CONTENTS

ORDER OF ACQUISITION OF SPANISH GRAMMATICAL MORPHEMES: COMPARISON TO ENGLISH AND SOME CROSS-LINGUISTIC METHODOLOGICAL PROBLEMS

Dolores M. Vivas

A common assumption underlying cross-linguistic studies in child language is that the comparison of any feature in unrelated languages may simplify semantic-grammatical complexities in a way that studies on a single language cannot. This paper begins by discussing the order of acquisition of grammatical morphemes in Spanish by four Spanish-speaking children (ages 2;4-3;10). Then, this order is compared to Brown's (1973) and the de Villers' (1973) findings for English. The paper concludes that comparative analyses are complicated by the differing syntactic and semantic functions of the morphemes in the individual languages.

Introduction

Recent research in grammatical morpheme acquisition has indicated that children learn the morphemes in a consistent order (e.g., Brown 1973, Cazden 1968, de Villiers and de Villiers 1973, Lipp 1977, MacWhinney 1976). While it is clear from these studies that morphemes emerge in a particular sequence, it is not always clear what determines the order. At the same time, the particular order of acquisition of grammatical morphemes in a given language depends upon how you study it. Several methods have been employed, with varying degrees of success to determine child language acquisition patterns: age, relative time of emergence and absolute frequency. Age *per se* is not a good indicator of level of language development since children vary in their rate of development. Relative time of emergence is deceptive, for a child goes through three stages before acquiring an inflection-no inflection, limited use of the inflection and overgeneralization.[1] If relative time of emergence were used as the criterion for morpheme acquisition, we would be equating acquisition with only partial correct usage of the morpheme. Absolute frequency of the inflection is not constant either; some inflections are more heavily favored due to the grammatical structure of the language and, in part, to the context. For example, in English the article occurs with greater frequency than the possessive in adult speech (if we disregard specific contexts that would require an excessive use of the possessive). Thus, if we were to assume these absolute frequencies of the two morphemes are reflected in language acquisition patterns of English-speaking children, the article would be said to be acquired prior to the possessive.[2]

The obligatory context technique, which we will use in this study, has proven to be superior to the just mentioned methods. It

Kansas Working Papers in Linguistics, Vol. 4, No. 1, pp. 77 - 105.

is based on relative frequency of occurrences of a grammatical morpheme in both linguistic and non-linguistic contexts that require its presence. Cazden (1968) described the technique as a way of separating "the absence of a construction in the child's competence from the rarity of that construction in his performance" by looking for "the frequency of forms in contexts that make them obligatory."

In her 1968 article Cazden presented the results of a longitudinal study of the development of five grammatical morphemes in the speech of three English speaking children: (1) plural and (2) possessive inflections on nouns and (3) present progressive, (4) regular past and (5) 3rd person singular present indicative inflections on verbs. In 1973, Brown added eight other morphemes to the original five which seem to "tune" the meaning associated with the "contentives" (nouns, verbs, adjectives): prepositions (1) in and (2) on, (3) past irregular, (4) uncontractible copula, (5) article, (6) contractible copula, (7) uncontractible auxiliary, and (8) contractible auxiliary. Observing that the 3rd person singular present indicative consists of two variants, the regular present indicative and the irregular present indicative, which each constitute partially distinct learning problems, Brown considered them separate morphemes, bringing the total number of grammatical morphemes to 14. In his longitudinal study of the language development of the three American children,[3] Brown's criterion for the acquisition of a morpheme, which was quite similar to Cazden's, was defined as the presence of the morpheme in 90 percent of obligatory contexts in three successive two hour samples. Brown concluded that the order of acquisition of the grammatical morphemes was quite constant among the children.

What determines the order? Brown considered modeling frequency, grammatical complexity and semantic complexity. When he examined modeling frequency, he found no true correlation between parental frequency and the children's order of acquisition. On the other hand, the data suggested that relative complexity (grammatical and/or semantic) of the morphemes played a role in determining their order of acquisition. If one morpheme involves all the transformatives or meanings associated with another and more, then the first is more complex than the second, syntactically and semantically respectively. Some morphemes are associated with unitary meanings, as is the plural ("number") and others are associated with two or more meanings, e.g. the copula ("number" and "earlierness").[4] Since the meaning of the copula includes that of the plural and more besides, it is semantically more complex than the plural. Furthermore, the meaning of the copula entails the plural; therefore, we can predict that the plural will emerge earlier than the copula.

