactic processing. The semantics which is of interest to me here, and the semantics at work in external possession, is that read into words by the syntax of a language.

That is to say, I have implied in line with UTAH that syntactic position is a mirror of *argumental* semantics, that is, whether a nominal is read as an agent, patient, affectee, experiencer etc. Similar research into the semantics of verbal cartography could be conceivably called *conceptual* semantics. To my knowledge, there has not been psycholinguistic research done into semantics of this nature in as many words. Testing the implications of what I have formulated here would, however, be relatively easy given methodologies already at work in psycho and neurolinguistic research.

Musso et al. (2013) (and other research in Moro 2013) have demonstrated that patterns in pseudo-languages violating and not violating UG principles are processed fundamentally differently in the brain, as demonstrated by magnetic resonance imaging (MRI). If participants are taught fabricated languages, fabricated languages obeying the syntax of UG are processed in precisely the same way that one would process an actually existing language, even if one speaks

a typologically incomparable native language. However fabricated languages violating UG principles are indeed solvable, but are processed differently in the brain itself as shown by MRI, with additionally an increased error rate and response time.

To test the validity of verbal or argumental cartography, or the general undisentanglability of syntax and semantics I have suggested here, one need only throw argumental semantics into a similar experiment. For example, if the semantics and pragmatics of TEP are inherent in its variant syntax, one could design an experiment to test this. Fabricate a language where unmarked possession is expressed by a construction resembling EP, while a construction *semantically* similar to real-world TEP (with possessor affectedness) is expressed with what looks like IP. One should expect if what I have formulated here is true, that this kind of fabricated language with a backwards system of possession should be incapable of being processed as a real natural language, and its semantic disjoints are equally contradictory to 'UG' as any of Musso et al.'s fabricated languages with non-UG syntax. This is all granted the fact that the particular syntactic collocations of words in this hypothetical language still follow constructions in real natural languages, but their concordant semantics clash with the structure I suggest to be read universally into language.

One could similarly test the innateness of Cinque's cartographies by fabricating languages with morphemes or adverbs which contradict the order stated in his formulation. Again, we should expect if this order is more than a mere coincidence, that participants should have as much trouble processing these orders as contra-UG syntax. Now the interpretation of such results would be up for debate. They would be consistent with my view expressed here, but also with the quite importantly different view of Cinque (cfr. 2012), that cartographies are not so much an issue of semantic processing, so much as a somewhat arbitrary set of semantic

projections that have happened to be integrated into UG in the evolution of the LF. Either way, such experimentation would drive forward research and highlight the fact historically neglected fact that syntactic structure is built part and parcel with semantics and pragmatics.

3.4 Theoretical Momentum

I've presented a fuzzy mosaic of a somewhat novel theory of grammar here. I say 'somewhat' because in many ways, movements in the field have been escalating into a tighter interface between syntax and semantics since the inception of Generative Syntax. This, of course, was partially an inevitability since the two were originally characterized as maximally distinct in the great autonomy of syntax in the 'Standard Theory' of Chomsky (1965). Additionally, it is not necessarily clear to me whether there is a psychological reality to the institutional divide between semantics and pragmatics.[8]

But what about the leftovers? For all the aspects of syntax which can be conclusively tied down to a semantic or pragmatic motivation, what of those which continue in their classical autonomy? Indeed, aspects of syntax such as the External Projection Principle, *that*-trace effects,

[8] In formal terms, semantics and pragmatics are clearly different entities in that semantics is truth-functional, while pragmatics, governing language use, is not, being situational. However peering into the psychological reality of language processing and cartographies, it is not absolutely clear where semantics can be said to end and pragmatics begins. One of the erroneous, I think, assumptions of linguists working in semantic and pragmatic processing has been to look at the human linguistic system as if it should or does recapitulate formal logic or the formalisms of pragmatics.

