The *Why* Versus *How* of Word Order: What Determines True Optimality?

Brandon M. A. Rogers

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1. Introduction

Generative grammar has long sought to show that all human language is governed by universals that are inherent for all human beings. Human language seems to share various similarities that are at times subtle and at others more obvious (Legendre 2001). In fact, typologists have grouped languages together based on their similarities in linguistic fields such as syntax, morphology, and phonology (O'Grady, Archibald, Arnoff, Rees-Miller, 2005). These groupings are known as language families. Typologists look at the similarities and differences between languages and try to trace as much information as possible to a common source. They then seek to explain *why* two languages that come from a common source differ in some respects and why they conserve some similarities. Cognitive approaches to language would argue that the *why* is central to understanding human communication, since the way the language is used is a direct reflection of the psychological reality of its speakers. Generative grammar is not so much concerned with the *why* of language change and variation as it is with the *how*. Generative Grammar seeks to *describe* how universals work in human language within the same realms of syntax, morphology, and phonology, rather than explain why those universals work the way they do across the gamut of human language. A generativist would argue that the *how* shouldn't be the main focus, since a speaker's inherent knowledge of language is what needs to be studied to truly understand language (Chomsky 1965).

The debate between the *why* and the *how*, or a descriptive vs. explanatory approach, has long been a central focus in linguistics, with both sides of the debate arguing with an equal

amount of fervor in favor of their respective reasoning. Using Optimality Theory (OT), the present analysis will investigate this question within the realm of syntax, focusing specifically on finite declaratives in three languages: Spanish, English, and Mapudungun.

1.2 A brief history of Generative Grammar preceding Optimality Theory

The theoretic concept of Universal Grammar (UG) seeks to explain the many apparent shared traits and nuances that human languages have been shown have. The argument made by generative grammar in favor of UG is that everyone is born with the same set universal linguistic rules "pre-programmed" into their mental framework as a type of set code found within the makeup of the human genome. These rules and representations are then organized according to the linguistic community that the individual belongs to. Theoretically, UG should be able to provide all of the possible representations to account for all possible grammatical outputs in human language. A key premise within generative grammar is the distinction between *competence* and *performance* (Chomsky 1965). Chomsky (1965) defines *competence* as "the speaker-hearer's knowledge of his language" (or the underlying representations and rules provided to the speaker by UG), and *performance* as "the actual use of language in concrete situations" (or how the language emerges on the surface through the actual production of the speaker). Generative theory's main focus is on *competence*. Chomsky states that only under an ideal situation with a "perfect" speaker who "knows [his] language perfectly and is unaffected by such grammatically irrelevant conditions such as memory limitations, distractions, shifts of attention and interest, and errors...in applying his knowledge of the language in actual performance...is performance a direct relation of competence" (Chomsky 1965, p.3-4). In other words, a speaker's knowledge of their native language is never fully reflective of what comes

through during production of surface forms of a given grammar.

Various theoretical approaches as to how the underlying representations of UG become what they are (or what they ideally should be) on the surface have been proposed throughout the years. Generative Grammar began to first take hold with the publication of Chomsky's work related to the syntax of English. One of the concepts that Chomsky proposed was *deep structure* of syntactic representations. According to Chomsky, the *deep structure* reflects the underlying semantic representation contained within a speaker's linguistic *competence* of his or her language. From there, any number of movements or modifications can happen, (depending on the type of utterance), and what surfaces in the speaker's *performance (*or production) is a transformation that has been phonetically interpreted from the *deep structure* representation (Chomsky 1965, p. 16). For example, the following passive sentence in Spanish,

1. (1) El puente fue construido por Juan.

The bridge was built by Juan.

Chomsky's theory of *deep structure* would say that underlyingly, a passive sentence is an active sentence. So the *deep structure* of (1) would be:

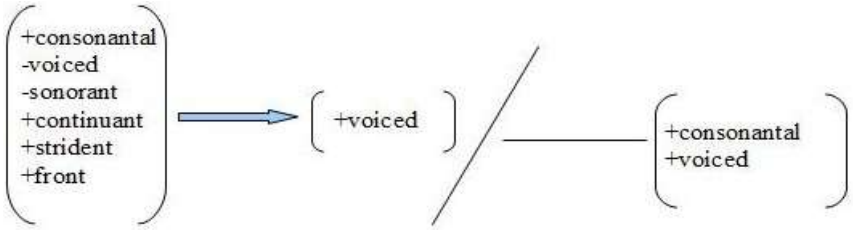
(2) Juan construyó el puente.

Juan built the bridge.

Implied in this presentation of the *deep structure* of passive surface constructions is that UG favors active constructions. If this is true, then every language in the world that uses some form of passive constructions uses the rules and relationships contained within UG to turn underlying active constructions into surface passive constructions.