The findings of Cazden and Brown are extremely interesting and suggestive of the order of acquisition of grammatical morphemes in English. But they lack generality given that they are based on data

from only three children. Thus, the results of any study on the acquisition of English grammatical morphemes using Brown's 90 percent present in obligatory contexts criterion are important to either substantiate or disprove Cazden's and Brown's results. One study that has been frequently cited in the literature is de Villiers and de Villers' (1973) cross-sectional study of morpheme acquisition among 21 English-speaking children aged 16 to 40 months. Since de Villier and de Villiers' study was cross-sectional and based on fewer speech samples per child than was Brown's/Cazden's, they used two different methods to analyze the data (one 2 1/2 hour play session per child):

1. Method I: The morphemes were ranked according to the lowest MLU sample in which each occurred at the 90 percent level; when more than one morpheme occurred at this level in any one sample they were tied.

2. Method II: An average percentage of the presence of each morpheme in obligatory contexts was calculated for all the children; then these mean percentages were ranked.

The two morpheme acquisition ranks obtained by the de Villiers from the two methods, Method I (90 percent criterion) and Method II (mean percentages), corroborate the order of acquisition reported by Brown (1973).

Cross-linguistic descriptions of the semantic and syntactic roles played by the morphemes will help clarify whether the order of acquisition within a language is (1) language specific, determined by either formal[5] or semantic complexity, or (2) language universal. We can only determine whether or not the order of acquisition of the morphemes in a particular language is language specific by comparing it to orders of acquisition in languages that are formally or semantically distinct. Brown (1973) suggests that the investigation of order of acquisition of grammatical morphemes in languages other than English "may break down the semantic-grammatical confoundings found in the one language" which hinder attempts to identify determinants of order. (379) By determinants, Brown is referring to either relative transformational or semantic complexities or both that govern the relative order of emergence of the morphemes. What he suggests is discovering the source of relative complexity within a language by comparing grammatical morphemes in that language with grammatical morphemes in another language that are either structurally or semantically dissimilar.

Thanks to the work of the transformationalists, it is possible to order the grammatical morphemes of English in terms of grammatical complexity, and, thanks to Brown, to order them in terms of semantic complexity. Needed detailed descriptions using the same criterion Brown used are not yet available for many languages, although there are a few studies on languages other than English which have used Brown's criterion quite successfully (MacWhinney 1976, Lipp 1977).

In each of these studies, not only has the order in which grammatical morphemes are acquired been determined but attempts at cross-linguistic comparisons have also been made. MacWhinney (1976:409) states that "Hungarian inflections differ little in terms of formal complexity" from English inflections and concludes that the difference in the order of emergence of the morphemes in the two languages could be attributed to semantic-pragmatic factors. In comparing Estonian to English, Lipp (1977) does not come up with any explicit generalization concerning the morphemes with reference to either grammatical or semantic complexity, although she does make some cross-language comparisons between their order of acquisition. In any event, this type of information will facilitate the separation of the contributing variables permitting us to arrive at the true source of complexity within a language.

With this assumption in mind, I decided to collect cross-sectional data on four Spanish speaking children and to use the two methods of analysis adopted by the de Villiers (1973) to rank the order in which Spanish grammatical morphemes emerge. Then the orders of acquisition of Spanish grammatical morphemes obtained by these two methods will be compared to the developmental sequences given for English grammatical morphemes by Brown and the de Villiers. Finally, the results will be discussed in terms of formal and semantic complexities in the language.

Subjects

The subjects were four Latin American children living in Lawrence, Kansas. At the time of data collection Juan Carlos (Venezuelan: age 2,4) and Raul and Ana (Mexican brother and sister: ages 2,4 and 3,10 respectively) had been living in the United States for two years. Carlitos' (Venezuelan: 3,5) data were collected on the day after his arrival in the United States. The parents of the children know English, although Spanish is spoken at home. Juan Carlos is a devotee of Sesame Street and is self taught in English; his dominant language is Spanish and his knowledge of English is on the whole confined to names of objects or persons seen on T.V. Ana and Raúl attend a day care center (9-5) conducted in English; they are active bilinguals who can communicate in the two languages.[6] Carlitos at the time of the recording knew no English.

