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**The Role of Proto Morphemes in the Emergence of  
Speaker Inflections:  
Evidence for L1 Scaffolding in Spanish**  
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Person as a grammatical construct consists of a system of trinary distinctions which establish speech versus non-speech participant roles. There exists a binary distinction within speech participant roles, namely, that of speaker and listener, contrasted against non-speech participant roles. In Spanish such conversational role distinctions are virtually always realized as non-redundant affixes on the verb; subject pronouns are not merely non-obligatory-- their presence is marked, disambiguating or emphasizing the conversational participant.

Spanish is a quintessential illustration of an inflectional language not merely across constituents (person agreement between subject and verb) but within constituents (gender and number between nouns and adjectives). While gender and number affixes on nouns and adjectives reflect an obligatory redundancy, verb affixes of person/number most often appear as non-redundant inflections, such that subject pronouns, with which they agree, most often do not accompany the verb. Hence, the person affix on the verb is often the only marker indicating conversational roles within the clausal structure. Whereas, with respect to redundant grammatical categories, attention to both affixes is unnecessary, attention to non-redundant grammatical categories is paramount.

Attention as a linguistic facilitator in early ontogeny of non-redundant grammatical categories expressed as inflections is a necessary factor but is insufficient to arrive at productive use. But for the additional early developing system of working memory, linguistic strings would remain amalgam-like for a lengthy period in ontogeny. According to Bloom (1990), children's early productive utterances, from 1;6- 2;7, demonstrate that the number of

words/morphemes<sup>1</sup> (a large proportion of which are functors) is reduced to accommodate limited working memory slots. Valian, Aubry & Hoeffner (1996) indicate that Italian children with a Mean Length of Utterance (MLU) below 3;0 are more likely to delete free functors in initial position than are children with MLU's above 3;0 (mean age for MLU above 3.0=2;4). The existence of limited slots in working memory, especially before 2;0 (Valian, 1991; Valian & Aubry, 2005; Valian & Eisenberg, 1996), appears to depress the development of pre and proto amalgams into separate full fledged morphemes. To develop from proto morphemic to morphemic status the number of available memory slots need to increase.

Portuguese, Spanish and Italian constitute languages for which inflections on the verb often are non-redundant, clausal features. Given the aforementioned attention and memory constraint rationale, grammatical categories represented as non-redundant verbal inflections within these languages are likely to be protracted. Contrary to Hyams (1992) claim that verbal inflections are facilitated early productions in Italian, Pizzuto and Caselli (1994) argue that Italian children's productive command of verbal morphology is protracted. This issue of emergence of non-redundant verbal inflections in L1 has received only cursory attention with respect to Spanish; findings that do exist are in line with those which Pizzuto and Caselli found for Italian, in documenting a protracted period of development of person inflection morphology in Spanish. In focusing on the emergence of contrastive target forms of person, tense, and number Gathercole, Soto, and Sebastian (2002) indicate that person, in Spanish, is a later acquisition than are other non-redundant categories of tense and number. Such findings extend Pizzuto and Casselli's claim regarding Italian, to suggest that ontogeny of the category of person is more protracted than is that of other verbal inflections, tense, and number, in the many Romance languages. Nonetheless, Gathercole et. al. (2002) fail to trace the extent of emersion, namely, ontogeny of speaker reference from production of pre and proto morphemic developmental forms through stable and productive adult use.

Like Gathercole et.al., Fernandez Martinez (1994) and Ezeizabarrena (1997) merely document initial use of the adult person inflections without tracing how speaker amalgams develop from formulaic/proto morphemic forms, and/or use, to that which is morphemic. Failure to trace proto morphemic to morphemic forms viciates consideration of what it truly means to be emergent: examination of the range of semantic/syntactic environments of person markers. Although López Ornat (1994, 1997) and Carmen Aguirre (2003) have documented early production of proto nouns and proto verbs in Spanish, they fail to trace their ontogeny into morphemic forms. Moreover Aguirre (2003) does attend to the

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<sup>1</sup> A morpheme is the smallest meaningful unit in the grammar of a language. "The classical definition of a morpheme is a minimal formal shape or piece that expresses meaning. For example the English word *dogs* contains two morphemes: *dog*, which embodies the main semantic content of the expression, and *-s*, which embodies the meaning of plurality" (Payne, 1997 p.20)

development of person as a grammatical category without analyzing the use of person inflections as conversational referents: while she documents far greater tokens of third person singular forms than first and second person forms (5:1 respectively) in her case study, third person use remains unaddressed, i.e. the degree to which her subject's third person use refers to speaker self or non speech participant.