This notion of underlying forms and representations has expanded to encompass the realm of phonology as well. Phonological phenomena were first represented by linear rules and

rule ordering. This approach is very similar to the Chomsky's transformational grammar in that an underlying phonological representation starts out in UG, rules are applied to it in a fixed order eventually giving rise to the surface form. For example, in Spanish, the voiceless, alveolar fricative /s/ tends to become voiced [z] when it precedes other voiced consonants. A simple linear rule for this phenomenon is seen in (3).

(3) 

In (3), the underlying form /s/ is described using distinctive universal features, and its transformation from [-voice] to [+voice] is shown to only need one step to occur. An example of linear rule ordering is seen in 4 and 5. In Chilean Spanish, like many other dialects of Spanish, aspiration or deletion of /s/ can occur in word and syllable-final positions. But, a unique feature of Chilean Spanish is that /s/ can also be aspirated in syllable-initial position (Lipski 2008). So, a word like "pasa" could be rendered as /pa.ha/. In order to account for this production, two rules can be used. While the following rules are indeed ad hoc, the elegance of the following representation in the present context is irrelevant since it is used simply to illustrate the concept of rule ordering in phonology and its similarity to syntactic transformation.

(4) SYLLABLE DIVISION: CVCV→CV.CV

(5) ONSET ASPIRATION: /s/→[h] / CV.__V

According to the theory, in order to render the desired production, the rules have to be ordered with (4) preceding (5), since /s/ (according to the rules) needs to be in onset position in order to be aspirated.

As the intricacies and highly complex nature of language began to manifest themselves, the shortfalls of a linear based approach became more and more apparent and other theories such as Autosegmental Phonolgy, and Feature Geometry were developed to try and explain what predecessors could not without resorting to ad hoc and highly abstract representations. Meanwhile, generativists were also modifying and adapting their own approaches to syntax. The prevalent approach to representing the underlying syntactic representations of UG soon became X-bar theory. X-bar theory was determined to be more aesthetically pleasing and elegant because of its binary approach to syntactic organization and structure. X-bar theory also provided an additional level, the bar level, which made it easier to differentiate between complements and adjuncts, thus more accurately and clearly representing syntactic relationships.

However, at the base of all of these generative approaches to both phonology and syntax are organizing rules that are considered inviolable. As a result, when a given phonological or syntactic phenomenon doesn't seem to follow the given rules, the theories start to become less elegant and more complex, often resorting to abstract diacritics and ad hoc assertions to explain the development of problematic surface forms from their corresponding theoretic underlying forms. By proposing and adhering to the inherent inviolability of the rules of UG, generative theory seemed to be trying to force language into various molds into which it did not fit.

1.2 Optimality Theory: Constraint Based Grammar

As stated by Archangeli (2000,) Optimality Theory (OT) is "THE Linguistic Theory of the 1990s" (p.340). OT was developed in the early 1990s by Alan Prince and Paul Smolensky. It was originally for application to phonology. With regards to traditional generative approaches to grammar Prince and Smolensky state,

> The standard phonological rule aims to encode grammatical generalizations in this format
>
> A →B/ C___D
>
> The rule scans potential inputs for structures CAD and performs the change on them that is explicitly spelled out in the rule: the unit denoted A takes on property B. For this format to be worth pursuing, there must be an interesting theory which defines the class of possible predicates CAD...and another theory which defines the class of possible operations A →B. (pp.4-5)

In other words, for traditional generative theory to work there must be a set of parameters that define the underlying forms that give rise to the surface forms, and then there must be a separate set of parameters that order the necessary operations to give rise to the output. Prince and Smolensky go on to state that such theories are "loose and uninformative" and propose a different approach where instead of UG being made up of inviolable rules and order of operations, UG is made up of universal constraints which are all violable. Constraints are organized within and language-specific framework and can be ranked and re-ranked based on the outputs of the language in question. Lower ranked constraints are violated in favor of higher ranked constraints. Where one constraint A may be ranked higher than another constraint B, in a different context B could outrank A and A could be violated to satisfy the higher ranking of B. Archangeli (2000) gives an example of how OT works applying it to syllable structure in Yawelmani. She gives four constraints:

1. PEAK-Syllables have one vowel
2. ONSET-Syllables begin with one consonant at an edge
3. *COMPLEX-Syllables have at most one consonant at an edge

4. NoCODA- Syllables end with an vowel

GEN-CV	PEAK	ONSET	*COMPLEX	NoCODA
☞CV				
☞CVC				*!
CVCC			*!	*
CC	*!		*	*

(from Archangeli 2000, p.343)

Option 1 is the most "optimal" fit because it doesn't violate any of the give constraints. Archangeli also says that option 2, CVC, is seen in Yawelmeni as well, and shows that it too is an optimal candidate when compared to options 3 and 4 because it only violates NoCODA, which is the lowest ranked of all of the constraints. The final two options commit fatal violations of at least one higher ranked constraint. Theoretically, if options 3 and 4 were representative of actual outputs in Yawelmeni more constraints could be proposed and rearranged to show the conditions under which 3 and 4 could emerge. Such a theoretical arrangement would require that other inputs violated higher ranked constraints than options 3 and 4.

