focus may play a role in how we treat mental state verbs like *worry* and *remember*.

Roeper, de Villiers & Hollebrandse (in preparation), borrowing ideas from Kratzer (1997) argue on behalf of a "point of view" feature in the CP of mental state verbs. de Villiers (1997) argues that children must learn to mark the complements of mental state verbs like *think* and *believe* as having a special status, some indication that they represent truths to be judged relative to the subject not to the world, i.e. that they introduce "possible world" semantics. Children do this typically at around age 4, however, the present data suggest that children might overinclude verbs in that class and hence allow wh-movement more frequently than they should from their complements. Some pattern of language use and meaning must inform the child about the appropriate classification, at which point wh-movement will be barred. All we can say at present from both child and adult data is that neither presupposition nor entailment patterns are sufficient triggers for the re-classification of the verbs in the present study.

Endnote

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Root and Manner Feature Faithfulness in Acquisition

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Numerous studies of early phonological development (normal or disordered) have identified phenomena which appear to involve different instances of manner assimilations. Some representative examples and/or citations are given in (1).

(1) Representative examples of manner assimilations

A. Glides assimilate to fricatives, Subject 9 (Dinnsen 1998)

[vɛrv]	'wave'	[vʊf]	'wolf'

B. Glides assimilate to nasals, Subject 23 (Dinnsen 1998)

[blonɪŋ]	'blowing'	[nonɪŋ]	'snowing'

(also Pater 1997)

C. Stops assimilate to nasals, Subject 29 (Dinnsen 1998)

[haɪnɪŋ]	'hiding'	[wɪnɪŋ]	'reading'

(also Stemberger & Bernhardt 1997; Stoel-Gammon & Stemberger 1994)

D. Stops assimilate to fricatives (Stoel-Gammon & Stemberger 1994; Vihman 1978)

E. Glides assimilate to liquids (Dinnsen 1998; Smith 1973)

Such replacement errors are theoretically interesting in several respects. First, manner assimilations of this sort are relatively rare in fully developed systems, especially with the long-distance relation between the trigger and target. It thus becomes important to identify the factors which may give rise to manner assimilations and which may distinguish developing from fully developed systems. Second, there is considerable variation in the substantive restrictions on what can serve as a target and trigger of assimilation, raising questions about whether these assimilations constitute a unified phenomenon. Derivational theories have approached accounts of these phenomena with some success through appeal to feature geometry and underspecification (or monovalent features), e.g. Dinnsen (1998). More specifically, by grouping the features [nasal], [continuant] and [approximant] together as dependents of the feature geometric organizing node Manner, and by underspecifying stops and glides for manner, a partial explanation is available for some of the target/trigger asymmetries. That is, only those segments specified for manner (nasals, liquids and fricatives) can trigger the spreading of their manner features, and only those segments underspecified for manner (obstruent

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stops and glides) can serve as targets of manner spreading. It may appear in some cases that fricatives, nasals or liquids also serve as targets of assimilation, but this may only reflect a statement of correspondence with the adult system, especially if there is no evidence to support the claim that the child represents those targets as in the adult system. There is no a priori necessity for assuming that children's internalized representations are identical to those of adults (Dinnsen in press). While this seems correct, at least as far as it goes, such an account is limited in several ways. First, if stops and glides are both underspecified for manner, why for a given child might only one or the other class serve as a target of manner assimilation? Children thus appear to differ in whether stops or glides are the permissible targets of these assimilations. Additionally, why for a given child might only some (but not all) of the specified manner features trigger assimilation? Again, individual children appear to limit their assimilations in different ways. For example, while a given child may allow stops to become nasals by assimilation, for that same child stops may not be replaced by the other expected triggers, i.e. by fricatives or liquids. Even more challenging to the above geometric account is the partial class behavior evident in some children's replacement of glides by both nasals and liquids but not by fricatives. The problem in this instance is that feature geometry allows one or all of the features of an organizing node to spread but certainly not two of three features (cf. Padgett 1995). Finally, the question remains about why these manner assimilations might occur in developing systems but not (or less so) in fully developed systems.