In Spanish, person morphemes are realized as bound functors which are non-redundant; they appear to be subject to a more protracted ontogeny than are both free functors (Van Patten, 2004 p. 8; Ellis, 2006) and bound functors whose redundancy extends across constituents. Evidence suggests that bound functors which are redundant within constituents are produced relatively early. According to Hernández Pina (1984), López Ornat, (1997, 2003), Silvina Montrul (2004), and Lleó (1998, 2001a, 2001b) gender and number agreement within constituents emerges at 1; 5 and 1;6, and incorrect gender agreement within constituents is typically resolved prior to 3;0 (Mariscal, 2009), while person morphemes on the verb are not produced until 2;8 (West, 1986, 1988). Such divergent findings support the claim that redundant inflections (gender/number agreement) are produced, and may be used productively, earlier on than are non-redundant inflections (person).

The rationale is that the presence of two identical sets of redundant structures places fewer demands on developing attention skills than does the presence of a single, non-redundant structure, i.e. if one of the two fails to enter the attention stream, the other provides a second opportunity for its inclusion in working memory. Hence, effective focus on non-redundant person inflections, requires refined attention devices, further supporting the argument that non-redundant functors are especially subject to protracted development. In view of the reliance on non-redundant bound functors, in Spanish, the grammatical category of person is particularly vulnerable to prolonged development. Protracted development of person is a direct consequence of prolonged use of pre or proto morphemes, which become amalgams (un- or under- analyzed morpheme strings), when used contiguously with other proto morphemes. The protracted development of non-redundant person inflections may in fact increase reliance on speaker amalgams.

The ultimate focus herein is a micro analysis (with respect to Spanish) of the ontogeny of morphemic speaker amalgams toward production of target, contrastive speaker inflectional forms prior to 3;0. The intent is twofold: 1) to trace the ontogeny of proto morphemic amalgams to non-amalgam status; and 2) to establish how it is that certain proto morphemic speaker amalgams can initially serve as a scaffold toward morphemic advances. Age at first appearance of developmental forms is determined; and the development of the respective form is traced, in terms of how each is employed morpho syntactically, as well as its attrition in favor of other more adult-like forms.

## METHOD

### *Participants*

Seven Spanish-speaking children who range in age from 1;6 to 2;10 constitute the participants of the study. This age range was chosen to capture the emergence and early use of speaker referents from their inception, inclusive ontogeny or proto morphemic to morphemic forms. The children's Mean Length of Utterance (MLU) <sup>2</sup> ranges from 1.50 to 4.75. According to Brown (1973) such represents the interval in development when combinatorial syntactic structures begin appearing and develop intraclausally, particularly those morphemes which express agreement between subject and verb, which is especially relevant in highly inflected languages such as: Spanish, Italian and Portuguese.

The origin of the participants is as follows: Three of the children are of Peruvian descent, three of Cuban origin, and one of Chilean descent. Care was taken in subject selection that all children experienced minimal exposure to a language other than Spanish. In all of the homes, exclusively Spanish was spoken among the members.

### *Data Collection*

A single forty minute natural speech sample was audio taped with each child individually. Each child represents a particular age in the continuum: from 1;6 through 2;10. Sessions took place at the child's respective home, with the experimenter together with a parent or familiar adult. In fact, the parent or familiar adult served as the primary interlocutor, as opposed to the experimenter, to elicit reliable data for the respective age and to maximize linguistic performance. The experimenter engaged the child only when person morphemes were not forthcoming as a matter of course, e.g., '¿quién quiere el caramelo?' (Who wants [the] candy?), to attempt to elicit 'yo' or 'quiero el caramelo' ("I do," or "I want candy").