In reality, information processing in the mind is probably such that there is no stark division between the two, nor do humans compute the world in terms of truth conditions, therefore the academic division between semantics and pragmatics may be mentally unfounded (although not the say unimportant for formal reasons). I can't state this with certainty that this is the case, but the idea that the human mind is a computer working at its base in terms of formal logic (the main fallacy of Generative Semantics) is simply queer. From this it should follow that we have no reason to even posit a distinction between truth-functional semantics and non-truth-functional pragamtics.

structural case assignment and others seem to be utterly unlinked to semantic factors. There are a number of possibilities.

As I've mentioned, one, perhaps the most economical and theoretically alluring answer is that all these apparently arbitrary aspects of syntactic independence are epiphenomenal: they all fall out from simple formal rules based on a semantic core. That's to say, just as the impossibility of TEP in agentive clauses falls out from the wider semantic core of the agency projection over the affectedness projection, other seemingly neurotic restrictions (perhaps say *that*-trace effects) fall out of other yet unearthed facts of semantic or computational structure. It's often the case that these "purely syntactic" aspects of language bear whispers of correlating with semantic or pragmatic factors. Languages with split ergativity are a good example of this; if assignment of nominative, accusative, ergative and absolutive cases is arbitrary, why should so many split ergative languages vary in morphological alignment (whether accusative or ergative case is assigned) in different verbal aspects? As Coon (2013) notes, a huge portion of split-ergative languages (Hindi, Basque, Chol, Tongan, Georgian, and many others) show an ergative alignment in perfective aspects and accusative alignment in imperfective aspects, without any cases varying in the other direction.[9] Notice also that the apparently formal difference in case assignment in these languages often does bear semantic or pragmatic corollaries in a way comparable to external possession. Anand and Nevins (2006), for example, show that the possibilities for scope ambiguities in Hindi vary on whether or not the agent is assigned ergative case (in perfective predicates) or nominative (in imperfective predicates).

[9] With a mind for cartographies, this fact might have to do with the locus of perfective aspect within the structure of language. A verb or a verbal argument may be structurally positioned differently dependent on the Aktionsart of a predicate, and this might be realized in a systematically different alignment of case assignment, as shown in split-ergative languages. There are many thoughts to be had here.

(44) a. koi shaayer har ghazal likhtaa hai.
some poet.N every song.A write.IMP be
'Some poet writes every song.'
∃x ∀y | poet(x) & write(x,y) |
∀y ∃x | poet(x) & write(x,y) |

b. kisii shaayer-ne har ghazal likhii.
some poet-E every song.N wrote
'Some poet wrote every song.'
∃x ∀y| poet(x) & write(x,y) |
*∀y ∃x| poet(x) & write(x,y) |

(44a) shows an imperfective predicate which yields an accusative alignment, while (44b) is a perfective predicate assigning ergative alignment. In the first case, the utterance is ambiguous as to scope, and the universal quantifier from the object positions may scope over the whole clause. Yet this is *not* the case in (44b), where only the scope equivalent to linear order is possible. Data such as this seems to indicate that the two agents, differing only by case assignment yield utterly distinct syntactic properties, calling into question the notion that case assignment is a function of 'mere' syntax.

Take also structural case 'optionality' like that below in Korean (O'Grady 1991; 139) and Icelandic (Thráinsson et al. 2004; 314).

(45) a. John-i Yeongmi-ga aphuda-ko miteotda.
John-NYeongmi-N sick-COMP believe

b. John-i Yeongmi-reul aphuda-ko miteotda.
John-NYeongmi-A sick-COMP believe
'John believed Yeongmi to be sick.'

(46) a. Honum tókti gentan vera stuttlig.
him.D seemed girl.N be.INF entertaining

b. Honum tókti gentuna vera stuttlig
him.D seemed girl.A be.INF entertaining
'The girl seemed entertaining to him.'

Despite the fact that both nominative and accusative case are available to these 'accusativus cum infinitivo' constructions, my consultants showed a strong general preference for (45a) over (45b), indicating at some level, even purely 'abstract' case has some kind of pragmatic effect, albeit not sufficiently understood as of yet. Relatively common facts like this might at least be the proper wedge to assault the possible interface of structural case and semantics and reveal yet another aspect of syntactic autonomy to be theoretically premature.