1.21 OT and Syntax

Although OT was originally designed for phonology in recent years it has been applied to syntax. Legendre (2001) states

> "In developing generative theories of syntax the challenge has long been to reconcile two opposite kinds of empirical evidence. On the one hand, there is substantial evidence that languages of the world are deeply similar; on the other, there is also substantial evidence that they differ on the surface. For example, there are languages that allow sentences without a pronounced subject and those that do not, languages with prepositions and with postverbal objects and languages with postpositions and preverbal objects, languages that move question words to the front of the sentence and languages that leave question words

inside the sentence." (p.1).

In other words, languages seem to use many of the same elements and structures to organize phonological and morphological information within the deep structure of syntax. Yet, these structures and elements come out differently on the surface. For example, within a deep structure both Spanish and English might have an overt subject, but when the information is organized and comes out on the surface, that subject may or may not still be overt in Spanish, a pro-drop language, while it is always overt in English. Like early approaches to phonology, syntax was looked at from a similar perspective that governing rules were from UG and were inviolable. The inviolability of these theoretic universals created the same problems in the realm of syntax as it had in phonology. Syntactitions attempted to explain seemingly language specific syntactic surface phenomena using rules and descriptions that were supposed to be universal.

The first person to really pioneer OT in the realm of syntax was Jane Grimshaw. Grimshaw (1995) uses OT to argue that within an X-bar theory framework subject-verb inversion in English matrix questions occurs because of OT constraints that rank in the right order to require that all head positions be filled. She further argues that in the absence of auxiliary verbs, the constraint rankings are satisfied by do-support. Grimshaw and Samek-Lodovici (1998) use OT (again, within the framework of X-bar Theory) to show how topics and foci determine where a subject ends up being placed once the surface structure is attained. Aissen (1999) applies OT to the semantics behind different person/animacy ranks. Grimshaw (2001) analyzes clitic placement and order in romance languages. Sells (2001) uses OT to describe voice systems within different grammars and Broadwell (2001) uses OT to describe the relationship between phrase-structure rules and dominance relationships.

With specific regards to Spanish, Baković (1998) focuses on subject-verb in Spanish *wh*-

constructions. Within the framework of X-bar still, his basic premise is that across the different dialects of Spanish, inversion is determined by the ranking of two constraints: PURE-EP, which prevents movement upwards into the head of a subordinate clause, and STAY, which does not allow for traces. Costa (2001) in his description of Portuguese word order, also uses OT within the X-bar structure to show the emergence of unmarked word orders. In his analysis he argues that different word orders in Spanish, SVO and VSO, are the result of a simple reorganization of two constraints that he calls SUBJCASE and STAY. Costa says that SUBJCASE mandates that subjects receive their nominative case in the specifier of IP and STAY prevents movement. Examples (6) and (7) illustrate Costa's argument.

(6) Juan como palta.

Juan eats avocado.

(7) Come Juan palta.

Eats Juan avocado.

Costa argues that for the SVO word order in (6) to emerge SUBJCASE must dominate STAY. This would mean that the speaker would arrange their constraints in such a way that subject movement from within the verb phrase is more optimal than the subject staying in its original location. This violates STAY, but because SUBJCASE is ranked higher than STAY, the violation of STAY is acceptable in favor of faithfulness to SUBJCASE. If (7) is the resulting surface structure, then the ranking of both constraints would have to switch, with SUBJCASE being dominated by STAY. The movement of STAY to the dominant position would prevent subject movement from the verb phrase to the speficier of IP in favor of faithfulness to STAY. A problem with this analysis though is that Zagona (2002) reports that VSO sentences are only acceptable in certain cases where the subject isn't fully agentive as illustrated in (8) and (9).

(8) Sufre Pablo dolores horribles.

Suffers Pablo horrible pains.

Pablo suffers horrible pains.

(9) ?Hace Pablo postres horribles

Makes Pablo horrible desserts.

Pablo makes horrible desserts.

According to Zagona, (8) is more acceptable than (9) because the subject, Pablo, in (8) is less of an agent. In fact, although the verb inflection makes Pablo the subject of the sentence, he plays more of role of a patient since Pablo is the recipient of all of the inconvenience of his suffering. In (9) Pablo is portrayed as a prototypical agent who acts upon another object, in this case the horrible desserts he makes. Costa's analysis does not take into account agentivity; rather it only analyzes subject movement from the verb phrase into the specifier of IP. Also problematic to the generative paradigm, is where agentivity is assigned and/or determined. If it is determined by UG, what constraints govern the agentivity of a subject? The gradient nature of subject agentivity is also problematic since it isn't binary. This creates a problem for any approach within X-bar structure, including OT, no matter how violable its constraints. Part of this problem may be due to the fact that generative grammar has treated syntax as it does phonology in that underlying forms or deep structures give rise to surface representations.