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<sup>2</sup> Mean Length of Utterance (or MLU) is a measure of linguistic productivity in children. It is traditionally calculated by collecting 100 utterances spoken by a child and dividing the number of morphemes by the number of utterances. A higher MLU is taken to indicate a higher level of language proficiency (Bishop & Adams, 1990). In Spanish and other inflected languages, measurement in morphemes is especially instrumental, since measuring number of words only underestimates children's competence. In Spanish, the verb consists of a host of morphemic units inflected on a single root: the theme vowel (from -ar, -er, -ir infinitives), person markers (speaker/listener, etc.) number representations and tense and aspect. Hence, one word consists of several morphemes which is paramount in measuring level of structure and meaning competence.

## Data Analysis

The investigator developed a coding scheme to serve three purposes: 1) to determine the emergence of each of the speaker amalgams, 2) to determine the interval length of use of each amalgam and onset of adult speaker forms and 3) to trace the attrition of proto morphemic forms toward eventual production of adult, morphemic forms. Proto Morphemic/Developmental forms categorized on the coding scheme include: placeholder + noun, uninflected verb (+ noun), placeholder + uninflected verb (+ NP), and proper name of child (+ verb) (+ NP). The non-amalgam/target form categories include: subject pronouns without verbs, irregular first person singular verb forms and verb stems with discernable speaker inflections. To follow is an illustration of each of the proto morphemic/developmental coding categories:

Placeholder + noun, is typically phonemically realized as a schwa-like phone overlaid with prosodic features -- rising intonation, and increasing stress (the syllable is atonic with respect to other content based intraclausal constituents) -- followed by a noun, e.g. '/ə / caramelo'.<sup>3</sup> "Bare" verb is an uninflected third person singular verb form which refers to speaker, e.g. 'queye' or 'peye' often followed by a noun; Proper name refers to the child as speaker.

Proportions of developmental forms are derived from total number of person uses from particular corpora and measured each child's use of the form at the respective age. Frequencies were compared across children to uncover any trends with age. The range of utterances within corpora across children is 91 for the youngest subject, 198 for the eldest, with a mean across corpora of 153. Relative frequencies are calculated using the total number of first person referents for that particular child at that particular age. The following characterizes the ages of the participants represented on the figures: 1;6, 1;8, 1;11, 2;1, 2;4, 2;8, and 2;10. In addition to identifying trends, frequencies indicate which developmental forms are produced concurrently, and which never appear as part of the repertoire for a particular child.

## RESULTS

Primary focus is initially given to the developmental forms since some notable developmental trends are evident.<sup>4</sup> While, first appearance of all of the

<sup>3</sup> Peters (1995, 2001a) has posited that certain nasal consonants likewise accompany the vowel in predictable phonetic contexts.

<sup>4</sup> Placeholder and bare verb represent early developmental forms which carry some initial meaning common to adult speaker forms (Peters, 1995, 2001a, 2001b). Nevertheless, their form fails to reach adult status; and their meaning (in terms of morpheme disassemblage) likewise fails to reach target potential. Non-target forms diverge from target forms in that during their development they may take on an intermediate form, which either evolves gradually into adult forms (Peters and Menn, 1993 and Peters, 1995, 2001a, 2001b) or which drops out altogether from the corpora. Rather than eventually fusing its form into a target form, some non-target forms disappear altogether from the corpora, namely proper name form. Non-target forms which evolve

developmental forms takes place at the same age, at 1;8 (cf. Figure 1), the point at which each is last noted is distinct: 1;11 for the placeholder, 2;4 for the bare verb, and proper name for speaker is still produced (albeit minimally) when data collection ceases, at 2;10. As illustrated in Figure 1, the placeholder in Spanish is shed (no additional instances found) seven months prior to the bare verb (2;1 for the placeholder, 2;8 for the bare verb), and a minimum of ten months prior to use of the child's own proper name for speaker (2;1 for the placeholder, some time after 2;10 for the child's own proper name form). While the "life" of the placeholder is a three month period only, use of the bare verb extends for a minimum of an eight month interval. The lengthiest interval of nontarget use is the fourteen month interval of the child's own proper name for speaker. Whereas proper name use overlaps with target production of speaker inflections, use of the other amalgam-like forms (placeholder, bare verb) never overlaps with target use (cf. Figures 1 and 2).