Answers to these various questions can be shown to follow from the alternate nonderivational constraint-based framework generally known as optimality theory (e.g. McCarthy & Prince 1995; Prince & Smolensky 1993). The purpose of this paper is thus to develop a typological account of manner assimilations within this framework. It will be argued that the apparent restrictions on manner assimilations are attributable to different characteristic constraint rankings, many of which are simply different instances of emergence of the unmarked. Also, the occurrence of manner assimilations in developing systems will be argued to correlate with other independently occurring error patterns relating to root feature faithfulness (i.e. parsing [consonantal] and/or [sonorant]).

We begin with a general sketch of the essentials of an optimality account of manner assimilation. Some of the constraints relevant to this account are given in (2) along with a preliminary ranking.

(2) Some constraints and a preliminary ranking

MAX[manner]:	Parse all input Manner features ([nas], [cont], [approx]).
ALIGN:	Align all Manner features to the left edge of a prosodic domain.
*COMPSEG:	Avoid complex (branching) segments.
MAX[root]:	Parse all input Root features ([cons], [son]).
*LIQUIDS:	Avoid liquid consonants.

Ranking: MAX[manner], *COMPSEG, *LIQUIDS >> ALIGN >> MAX[root]

Once children acquire any of the more marked manner features associated with nasals, fricatives or liquids, it seems clear that these features must be preserved, especially where they trigger assimilation, suggestive of a highly ranked faithfulness constraint MAX[manner]. This constraint apparently must outrank any well-formedness constraints militating against such manner features and would incur a violation if an output failed to parse a specified input manner feature. While manner features must be preserved, they must also be allowed to give way in targets of assimilation. There is, however, an asymmetry between targets and triggers as noted above, and this asymmetry is amenable to an account which parses only certain manner features, namely those that are more marked or specified for manner ([nas], [cont], and [approx]). The fact, then, that stops and glides are vulnerable as targets of assimilation is consistent with their being underspecified for manner in input representations. Modification of a stop or glide by the addition of a manner feature as a result of assimilation would not constitute a violation of MAX[manner] since the input representation of such segments includes no manner features to parse. Another highly ranked constraint, ALIGN, achieves the assimilation (spreading) effect by ensuring that specified manner features are left-aligned with some prosodic domain such as a syllable onset. For example, then, the manner feature of a fricative, nasal or liquid coda would be shared with a preceding stop or glide onset, complying with both MAX[manner] and ALIGN. In all cases, however, manner assimilations are blocked if ALIGN would result in a complex segment, suggestive of an undominated well-formedness constraint *COMPSEG. That is, if some manner feature were aligned with a segment already specified for manner (a fricative, nasal or liquid), an illicit branching structure with two manner features would obtain. The importance of avoiding complex segments while also preserving specified manner features compels a violation of lower ranked ALIGN. Finally, it must be noted that many manner assimilations also result in changes to the root features [cons] and [son]. For example the replacement of a glide by any other consonantal manner class entails an additional change in at least the feature [cons] and in some cases also the feature [son]. Faithfulness to these root features can apparently be sacrificed in favor of more highly ranked ALIGN. It is thus necessary to distinguish between highly ranked manner feature faithfulness (MAX[manner]) and lower ranked root feature faithfulness (MAX[root]). Interestingly, the lower ranking of MAX[root] associated with these manner assimilations appears to correlate with another common and independently occurring error pattern, 'Gliding' (which replaces a liquid consonant with a glide). Gliding would be characterized by ranking a well-formedness constraint disfavoring liquid consonants (*LIQUIDS) over the antagonistic faithfulness constraint MAX[root]. This correlation between gliding and manner assimilation offers some insight into why fully developed systems are less inclined to exhibit manner assimilations. To see this, consider first the general observation that developing systems tend to rank well-formedness above faithfulness, and fully developed systems tend to do the reverse (e.g. Gnanadesikan

1996). Additionally, any system with generalized undominated faithfulness will ensure that at least the root features are faithfully parsed. In other words, in fully developed systems where root feature faithfulness in particular is undominated, neither gliding nor manner assimilations will occur. Any connection between manner assimilations and gliding error patterns would be mysterious in other frameworks, but in optimality theory their co-occurrence in developing systems is expected as a result of the lower ranking of MAX[root]. This result is potentially significant for clinical populations because it suggests that eliminating a child's gliding error pattern (promoting MAX[root] above ALIGN) should also result in the elimination of manner assimilations.