1.22 Phonology vs. Syntax

Heck et. al. (2002), argue that if OT is to be used to describe syntactic phenomena, syntax cannot be treated the same way phonology is. Their main argument is that syntax conserves information while phonology doesn't. Phonological underlying forms are frequently shown to

go through processes such as epenthesis and deletion that either add or delete information. Phonological opacity is another phenomenon that doesn't fully reflect the information in the input. Heck et. al. argue that even when changes occur in the structure of a sentence, the altered information never leaves. Even in the case of movement, not only does the moved element remain, albeit at a higher level, but there is always a trace left to indicate where the moved element or elements originally were. Heck et. al.'s argument can be taken even further since all information that appears in syntax has already gone through previous phonological and morphological levels of linguistic processing. As a result, it could be argued that syntactic structure is a way to store and organize phonological and morphological surface representations and that underlying syntactic representations, or deep structures, don't exist. This is especially representable in OT. Because OT bases its output on the ranking and re-ranking of violable universal constraints, in theory these constraints could be ranked to properly organize all possible phonological and morphological output into acceptable syntactic representations for all human languages. The GEN function present in OT analyses of phonology and morphology would not need to be present in syntax since all necessary information has already been generated at the preceding levels. The only "input" on a syntactic level would be the previously generated information. Then, constraint order would determine the organization of what GEN had already produced. This approach allows for more flexibility since it does not view syntax as binary. Also, because the syntactic organization of what GEN produces is based on universal constraints, syntax can still be included as part of speaker competence.

The present analysis is based on Heck et. al.'s (2002) notion that syntax conserves information and does not produce surface representations of deeper syntactic structures. The present analysis focuses on Spanish word order in finite declaratives within the framework of

OT. This eliminates the need to make an argument basing constraints on the organization of X-bar theory. The use of constraints will show how information processed on the lower levels of phonology and morphology is organized once it achieves its surface representations. To show the potential universality of the constraints their functionality in Spanish will be compared to their functionality in English and Mapdungun.

2. Word Order

2.1. Spanish word order

Spanish has a relatively flexible word order. Contreras (1976) argues that the application of word order determining rules is based on the semantics of elements such as agent and patient. He also argues that the notions of rheme and theme play roles in how word order in Spanish is determined. Costa (2001) notes that Spanish allows for SVO and VSO constructions. Along with SVO and VSO orders, Zagona (2002) also cites VOS as an acceptable word order in Spanish. Examples 10-13 illustrate how Spanish allows for all three using the declarative "Pedro rents an apartment".

(10) Pedro arrienda un departamento. (SVO)

Pedro rents and apartment.

(11) Arrienda un departamento Pedro. (VOS)

Rents an apartment Pedro.

(12) ?Arrienda Pedro un departamento. (VSO)

Rents Pedro an apartment.

Example (12) is questionable with regards to its true acceptability because the subject is a prototypical agent. However, in other cases as previously seen in (8) and explained by Zagona

(2002), VSO is an acceptable word order in Spanish.

The present analysis uses the following constraints to explain how word order is organized in Spanish finite declaratives:

PRO-D- Null>Overt (Arstein, 1999)

OBJ-ALIGN -Object must immediately peripheral to the verb. Obj preferred position is post-verbal.

SUBJ-ALIGN-Subject has to be immediately peripheral to verb

SUBJECT>OBJECT (S>O)-when aligning subject and objects in relation to the verb, subj-first is the preference.

PRO-D states that null subjects are preferred over overt ones. OBJ-ALIGN keeps the object immediately peripheral to the verb on either the right or left edge, with the right edge being the default or preferred position when organization is complete. SUBJ-ALIGN maintains the subject in an immediately adjacent peripheral position to either the right or the left of the verb. S>O gives preference to the subject when subject and object are aligned relative to the verb. Since the analysis is based on the premise that syntax only organizes that which GEN has already generated, subject (S), verb (V), object (O), will essentially be "fed" or submitted to the corresponding constraint order to give the resulting organization.

(13) S-Juan, V-Comer, O-manzana

Juan, to eat, apple

S-Juan V-Comer O-Manzana	S>O	OBJ-ALIGN	SUBJ-ALIGN	PRO-D
La manzana come Juan	*!			*
Come la manzana Juan	*!		*	*
☞Juan come la manzana				*
Come Juan la manzana		*!		*

With S>O being the dominant constraint, the information of subject, verb, and object is organized into an SVO word order. "La manzana come Juan", an OVS word order, commits a fatal violation of S>O by lining the object up peripherally to the verb in a position antecedent to the position of the subject. "Come la manzana Juan", VOS, also commits a fatal violation of S>O and consequently violates SUBJ-ALIGN by placing the object between the verb and the subject. "Come Juan la manzana" is not considered optimal because it fatally violates the second highest ranked constraint OBJ-ALIGN by placing the subject between the verb and the object. "Juan come la manzana" is the ideal candidate in this case because the only violation it incurs is that of the lowest ranked constraint PRO-D, and the system accepts that violation in favor of faithfulness to the higher ranked constraints. However, Spanish is a pro-drop language, and frequently dropped subjects are preferred to overt ones.