The bare verb initially appears in the sample at 1;8 (cf. Figure 1). The bare verb form reaches its highest use at 1;8 at time of onset; experiences a general downward trend-- dipping at 1;11, reviving at 2;1 and declining until it is shed, at 2;8 (cf. Figure 1). The bare verb form dips to its lowest proportion at the point in development when placeholder plus noun reaches its peak, at 1;11. The decline in the placeholder takes place just prior to the bare verb's revival at 2;1; it is notable that bare verb extinguishes with onset of target speaker inflections on the verb at 2;8 (cf. Figures 1 and 2).

Prior to 2;10 the children do not demonstrate productive use of regular verbs (cf. Figure 2). In fact they do not productively use regular verbs until well after having shed the two primary developmental forms to refer to their role as speaker (placeholder + noun, bare verb typically plus noun), and after having employed the speaker verb inflection somewhat productively (cf. Figures 1 and 3). Except for proper name use, speaker amalgams drop out altogether prior to onset of either of the target speaker forms: subject pronoun or the inflection "-o" (cf. Figures 1 and 2). Onset of target speaker forms is: 1;8 irregular first person singular verb without inflection "-o", 2;8 first person singular affix on stem, and first person pronoun without verb (cf. Figure 2). Although not shown on the figures, onset of addressee inflections do not materialize until after 2;10. In this sample, a one year interval exists between first appearance of irregular verbs (e.g., *voy*) not displaying the "-o" inflection and that of regular stems accompanied by the "-o" speaker inflection (e.g., *"tengo," "quiero," "puedo"*) (cf. Figure 2 and Appendix A). Despite the nonobligatory nature of subject pronouns in Spanish, the first appearance of speaker pronoun *"yo"* takes place concurrently with that of speaker inflection (cf. Figure 2). Whereas no instances of the speaker pronoun *"yo"* were observed in any of the children's corpora prior to 2;8, some irregular speaker verb forms (which do not reveal person affixation) were used on two

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into target forms in Spanish (placeholder, bare verb) appear to have pre-morphemic or proto morphemic status; and, more particularly, they function as verbs or proto verbs, respectively. In contrast, the proper name non-target form unquestionably has noun phrase (NP) status.

distinctive verb stems at 1;8 and 2;4, e.g., “no sé” (“I do not know”) and “me voy” (I am going.)”

Furthermore, onset of irregular verbs which do not carry an “-o” (e.g. voy) speaker inflection takes place concurrently with onset of the amalgam-like forms at 1;8, namely, placeholder and bare verb (cf. Figures 1 and 2). It must be noted that although the aforementioned target forms (irregular speaker verb forms, regular verb forms with speaker inflections) are adult-like in form, their use is morphosyntactically restricted such that either the “-o” is attached to a limited set of verb stems, or contrastive conversational role morphemes are absent—speaker inflections only are represented. With respect to the former, two distinctive stems “querer” and “poder” (“I want” and “I can”) are most frequently used prior to 2;8. At and after 2;8 several additional speaker verb stems are regularly employed-- “tener” and “ver” (e.g. “tengo un juguete,” (“I have a toy,”) and “veo la muñeca,” (“I see the doll”)) are the two most frequent. Findings indicate a pattern which demonstrates some developmental preeminence for irregular verb forms, especially for those irregular verbs which cannot and do not display an affix discernable for first person singular reference (e.g. “voy”, as opposed to “quiero”). It is interesting that concurrent with the use of more regular verb stems is the onset of the “-o” speaker inflections.