The following two tableaux illustrate the above for a system where glides assimilate to a fricative (e.g. Subject 9 from (1)). For example, given an input for *wave* in (3), the faithful candidate (a) is eliminated because it fatally violates ALIGN. Candidate (b) is selected as optimal since it only violates lower ranked MAX[root]. The Tableau in (4) demonstrates how assimilation is blocked given an input for *nose* to yield the faithful candidate (a). While candidate (b) complies with MAX[manner] and ALIGN, it fatally violates undominated *COMPSEG. Similarly, while candidate (c) complies with *COMPSEG and ALIGN, it fatally violates undominated MAX[manner] as a result of its failure to parse the input feature [nas].

(3) Glides replaced by fricatives

/werv/ [cont]	MAX [manner]	*COMPSEG	ALIGN	MAX[root]
a. werv [cont]			*!	
b. ☞ verv [cont]				*

(4) Nasals block as targets

/nouz/ [nas][cont]	MAX [manner]	*COMPSEG	ALIGN	MAX[root]
a. ☞ nouz [nas][cont]			*	
b. nouz [nas][cont]		*!		
c. zouz [cont]	*!			*

We now turn to an account of individual differences. The above case includes some of these restrictions which we will revisit shortly. Consider a different case where a glide assimilates to a nasal but not to a fricative (e.g. Subject 23 from (1)). Such cases entail several restrictions on potential targets and triggers. For instance, stops do not assimilate to nasals or to fricatives. The fact that fricatives do not trigger assimilation of stops or glides can be attributed to emergence of the unmarked. The occurrence of fricatives is consistent with the faithful parsing of manner features and the dominance of MAX[manner] over an antagonistic well-formedness constraint disfavoring fricatives (*FRICS). While the lower ranking of a well-formedness constraint might seem to render it inert, its effect can be observed through its interaction with ALIGN, which would otherwise yield a multiply linked manner feature. Fricatives resulting from alignment would incur an added violation of *FRICS not incurred by the unmarked input glide or stop candidates. It is thus necessary to rank *FRICS below MAX[manner] but above ALIGN.

Given the input for *win* in (5), candidate (a) is eliminated because it fatally violates ALIGN. Candidate (b) is optimal because it complies with ALIGN, only violating lower ranked MAX[root]. For the word *wave* in (6) assimilation is blocked, illustrating emergence of the unmarked. Even though candidate (b) complies with ALIGN, it incurs two violations of higher ranked *FRICS. Candidate (a) incurs only one violation of *FRICS and thus wins.

(5) Glides assimilate to nasals

/win/ [nas]	MAX[manner]	*FRICS	ALIGN	MAX[root]
a. win [nas]			*!	
b. ☞ min [nas]				*

(6) Glides do not assimilate to fricatives

/werv/ [cont]	MAX[manner]	*FRICS	ALIGN	MAX[root]
a. ☞ werv [cont]		*	*	
b. verv [cont]		**!		*

This same strategy is not available to explain why stops do not assimilate to nasals. Since glides can become nasals as a result of ALIGN, the well-formedness constraint militating against nasals (*NASALS) must be ranked below ALIGN. It should, however, be noted that the replacement of a glide by a nasal preserves the input sonority of the target and trigger, whereas the replacement of a stop by a nasal changes the input sonority of the target. This suggests that MAX[root] is exploded to reveal its individual faithfulness constraints MAX[son] and MAX[cons]. If MAX[son] is ranked above ALIGN and MAX[cons] below ALIGN, targets of assimilation will preserve input sonority, but input consonantality will still be free to change. It is thus more important to preserve input sonority than it is to comply with ALIGN or MAX[cons], as illustrated in the Tableaux in (7) and (8).