(14) S-Ø (Juan),V-Comer, O-la (manzana)

Juan (dropped), to eat, Apple

S-Ø (Juan) V-Comer O-la (manzana)	PRO-D	OBJ-ALIGN	S>O	SUBJ-ALIGN
☞ Come la manzana				
La manzana come		*!		
Juan come la manzana	*!			

Candidate 2, "la manzana come", commits a fatal violation of OBJ-ALIGN because the object is placed into a left peripheral position relative to the verb. The language allows for the object to occupy both pre- and post-verbal positions, but the organizational preference is post-verbal, or the right edge. In the case of a sentence that doesn't drop the subject, the object has two options, and according to the governing constraints it should take a right adjacent position relative to the verb. This can be explained by an OT based phenomenon known as "Emergence of the Unmarked" (McCarthhy and Prince 1994). Emergence of the Unmarked is defined as when the effects of an unmarked constraint are still seen despite its low, dominated ranking. Here the same principle applies. Even though there is no low ranked, unmarked constraint that is dominated in this case, the effects of the preferred, or unmarked, placement of the object relative to the verb are still seen. This creates a fatal violation of OBJ-ALIGN by candidate 2. Candidate 3, "Juan come la manzana", incurs a fatal violation of the highest ranked constraint PRO-D and is therefore not considered optimal. Candidate 1, "come la manzana", commits no violation of any of the constraints and is therefore the optimal organization. Because this is a case of a covert or dropped subject, S>O and SUBJ-ALIGN are essentially invisible in the analysis, although it could be argued that instead of being dropped, the subject is covert since the inflection of the verb reflects the subject. Even if this were the case though, S>O and SUBJ-

ALIGN would still have very little influence on the final outcome because of the prominent ranking of PRO-D relative to the rest of the constraints.

Some difficulties arise when the use of clitics comes into play. With the current set of constraints, strictly in the context of finite declaratives, there is no constraint that makes "come la" less acceptable than "la come". The former is ungrammatical in Spanish, yet the current constraints, especially with the influence of Emergence of the Unmarked, would actually have it as more optimal than "la come". This necessitates the incorporation of a new constraint to account for the new information being presented for organization.

> OCCUPY-CLITIC (OC)-complement clitics move to a peripheral position immediately adjacent to the verb starting from left to right.

This new constraint governs the placement and organization of clitics relative to S and V. Clitics are always immediately adjacent to the verb on either edge (Zagona 2002). This presents a problem because they can't be treated as regular nouns, since nouns aren't always immediately adjacent to the verb in Spanish. Yet, in the case of direct and indirect objects they take the place of nouns that function as complements to transitive verbs. In the process of taking the place of direct and indirect object nouns, clitics become more limited with respect to their mobility within the syntactic organization of the material produced by GEN. In this analysis, we assume that they are different from normal nouns or objects, and therefore dependent on the verb. Emergence of the Unmarked prefers complement clitic placement to the left of the verb, even though right adjacent complement clitic placement is acceptable.

(15) S-Juan, V-Comer, O-la (manzana)

Juan, to eat, the (feminine singular)

S-Juan V-Comer O-la (manzana)	S>O	OBJ-ALIGN	OC	SUBJ-ALIGN	PRO-D
La come Juan	*!				*
Come la Juan	*!		*	*	*
☞Juan la come				*	*
Come Juan la		*!	*		*
Juan come la			*!		*

Candidate 1 creates a fatal violation of the highest ranked constraint S>O, immediately disqualifying it from being optimal. Candidate 2 also fatally violates S>O along with OC and SUBJ-ALIGN. Candidate 4 fatally violates OBJ-ALIGN and also incurs a violation of OC. Candidate 5 does not violate any constraints until OC, the third ranked constraint. This violation is largely caused by the Emergence of the Unmarked since the only difference between candidate 5 and the optimal candidate 3 is the placement of the clitic relative to the verb. Because the organizational preference is left adjacent, candidate 5 is considered a fatal violation. Candidate 3 does commit two violations, but the constraints it violates are ranked lower than all of the other constraints violated by the other candidates. It is important to note that candidate 1 is a viable construction in Spanish. For candidate 1 to emerge over candidate 3 S>O and SUBJ-ALIGN simply switch places on the constraint hierarchy.