## DISCUSSION

The interval of use of the placeholder with respect to the bare verb, and the interval of bare verb use with respect to onset of person inflections in Spanish demonstrates the function of these amalgams as the segue for acquisition of contrastive person inflectional forms, underscoring the status of these amalgams as proto morphemes for speaker. The attrition of placeholder takes place with an increase of use of the bare verb. The fact that the placeholder extinguishes at the peak of bare verb production indicates its proto morphemic role in the development of the Verb Phrase (VP). Afterward the bare verb takes over placeholder use and is shed prior to the appearance of contrastive person verb inflections. If from the emergentist perspective the trajectory of developmental forms does not constitute a sudden change in performance as in the Universal Grammar (UG) framework, it appears plausible that the bare verb replaces the placeholder and in turn becomes substituted by person inflections.

The syntactic pattern of the placeholder and bare verb as amalgams is distinctive from that of developmental non-amalgams (proper name for speaker) in Spanish. The initial developmental amalgam, placeholder, never appears in the Spanish corpora with a verb, supporting its proto verb like function.<sup>5</sup> Further support underlying the claim that the placeholder is transitional to the bare verb is

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<sup>5</sup> In support of this claim, López Ornat (1997) asserts that some of her subject’s placeholder use is preverbal or proto-verbal.

the fact that the syntactic pattern of the placeholder and the bare verb is identical -- always constrained to the initial element of a string followed by an accusative noun without article. The fact that the placeholder disappears at the same point in development at which the bare verb experiences notable revival, lends further credence to the claim that a primary function of the placeholder is to hold open verb slot. The rationale is that resurgence in productions of a nontarget form at the point in ontogeny when a "filler" or placeholder form is extinguished evidences a pattern of evolving but subsumed function, especially in view of the absence of placeholder plus verb form. In addition to the syntactic symmetry of the bare verb and the placeholder is the grammatical graduation (containing at least one morpheme, the verb root) that the bare verb provides, likewise validating its function as potential substitute for the placeholder. The other developmental forms (proper name, common noun for speaker) increase simultaneously with the increase in bare verb use; they do not decrease with an increase in bare verb use as does the placeholder. This trend demonstrates that bare verb does not replace proper name developmental form as appears to be the case with the placeholder. The extended use of the non-amalgam proper name form, even after the bare verb has extinguished, lends credence to the claim that it is the placeholder amalgam and not the proper name which is the catalyst toward the development of the bare verb amalgam. Additional evidence demonstrating that placeholder is a transition to the bare verb is the gradual increase in number of morphemes in the string-- from one to two morphemes. The earliest developmental amalgam, placeholder plus noun, contains a minimum of a single morpheme-- the placeholder having pre or proto morphemic status only, and the accusative noun representing a single morpheme. Nonetheless, the bare verb for speaker plus noun, contains a minimum of two morphemes-- stem and accusative Noun Phrase (the stem and NP functioning as full morphemes, and the theme vowel as a pre or proto morpheme at best). Evidence suggests a proto morphemic graduation from the placeholder to the bare verb to express the speaker conversational role.

The bare verb is identical in form, although not in meaning, to the adult third person singular present tense form. Production of contrastive functions and forms is a necessary condition for non-amalgam/non-formulaic use to be mastered. Unless the theme vowel inflection is used somewhat contrastively, either contiguous with varied syntactic constituents or within the same corpora as verbs carrying contrastive theme vowel or person morphemes, its use is still formulaic/amalgam-like. The affix attached to the third person form in Spanish overtly represents a single morpheme only for the adult -- the theme vowel indicates the infinitive type. Nonetheless, in this sample it is consigned to both a morphemic amalgam (the stem and its inflection are but a single morphemic unit) together with a formulaic use pattern (a small set of uses). Prior to 2;8 the third person singular verb form is employed to refer to the child speaker only. Before 2;8 the participants use the "-e" theme vowel on third person singular forms from



“-er” verbs only<sup>6</sup>: “peye,” “queye.” Only after 2;8 do theme vowels clearly derivable from all three of the verb conjugations appear in the corpora; and the “-e” theme vowel on third person forms represents both “-er” and “-ir” infinitive types. The initial two more regular verbs which appear in the corpora before 2;8 are “querer” and “poder.” Accordingly the child bare verb forms which refer to speaker are “peye” and “queye” (adult forms “puede” and “quiere” respectively). The morpheme “/-e/” does not appear to be productively employed by the Hispanic participants, since no contrastive instances of other theme vowels are found at this age (e.g. “/-a/” from the “/-ar/” infinitives, etc.) other than formulaic use of “me gusta” and “dame”<sup>7</sup>. In sum, although the Hispanic participants appear to produce a third person singular verb form, the verb is uninflected, since theme vowel is used unproductively and since the grammatical categories person, number, tense, and aspect likewise appear without productive contrast.