(7) Glides assimilate to nasals

/wɪn/ [nas]	MAX [manner]	MAX [son]	*FRICS	ALIGN	*NASALS	MAX [cons]
a. wɪn [nas]				*!	*	
b. ☞ mɪn [nas]					**	*

(8) Obstruents do not assimilate to nasals

/daɪm/ [nas]	MAX [manner]	MAX [son]	*FRICS	ALIGN	*NASALS	MAX [cons]
a. ☞ daɪm [nas]				*	*	
b. naɪm [nas]		*!			**	

It is often the case that the gliding error pattern is limited to only one or the other of the liquid consonants, resulting, for example, in the occurrence of /l/ but not /r/. For children such as Subject 23 where glides assimilate to nasals, the occurring liquid consonant may also trigger assimilation of a glide to that liquid consonant. To account for the combined triggering effect of nasals and l's, the well-formedness constraint *LIQUIDS must be exploded into *[r]'s and *[l]'s with ALIGN ranked between the two. The Tableau in (9) illustrates for the word *yellow* how liquid assimilation obtains in conjunction with nasal harmony.

(9) Glides assimilate to a liquid

/jɛlou/ [approx]	*[r]'s	MAX [manner]	MAX [son]	*FRICS	ALIGN	*[l]'s	*NASALS	MAX [cons]
a. jɛlou [approx]					*!	*		
b. ☞ lɛlou [approx]						**		*

Let us now turn to the characterization of a different set of manner assimilations where an obstruent stop is replaced by a nasal (e.g. Subject 29 from (1)). In such cases, there are at least two other restrictions that must be accommodated. First, glides may not serve as targets of this assimilation. Second, fricatives may not trigger assimilation. The former restriction seems to suggest that assimilation occurs to the extent that the target preserves its input consonantality, even if its sonority is sacrificed. This is similar to what we saw earlier where MAX[root] was exploded with ALIGN ranked between its individual faithfulness constraints. In this particular instance, however, MAX[cons] must be ranked above ALIGN and MAX[son] below ALIGN. The lower ranking of MAX[son] in these cases is consistent with many children's nonassimilatory error patterns which find obstruent stops being replaced by nasals and/or liquids, what might be called 'sonorization' (J. Gierut, personal communication). The prohibition of fricatives as triggers of this assimilation once again follows as an instance of the emergence of the unmarked. That is, by ranking *FRICS below MAX[manner] but above ALIGN, input fricatives will survive in outputs, but fricatives will not be introduced by ALIGN. Our account of these restrictions is illustrated in the Tableaux in (10) through (12).

(10) Obstruents assimilate to nasals

/haɪdɪŋ/ [nas]	MAX [manner]	MAX [cons]	*FRICS	ALIGN	MAX [son]	*NASALS
a. haɪdɪŋ [nas]				*!		*
b. ☞ haɪnɪŋ [nas]					*	**

(11) Glides do not assimilate to nasals

/blowɪŋ/ [nas]	MAX [manner]	MAX [cons]	*FRICS	ALIGN	MAX [son]	*NASALS
a. ☞ blowɪŋ [nas]				*		*
b. blonɪŋ [nas]		*!				**

(12) Obstruents do not assimilate to fricatives

/touz/ [cont]	MAX [manner]	MAX [cons]	*FRICS	ALIGN	MAX [son]	*NASALS
a. ☞ touz [cont]			*	*		
b. souz [cont]			**!			

This account presently does not address the role of liquid consonants as a potential trigger of this assimilation. There are individual differences on this point which require modifications depending on the occurrence of liquid consonants in a child's system. For example, if liquids do occur but do not trigger assimilation, then emergence of the unmarked is once again exemplified, requiring *LIQUIDS to be ranked with *FRICS. On the other hand, if liquids do not occur in a child's system, then *LIQUIDS must be ranked even higher above MAX[cons] in that system. Finally, if only one type of liquid consonant occurs, then *LIQUIDS must be exploded to allow a faithfulness constraint to be ranked between the two well-formedness constraints, as discussed for Subject 23 above.