S-Juan V-Comer O-la (manzana)	SUBJ-ALIGN	OBJ-ALIGN	OC	S>O	PRO-D
☞La come Juan				*	*
Come la Juan	*!		*	*	*
Juan la come	*!				*
Come Juan la		*!	*		*
Juan come la			*!		*

With the re-arrangement of SUBJ-ALIGN and S>O, candidate 3 now incurs a fatal violation of the highest ranked constraint and candidate 1 incurs no violation until the fourth constraint. All else remains the same and "La come Juan" emerges as optimal.

When a subject is dropped in a structure that uses complement clitics the constraints are organized as follows.

(16) S-Ø (Juan), V-Comer, O-la (manzana)

Juan (dropped), to eat, the (feminine singular)

S-Ø (Juan) V-Comer O-la (manzana)	PRO-D	OC	OBJ-ALIGN	S>O	SUBJ-ALIGN
Come la		*!			
☞La come				*	*
Juan la come	*!			*	
Juan come la	*!			*	*

Candidate 1 once again suffers the effects of Emergence of the Unmarked and its violation of OC is considered fatal because the clitic is right adjacent as opposed to left adjacent. Candidates 3 and 4 commit fatal violations of PRO-D since they do not drop their overt subjects. Candidate 2 emerges as the optimal organization.

2.2. Subject Agentivity

As previously discussed, VSO word order in Spanish is allowed, but is more acceptable in certain cases than in others. When the subject is less agentive, VSO tends to be more accepted, while prototypical agentive subjects aren't as accepted in VSO word order. As discussed before, this is problematic, since it could be argued that the gradience of the relative agentivity of the subject to the object and verb is determined on the level of performance. Traditional generative analysis cannot account for the gradient agentivity of subjects. They can give a descriptive account of what occurs, but as in Costa's (2001) analysis, their analyses will yield borderline ungrammatical constructions. This analysis will use Choi's (1999) thematic role hierarchy.

(17) Agent> Beneficiary> Experiencer/Goal> Instrument>
Patient/Theme>Locative

According to the hierarchy, the prototypical agentive role of a subject is first on the hierarchy and each subsequent member of the hierarchy decreases in agentivity. If the subject isn't a full agent, then OBJ-ALIGN and S>O are automatically ranked lower because the object does not attain full complement status.

(18) S-Pedro, V-Sufrir, O-Dolores

Pedro, to suffer, pains

S-Pedro V-Sufrir O-Dolores	SUBJ-ALIGN	S>O	OBJ-ALIGN	PRO-D
Dolores sufre Pedro		*!		*
Sufre dolores Pedro	*!	*		*
☞Pedro sufre dolores				*
Sufre Pedro dolores		*!	*	*

As the previous example illustrates, a simple demoting of OBJ-ALIGN still does not yield a VSO organization. A new constraint is needed.

*AGENT-ALIGN(*AA)-Subjects that do not attain full agentive status based on the thematic role scale (Choi 1999), are placed in an immediately right adjacent position relative to the verb.

S-Pedro V-Sufrir O-Dolores	*AA	SUBJ-ALIGN	PRO-D	S>O	OBJ-ALIGN
☞ Dolores sufre Pedro			*	*	
Sufre dolores Pedro	*!	*!	*	*	
☞ Pedro sufre dolores	*!		*		
Sufre Pedro dolores			*	*	*

The addition of *AA still leaves two potential candidates, allowing for the incorporation of a final constraint.

OBJ-ALIGN β (β)-Objects, and nouns that occupy the same position as objects, cannot be left adjacent to the verb

.

S-Pedro V-Sufrir O-Dolores	β	*AA	SUBJ-ALIGN	PRO-D	S>O	OBJ-ALIGN
Dolores sufre Pedro	*!			*	*	
Sufre dolores Pedro		*!	*!	*	*	
Pedro sufre dolores		*!		*		
☞ Sufre Pedro dolores				*	*	*

With β ranked the highest, candidate 3 emerges as the most optimal organization of the elements S,V, and O. The analysis is rather complex but an explanation of what is happening on the surface is not of concern within a generative framework. A description of what is happening relative to the speaker's competence is the desired outcome within the generative paradigm, and the previous analysis does just that.

2.3 Cross-linguistic Application

In order for constraints to be valid in their universality it should be possible to apply them to other languages. Mapdungun is a polysynthetic indigenous language spoken in Chile. It is considered a collective accusative language and thus, on a very basic level, can fit within the framework of the current analysis (Visser 2002).

(19) Iñché wül-ün ti trewa

I give-IND1s the dog

"I gave (gifted) the dog"

S-Iñché V-wül O-trewa	S>O	SUBJ-ALIGN	OBJ-ALIGN	*AA	Pro-D	β
Iñché ti trewa wül-ün		*!			*	
☞Iñché wül-ün ti trewa					*	
Wül-ün Iñché ti trewa			*!		*	
Wül-ün ti trewa Iñché	*!				*	

Candidate 2 emerges as optimal, while candidate 1 fatally violates SUBJ-ALIGN, candidate 3 fatally violates OBJ-ALIGN, and candidate 4 fatally violates S>O. The three lowest ranked constraints are invisible in this analysis, and therefore do not show any effects. The current set of constraints shows that it can work with this basic construction in Mapudungun. Due to the polysynthetic nature of Mapdungun, different constraints, along with the current ones, would have to be implemented to account for all possible grammatical word order organizations. This is beyond the scope of the current analysis.