The point at which the bare verb is shed constitutes the point when the “-o” first person singular inflection is produced, at 2;8 (cf. Figures 1 and 3). Evidence for the bare verb’s scaffold-like function to person inflection production is the fact that it constitutes the initial verb form (regular in nature) on which person affixes are attached.<sup>8</sup> The child’s form “queye” or “peye” graduates to “quere” or “pede” respectively and the “-o” speaker inflection is subsequently employed at 2;8 and 2;10. The Hispanic participants appear to substitute “-o” for “-e”, on the target form of the stem, “puedo” and “quiero” (both vowels having the same function, speaker). The verb stems transition phonetically from an initial stop monovocalic syllable plus glide vowel syllable eventually to a stop diphthong syllable plus a non-glide vowel syllable prior to adding the target first person inflection. The gradual phonetic advancement toward target stems takes place prior to the substitution of the target “-o” for speaker as opposed to the amalgam “-e”, demonstrating the transitional nature of the bare verb toward target person inflection acquisition.

The target “-o” speaker inflection at this point in development (at 2;8 or 2;10) is not accorded full fledged morphemic status, since none of the subjects use it contrastively. Neither addressee nor non-speech participant inflections appear in any of the corpora, e.g. “puedes”, “quieres”, prior to 2;2. For the speaker “-o” inflection to have morphemic status verb stems must be used with person inflections distinct from it. Hence the “-o” inflection is but a proto morpheme even at 2;8.<sup>9</sup> Peters, (1995) posits that inflectional functors, especially

<sup>6</sup> The “-ir” verbs that were used before 2;8 were used in the first person singular only and do not require a theme vowel.

<sup>7</sup> Productions of “dame” and “me gusta” at 1;6 and thereafter are formulaic and unproductive in that neither verb is pluralized and the indirect object pronoun “me” is never altered/substituted for non-speaker forms—“te,” “le,” “nos,” or “les.”

<sup>8</sup> Prior to 2;4 some irregular verbs appear such that the stem is not severable from a distinctive person inflection, (e.g. “voy”).

<sup>9</sup> Only when addressee inflections begin appearing within the same corpora and are attached to the same verb stems as those already employed with speaker inflections, can person inflections be liberated from non productive or formulaic use.

those which represent more than one meaning simultaneously (as in the case of Spanish first person singular present tense imperfective “-o”), pose greater challenges to the child learner, as opposed to free functors and other inflectional functors assigned to a single meaning only (the “-e” theme vowel). Peters’ rationale accounts for the rather late production of “-o” and the early production of the “-e” theme vowel on the third person singular Spanish verb form in this sample, as a consequence of the morphemic complexities which accords several meanings to the “-o” speaker inflection (present tense, agent in the narrated situation, temporary message producer in the speech situation and singular number).

Form function mapping is likewise a complex operation when applied to the intermediate use of the speaker bare verb amalgam. The adult third person form carries several zero morphemes requiring the use of the full system of contrasts. Prior to person contrastive use in which morphemic disassemblage materializes, the speaker amalgams, especially the bare verb, do not carry zero morphemes, given their proto morphemic status. Further challenges exist after contrastive person begins to surface, in that mastery of zero morphemes face still greater acquisitional challenges. Members of grammatical categories whose representations are non-overt, as is the case in zero morpheme third person singular forms, should incur greater acquisitional challenges and should be subject to an even more lengthy developmental interval of acquisition.<sup>10</sup> It may well be the case that the non-overt status of the zero morpheme on the third person singular verb accounts for its application to first person child speaker. Given that fewer overt units (be they phonemes or potential morphemes) enter the attention stream concurrently, consequent to non-inclusion of non-overt units, less working memory space is required.<sup>11</sup>

## CONCLUSION

Early performance constraints on the number of slots in working memory together with the lack of salience and complexity of the person inflection system can account for the relatively lengthy period of amalgam person use in Spanish.