Let us now return to our first case of assimilation where a glide is replaced by a fricative. Recall that our account ranked MAX[root] below ALIGN to allow changes in both root features of the targets of assimilation. Since glides changed into fricatives as a result of ALIGN, *FRICS must also be ranked below ALIGN with MAX[root]. The low ranking of *FRICS would seem to predict that stops could also give way to fricatives as a result of this assimilation. The fact is, however, stops resist as targets if glides assimilate. The explanation for this restriction appears to relate to a larger issue bearing on relative sonority. Note that the likely targets of any instance of manner assimilation, namely stops or glides, are at opposite ends of a sonority scale. Additionally, alignment of manner features to stops increases the sonority of those targets, and alignment of manner features to glides decreases their

sonority. In either case, alignment of manner changes the sonority slope of the syllable margins, resulting in syllable margins with level (or equal) sonority. Interestingly, however, alignment of manner does not target both stops and glides combined. This results in a sonority slope asymmetry for syllable margins. A certain sonority slope will be leveled, and the opposite sonority slope will be retained. For example, then, in the particular case at hand, the falling sonority slope associated with a glide followed by a fricative is leveled by ALIGN, but the opposite rising sonority slope associated with an obstruent stop followed by a fricative must somehow be preserved. The need to preserve a rising sonority slope is suggestive of a faithfulness constraint MAXRISING, given in (13). This constraint computes the relative sonority of input segments in a sequence of syllable margins and incurs a violation if the relative sonority of either segment in a rising sonority slope is changed. This constraint differs from MAX[root] (which also deals with input sonority) by at least its reference to a sequence of segments in syllable margins and their relative degree of sonority.

(13) MAXRISING: Preserve a rising sonority slope in a sequence of syllable margins.

Input sequences of syllable margins with level or falling sonority are irrelevant to MAXRISING and thus are judged to comply with the constraint. By ranking MAXRISING above ALIGN, it is claimed that it is more important to preserve a rising sonority slope than it is to achieve level sonority. It is further claimed that it is more important to achieve level sonority than it is to preserve the falling sonority slope associated with a glide followed by a fricative.

The Tableaux in (14) through (16) illustrate how the above restrictions on manner assimilation are achieved for children who limit the targets to glides and the triggers to fricatives.

(14) Glides assimilate to fricatives

/werv/ [cont]	MAX [manner]	*NASALS	*LIQUIDS	MAX RISING	ALIGN	*FRICS	MAX [root]
a. werv [cont]					*!	*	
b. ☞ verv [cont]						**	*

(15) Obstruents do not assimilate to fricatives

/touz/ | [cont]	MAX [manner]	*NASALS	*LIQUIDS	MAX RISING	ALIGN	*FRICS	MAX [root]
a. ☞ touz | [cont]					*	*	
b. souz \ | [cont]				*!		**	

(16) Glides do not assimilate to nasals

/win/ | [nas]	MAX [manner]	*NASALS	*LIQUIDS	MAX RISING	ALIGN	*FRICS	MAX [root]
a. ☞ win | [nas]		*			*		
b. min \ | [nas]		**!					*

The final case of assimilation that we consider restricts the targets to obstruent stops and the triggers to fricatives (e.g. [souz] for *toes*). If MAX[root] is ranked above ALIGN, then stops will be prevented from being replaced by nasals or liquids, and glides will be prevented from being replaced by any class of consonants. Any of the illicit assimilations would entail changes in input root features. It is thus more important to preserve input root features than it is to align manner. The Tableau in (17) shows how in such cases assimilation is blocked by high ranked MAX[root]. However, as shown in the Tableau in (18), there is no violation of either constraint in the replacement of a stop by a fricative since ALIGN entails no change here in input root features. It should be noted that ALIGN does level the rising sonority slope of the syllable margins, suggesting that MAXRISING is dominated by ALIGN.

(17) Obstruents do not assimilate to nasals

/daim/ | [nas]	MAX [manner]	MAX [root]	ALIGN	MAXRISING	*FRICS
a. ☞ daim | [nas]			*		
b. naim \ | [nas]		*!		*	

(18) Obstruents assimilate to fricatives

/touz/ | [cont]	MAX [manner]	MAX [root]	ALIGN	MAXRISING	*FRICS
a. touz | [cont]			*!		*
b. ☞ souz \ | [cont]				*	**

In closing, we hope to have provided answers to some of the questions about manner assimilations through an appeal to optimality theory. A unified account emerged which attributed individual differences to characteristic differences in constraint rankings. A sketch of our typological characterization of manner assimilations is summarized in (19).