English is known for a very rigid word order when compared to languages like Spanish. Despite this, the current constraints can still work within the organizational bounds of English syntax.

(20) S-John,V-To eat, O-the apple

S-John V-Eat O-Apple	S>O	OBJ-ALIGN	SUBJ-ALIGN	*AA	PRO-D	β
The apple John ate	*!				*	
Ate John the apple		*!			*	
☞John ate the apple					*	
Ate the apple John	*!		*		*	

Candidate 1 violates S>O fatally. Candidate 2 violates OBJ-ALIGN fatally. Candidate 4 violates S>O fatally and incurs an additional violation of SUBJ-ALIGN. Candidate 3, the optimal result, only incurs a violation of PRO-D, which is almost totally invisible within the context of English because English is a non pro-drop language. Due to the fixed word order of English, S>O will almost always occupy the most dominant spot on the constraint hierarchy. This explains the relative lack of flexible word order when compared to Spanish. Spanish allows for a greater variety of constraint arrangements which in turn results in a greater variety of word orders.

3. How vs. Why

The previous analysis of finite declarative word order using OT shows that a set of constraints can be used to describe different word orders in different circumstances in different, seemingly unrelated languages. It shows how different languages permit or reject certain word orders in finite declaratives and how this process is all based on language universals. Once again, the present analysis is based on the premise that there is no underlying word order

generated by UG. Instead UG, by way of GEN, produces information and material at the linguistic levels preceding syntax. Once at the level of syntax, UG arranges its constraints to organize that information into different language-specific word orders. Word order organization within an optimality theoretic framework is seen as a reflection of speaker competence. This competence does indeed emerge in performance, but as stated earlier, generative theory argues that outside factors can influence performance and give place to ungrammaticality which is not am accurate reflection of a speaker's competence. What is of most concern to the field of generative linguistics is *how* UG and speaker competence are organized not *why* certain phenomena emerge on the surface level. Nevertheless, this approach to linguistics is highly unsatisfying for many who take a more cognitive approach to human language.

A cognitive approach would argue that the *why* is what gives place to the *how* and the *how* in turn influences the *why.* Goldberg (2002) argues that the very outside factors that Chomsky (1965) labels as unimportant, are in fact what give verbs, lexical items, and constructions meaning. These items are encoded with information that relates directly to common human experiences. These human experiences, considered the *why*, influence the *how*, or the organization and structures of human language. These structures and organization in turn influence the *why*. Goldberg states, "[I]t is clearly not the case that the grammar works entirely top-down, with constructions simply imposing their meaning on unsuspecting verbs. In point of fact, there are reasons to think that the analysis must be both top-down and bottom-up" (p.24). In other words, by extending Goldberg's argument for the influence of verbs and constructions on one another, the *why* and the *how* of language are interconnected and each influences the other.

Bybee and Beckner (2010) argue in favor of a usage-based approach to linguistics.

> "Usage-based theory takes language to be an embodied and social human behavior and seeks explanations in that context. As the name indicates, this theoretical perspective incorporates the basic insight that usage has an effect on linguistic structure. It thus contrasts with the generative paradigm's focus on competence to the exclusion of performance and rather looks to evidence from usage for the understanding of the cognitive organization of language. Thus usage patterns, frequency of occurrence, variation, and change are all taken to provide direct evidence about cognitive representation." (p.829).

This approach is along the same lines of Goldberg's approach that humans use language based on human experience.

Some of the problems of focusing solely on competence are seen in the previous OT analysis of word order. The constraints presented do their job at giving a descriptive account of the data and examples used in the analysis. However, with non-binary issues such as agentivity, a generative account has to strain to avoid incorporating at least a small part of performance into its analysis. In fact, metaphorically speaking, the previous analysis had to essentially dip its toes into the waters of performance to explain agentivity. The constraint *AA, which places subjects that don't obtain a full agentive status to the right of a verb, bases itself on a scalar categorization of thematic subject roles. If generative grammar is only concerned with the *how*, then there is no place within the framework of competence for a scalar categorization of thematic subject roles. It would seem that these roles are determined by performance. Going back to Goldberg's argument that verbs and constructions influence each other in structure and meaning, it could be argued that subjects and verbs interact with each other in the same way. A mere analysis of the *how* gives no account of this interaction. It simply describes the final organization. Yet, the final

organization would seem to be dependent on the performance.

(21) Llegó mamá ayer

Arrived mom yesterday

Mom arrived yesterday.

(22)?Comió mamá ayer

Ate mom yesterday

Mom ate yesterday.