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<sup>10</sup> The third person singular verb form (the bare verb) may experience a propensity for delayed decomposition into its discrete morphemes, given that its zero morphemes are nonperceptual and hence are subject to a lengthy interval as amalgams.

<sup>11</sup> Even though some protraction of amalgam use and person overt forms is apparent future research should investigate the likelihood of more extensive protraction of non-overt person forms, namely the zero morphemes. Non-overt third person singular forms may experience a more protracted developmental course than do overt speaker forms in view of the increased complexity of form function mapping-- associating a meaning with absence of an inflectional form as opposed to the speaker “-o” connection. Still uninvestigated is the issue of the ontogeny of non-speaker and non-speech participant signifiers, and the degree to which non-overt person morphemes (zero morphemes) are protracted. Determining the developmental interval between speaker third person form (bare verb) and the non-conversational participant third person form could establish the degree of protracted development of the zero morpheme.

Because the number of memory slots available to the child at early ages before 2;0 (Valian 1991, 1996 and 2005) and slightly thereafter limits the number of words/morphemes that the child actually processes and produces, excluding some is compulsory. As a consequence potential morphemes remain proto morphemic in amalgam-like strings for a lengthy period of development because of their status as inflectional functors. The position (initial, final) of the morpheme in the string can likewise account for which morphemes are attended to and included in the limited set of working memory slots. It is apparent then that in addition to limited working memory slots, limited attention skills operate to permit fewer units for processing (Valian 1991, 1994, 2005 and Bloom 1990 and 1993).

The issue of which classes of morphemes are more noticeable in the child's input is an attention based factor which, according to Peters (1995, 2001a, 2001b), is a primary determinant in length of person amalgam use and onset of production of speaker morphemes. It follows then that, bound functors<sup>12</sup>, as person inflections in Spanish, are less likely to be noticed than are a free functors because they cannot stand alone and have meaning and because they do not appear as the initial unit of a string. The "-o" speaker inflection is not merely consigned to non-initial status in the string but to bound morpheme<sup>13</sup> status; it must be attached to an open class constituent<sup>14</sup> to have specific meaning. As a consequence of their boundedness, speaker inflections are less salient. According to Ellis (2006), the nature of inflections as containing fewer sound segments and appearing as the latter unit of an open class constituent makes them vulnerable to low salience. If salience is at risk particularly for inflections, as Ellis claims, assigning them morphemic value in the acquisition process is likely to be prolonged, which obviates the lengthy use of speaker amalgams. Speaker amalgams then assume a primary use in inflectional languages-- to transitionalize or to serve as a scaffold in a protracted developmental interval before person inflections and person contrasts are in place.

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<sup>12</sup> Functors include articles, pronouns, prepositions, noun, and/or verb inflections. Such are virtually always unstressed; and many are realized as affixes, especially in Spanish.

<sup>13</sup> A bound morpheme is a morpheme that must be attached to another morpheme "in order to be integrated naturally into discourse. It can be an affix, a root, or a clitic. The suffix -s is an example of a bound morpheme, since it could never be uttered by itself. The root, *dog*, on the other hand is a free morpheme since it does not have to attach to some other form" (Payne, 1997 p. 21-22).

<sup>14</sup> Open class constituents are free morphemes such as nouns, verbs, adjectives, or adverbs. The words within these classes regularly experience growth in number. Closed class constituents, in contrast, do not experience growth. Quintessential examples of closed class constituents are functor/function morphemes such as pronouns, inflections on nouns and verbs to express person, number, etc., articles and prepositions. "The term 'open-class constituent' is intended to exclude such lexemes as definite articles, demonstratives and classifiers, which occur in nominals in many languages and might be held to function, syntactically, as the heads of the constructions in which they occur" (Lyons, 1994 p. 430).