(19) General typology of manner assimilations
A. Triggers made available: MAX[manner] >> ALIGN, Well-formedness (WF)
B. Marked sounds block as targets: *COMPSEG >> ALIGN
C. Relatively unrestricted assimilation: ALIGN >> MAX[root], WF
D. Emergence of the unmarked: MAX[manner] >> WF >> ALIGN >> WF
E. Root feature faithfulness: MAX[son] >> ALIGN >> MAX[cons]
F. Sonority slope: MAXRISING >> ALIGN
G. Elimination of manner assimilation: Faith >> WF >> ALIGN

Triggers of these assimilations are made available by ranking MAX[manner] above ALIGN and the antagonistic well-formedness constraints. Nasals, fricatives and liquids block as targets of assimilation by ranking *COMPSEG above ALIGN. Relatively unrestricted assimilations obtain from ranking ALIGN above certain faithfulness constraints (including especially MAX[root]) and the well-formedness constraints militating against fricatives, nasals and liquids. The promotion of any of these lower ranked well-formedness constraints above ALIGN but below MAX[manner] imposes restrictions on assimilation which constitute emergence of the unmarked. Promoting any of the individual instances of MAX[root] above ALIGN also limits assimilation. For example, by ranking MAX[son] above ALIGN and MAX[cons] below ALIGN, targets and triggers are limited to just those which agree in and preserve their input sonority. Interestingly, ranking any part of MAX[root] below ALIGN also correlates with the occurrence of nonassimilatory error patterns such as gliding or sonorization. Such a correlation is unexpected in derivational frameworks. In optimality theory, however, the co-occurrence of these error patterns with manner assimilations follows from low ranked root feature faithfulness. Some restrictions on manner assimilation also appear to be attributable to preservation of the sonority slope of syllable margins. If MAXRISING is ranked

above ALIGN, only those syllable margins with falling sonority slopes will change. Finally, manner assimilations are entirely eliminated (as in adult English) if MAX[root] and the other faithfulness constraints are ranked above all well-formedness constraints and ALIGN is ranked below those well-formedness constraints. The relative rarity of manner assimilations in fully developed systems is thus attributable to their general tendency to rank faithfulness constraints over well-formedness constraints.

Endnotes

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Determining L2 Knowledge of Spanish Clitics On-line and Off-line

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1. Introduction

This paper reports on work in progress investigating clitics in second language (L2) Spanish. Duffield, Prévost & White (1997) showed that clitic placement could usefully be investigated using the Sentence Matching procedure (Freedman & Forster, 1985); we found that L2 learners of French successfully acquired knowledge of clitic placement, regardless of whether the L1 (Spanish or English) had clitics. The present study extends this work, examining a different L2, namely Spanish, and using an additional task to assess L2 knowledge of clitics. Our work has both theoretical and methodological goals. Theoretically, we are concerned with the nature of L2 competence, specifically with whether the interlanguage representation includes functional projections relevant to clitics, and the extent to which the L1 influences this representation. Methodologically, we compare two different task, one on-line and the other off-line. Results converge and complement each other in interesting ways.

2. Clitic Placement in Spanish and French

Our focus is on the L2 acquisition of accusative clitics by English- and French-speaking learners of Spanish. English is generally assumed to lack clitic pronouns, while French has clitics, albeit with a slightly different distribution from that found in Spanish.

Spanish and French clitics differ distributionally from both strong pronouns and full NPs in a number of important respects (Kayne 1975, Uriagareka 1995). The more obvious distributional contrasts are given below. First, object clitics occur to the left of finite verbs, in contrast to full NPs (compare (1b) with (1a, c)). (Spanish examples occur on the left, French on the right.) Whenever an auxiliary is present, the clitic must appear before it, as in (2a) vs. (2b, c).

(1) a. Juan ve a su amigo.
'John sees his friend'

b. Juan lo ve. — Jean le voit.
John him sees

c. *Juan ve lo. — *Jean voit le.
John sees him

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