There may be truth to this idea, but potential holes, fatal or otherwise, can be poked in it. Firstly, if language is naught but semantics and pragmatics, why should languages vary at all? I have motivated EP on semantic and pragmatic grounds, but why shouldn't every language employ EP, and at the same times? If we discover some kind of pragmatic factor that seems to motivate, say, the EPP, does it follow that languages with or without it are eternally pragmatically distinct?

These are worthwhile questions to contemplate, but I think that the working assumption of formal linguistics should be to minimalize the truly formal aspects of syntax. A fruitfully scientific approach to a cognitive science should entail constantly trying to reduce known formal tendencies to yet deeper underlying principles; and my point here is that the next frontier of these underlying principles is in the semantic cartography of human language. If my intuitions are remotely valid, linguistics is not simply the study of how words are pieced together, but it is a quite direct view into the processing cartography that underlies human cognition. Linguistics, specifically the study of syntax, can yield a strong testament to how humans process and understand events and the world around them and can finally aid in the modeling, reverse-engineering and perhaps even the understanding of the human mind and experience.

"The linguists have this peculiar capacity to make whatever they do seem terribly important."

–Skinner

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APPENDICES

A. Glossing Abbreviations

Gloss	Translation
1	first person
2	second person
3	third person
A	accusative
AC	active
ADJ	adjective
D	dative
C	complementizer
DET	determiner
E	ergative
ec	empty category (trace, pro)
EV	evidential
FUT	future
G	genitive
HON	honorific
IMP	imperfective
IMPERS	impersonal
IN	inactive
INF	infinitive
INST	instrumental
LOC	locative
N	nominative
NOM	nominalization
O	oblique
OBJ	object
P	plural
PFV	perfective
Q	question
REFL	reflexive
S	singular
TOT	totalitive

B. Terminological Abbreviations

Abbreviation	Translation
#	infelicitous
%	dialectical or situationally acceptable
*	ungrammatical
?	questionable grammaticality or felicity
AEP	athematic external possession
AEPC	athematic external possession construction
EP	external possession
EPC	external possession construction
FLB	the faculty of language in the broad sense
FLN	the faculty of language in the narrow sense
IP	internal possession
IPC	internal possession construction
LF	language faculty
TEP	thematic external possession
TEPC	thematic external possession construction
UG	universal grammar

C. A Typology of External Possession

Below is a brief chart cataloguing some of the different external possession constructions in various languages. The columns list language names, their genetic family, whether they bear thematic (T) or athematic (A) external possession and what form of EP they have (sources being in the final column). The abbreviations for the form of EP are as follows:

CA case alternation of possessor (and sometimes possessum)

MV movement of possessor

NI noun incorporation of possessum

PD possessor datives

VI verb inflection agreeing with possessor

Language	Family	T/AEPC	Form of EP	Sources
Spanish	Romance	T	PD	Tuggy 1980, Kemchinsky 1991, Roldán 1972
French	Romance	T	PD	Kayne 1975
Italian	Romance	T	PD	Cinque and Krapova 2009
Bulgarian	Slavic	both	PD	Cinque and Krapova 2009
Korean	N/A	both	CA	O'Grady 1991, Tomioka and Sim 2007
German	Germanic	T	PD	Lee-Schoenfeld 2006, Hole 2006
Northern Pomo	Pomoan	T	CA	O'Conner 1996, 2007
Guaraní	Tupian	T	NI	Velasquez-Castillo 1996
Nez Perce	Sahaptian	A	CA	Deal 2013, to appear
Hebrew	Semitic	T	PD	Borer and Grodzinsky 1986, Landau 1991, Siloni 2002
Tz'utujil	Mayan	A	MV	Aissen 1992
Mayali	Arnhem	T	NI	Evans 1996
Japanese	N/A	A	CA	Uehara 1999
Creek	Muskogean	T	VI	Martin 1999
Maasai	Nilotic	A	VI	Payne 1997

Tzotzil	Mayan	A	VI	Aissen 1987
Tukang Besi	Austronesian	T	VI	Donohue 1999
Choctaw	Muskogean	A	VI	Davies 1986
Kanun	N/A	T	VI	Donohue 1997