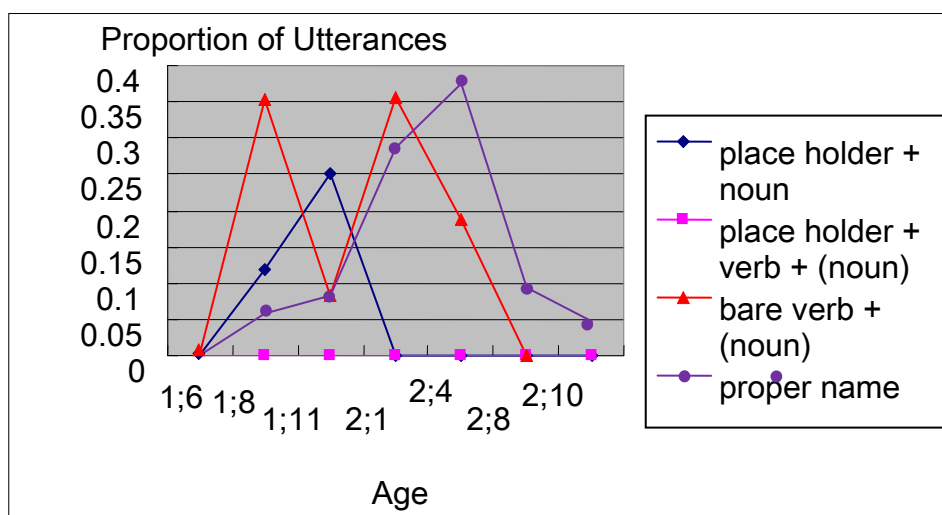


Fig. 1.1 Proportion of Speaker Proto Morphemic Amalgams with Age in Spanish

**Note:** The proportions herein are calculated from the total number of potential 1<sup>st</sup> person utterances; hence, the Ns are different at each age.

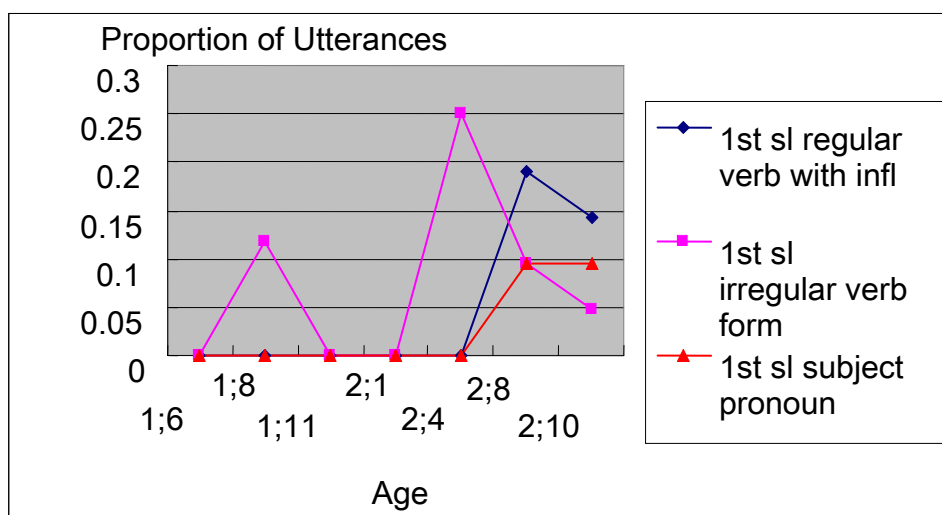


Fig. 2.1 Proportion of Speaker Non-Amalgams with Age in Spanish

**Note:** The proportions herein are calculated from the total number of potential 1<sup>st</sup> person utterances; hence, the Ns are different at each age.

## Appendix A

Emergence of verbs between 1;6 – 2;7

-ar	-er	-ir
gustar	Ver	Ir
dar	ser	Venir
tomar	querer	
	poder	

Developmental/formulaic speaker forms before 2;8

-ar	-er	-ir
Gustar- Me gusta	Ver- veo	Ir- voy
Dar- Dame	Querer- queye, quere	Venir- vengo
	Poder- peye, pede	

Emergence of verbs at 2;8 and thereafter

-ar	-er	-ir
cantar	tener	salir
jugar	comer	decir
amar	prender	

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