Examples (21) and (22) illustrate the influence of the verb on the agentivity of the subject. Based on Choi's (1996) thematic role hierarchy, as cited by Artstein (1999), the subject in (21) would be categorized as an experiencer/goal, while the subject in (22) would be classified as an agent. There is nothing in UG that indicates agentivity of the subjects, rather the different verbs in (21) and (22) are what determine the relative agentivity of the subjects. X-bar theory could give an account of this through theta role assignment, yet why (21) is more acceptable than (22) is left out of the analysis. In fact, Zagona (2002) merely states that VSO order in Spanish is more acceptable when the subject isn't fully agentive, but does not give any account of what causes this relationship. Costa's (2001) OT analysis places both on the same level of acceptability. An argument of transitivity could be made within a generative framework, since in the context "llegar" is intransitive, while "comer" is transitive. But such an argument would then have to deal with the relative degree of transitivity that "llegar" obtains in constructions like (23).

(23) Me llegó el mensaje al corazón

To me arrived the message to the heart

The message touched my heart.

The different contexts that "llegar" appears in appear to be what determines the transitivity of the

verb, which in turn, as seen in (21), influences the relative agentivity of the subject. These relationships directly affect the final organization of word order.

In seeking to give a better account of word order several analyses have sought to explain it based on the concepts of "new" and "old" information, topic and focus, and theme and rheme. Zagona (2002) investigates all of the previously mentioned concepts relative to Spanish word order. Keller and Alexopoulou (2000) seek to describe Greek word order basing their OT constraints on new and old information, topic and focus, and theme and rheme. The problem with this type of analysis is that in order for it to work the analysis has to step outside the generative paradigm and acknowledge the effects of performance on syntactic structures. Without information found in the performance data, a purely competence-based model has no way of determining which information is old and which information is new, where the focus and the topic are, or where the theme and rheme fall in a given utterance. This is because these elements are all dependent on context. This point is illustrated in (24) and (25).

(24) ¿Quién comió la manzana

La comió JUAN

(25) ¿Qué comió Juan?

(Juan) comió la MANZANA.

The focus in both (24) and (25) appears in capital letters. The only thing that indicates that "Juan" is the focus in (24) and "manzana" is the focus in (25) is previously given context. The prototypical generative approach would have no problem showing each of the constructions, but the construction is dependent on the focus which in turn is dependent on a previously given context. A generative analysis can indicate that a certain element is the focus, but then on what level is the focused determined? How can UG give an account of focus without context? What

level is the necessary context on: competence or performance? A cognitive approach could argue that context emerges on the level of performance and is dependent on the type of interaction occurring between given interlocutors. The type of information elicited influences the resulting structure of the response in order to effectively meet the communicative goals or demands of a given discourse. Zagona (2002) states that many times the focus or new information of an utterance receives the primary stress of the utterance it belongs to.

(26) ¿Qué hizo Juan con la manzana?

*(Juan) comió la MANZANA

(Juan) COMIÓ la manzana

Example (26) illustrates how elicited information influences the structure of the correct response. A generativist response would be that the deep structure is able to account for all possible responses. Yet the *how* seems to be dependent on the *why*. The information elicited is what Juan did with the apple. To respond correctly, the speaker places the main stress on "comió". A purely descriptive approach would say that the primary stress falls on the verb because it is the focus of the sentence. An explanatory approach would recognize that the stress placement is a direct result of a human behavioral response to elicited information. In other words, the *why* determines the *how*.

4. Conclusion

The debate between *how* language works versus *why* it works is central to the field of linguistics. At the beginning of the current paper Optimality Theory was used to investigate the effectiveness of a purely descriptive approach to how basic word order in finite declaratives can be determined across three different languages. The constraints proposed in the present analysis

were able to give a descriptive account of word order in finite declaratives in Spanish, English, and Mapudungun. Yet through the analysis several problems with a competence-exclusive approach became apparent. With something as basic as word order in finite declaratives, the competence-exclusive approach ran into several problems that required the addition of increasingly more abstract and ad hoc constraints. The biggest problem that arose was the issue of the scalar nature of subject agentivity. This appears to be a phenomenon directly related to performance and the interaction of verbs and structures with subjects. The OT account was able to describe why certain VSO constructions were acceptable in Spanish using additional constraints, but the relationship between subject, verb, and degree of agentivity, was lost since it is determined in the performance. So while OT was able to describe *how* UG can give rise to different VSO structures, it failed to reflect the physiological reality that causes speakers to reject VSO constructions like "hace Pablo postres horribles" yet accept other VSO constructions such as "sufre Pablo dolores horribles".

Generative grammar has contributed much valuable information about *how* language is organized and *how* it functions within specific organizational parameters. However, in order to understand how it functions it is impossible to ignore *why* languages function the way they do and *why* they are organized the way they are. The *why* in linguistics is what drives everyday language use and the *how* is what gives structure to everyday usage.

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