Data Collection

The data for this study were collected on several occasions over a period of a month. The initial data that had been collected on all the informants excepting Carlitos were disregarded due to an initial period of unfamiliarity between the subject and the investigator. The children's parents were present during the initial session when it was most helpful to ask them to interpret phonological variants. All the data, approximately twelve hours worth, were recorded on tape (utilizing a Sony 110 A tape recorder) and later transcribed.

Each speech sample contained approximately 230 utterances. The mean length of utterance for each child was calculated and the percentages of time the 23 Spanish morphemes were present in obligatory contexts was scored for each morpheme: (1) imperative (e.g. in ven, mira), (2) present tense (e.g. in viene, mira), (3) past regular (e.g. in miró, comió), (4) past irregular (e.g. in vino, fué), (5) future marker (e.g. va a, voy a), (6) progressive (e.g. in viniendo, mirando), (7) past imperfect (e.g. in venia, miraba), (8) subjunctive (e.g. in viniera, mirara), (9) auxiliary (e.g. in estoy comiendo, está lloviendo), (10) 1st person singular (e.g. in vengo, miro), (11) 2nd person singular (e.g. in vienes, miras), (12) 3rd person singular (e.g. in viene, mira), (13) 1st person plural (e.g. in venimos, miramos), (14) 3rd person plural (e.g. in vienen, miran), (15) possessive: de (e.g. in el libro es de me papá), (16) copula: estar (e.g. in esta frio), (17) copula: ser (e.g. in el libro es azul), (18) article (un, una, el, la), (19) gender: feminine [a], (20) gender: masculine [o], (21) plural (e.g., as in los carros amarillos), (22) preposition: a (e.g. as in dale esto a tu papá), and (23) preposition: en (e.g., as in en el autobus).

The MLU of each subject was calculated by counting the appearance of each grammatical morpheme mentioned in the previous section as a single morpheme. Uninflected nouns were counted as single morphemes as were compound words and proper names, e.g., Santa Klaus. However, nouns inflected for gender, as for plurality, were counted as two morphemes as in muchach-o 'boy' and muchach-a 'girl.' Articles and adjectives were each counted as two morphemes, i.e., article or adjective and gender, when they modified a singular noun, e.g., la muñeca bonita 'the pretty doll' (la =article + gender: feminine) (bonita = 'pretty + gender: feminine) and as three morphemes when they modified plural nouns, e.g., las muñecas bonitas (las = article + gender: feminine + plural) (bonitas = 'pretty + gender: feminine + plural). Each verb was counted as three morphemes: copula or root + tense + person and number.[7]

The calculation of MLU was based on the complete set of utterances. The procedure I devised for arriving at the MLU in Spanish is not comparable to the one Brown designed for English since the procedure that I adopted inflates MLU scores relative to his. Consider, for example, the different persons of the present tense of the verb 'to eat' in both English and Spanish. In English, Brown would score the 3rd person singular, eats, as two morphemes: root, eat, and the 3rd person singular present inflection, -s. Each of the other persons of the verb would be scored as just one morpheme. Thus, in English, the child is being credited with knowledge of at most two morphemes for any of the persons in the present tense. In contrast, we find that the calculations that I have made for MLU in Spanish assign three morphemes for each of the persons in the present tense; i.e., verbal root, present tense[8] and person and number, e.g., comen '(they) eat,' root com-, present tense and 3rd person plural. Thus, we are not working under the assumption that morphemes acquired in Stage II[9] in English are equivalent to those acquired in Stage II in Spanish. Nor do we assume that there is any compatibility of stages identified by a given MLU

range in the two languages. However, we are operating under the supposition that the consecutive stages in each of the languages will reflect comparable developmental orders of acquisition of the morphemes.

Computation of morphemes in obligatory contexts was based on the criteria used by Brown/Cazden. The four constraints they employed to identify obligatory contexts were (1) linguistic context, (2) nonlinguistic context, (3) linguistic prior context and (4) linguistic subsequent context. To illustrate with the data, we will consider a couple of examples for each of the constraints, keeping in mind that identification in the data was based primarily upon linguistic and nonlinguistic contexts.

(1) Linguistic contexts, the child's own utterance.

a. For example, the verb in Carlitos' ¿Aquí no gusto estos carros? 'here no like (singular 1st person) these cars?' should be in the 3rd person plural since the verb must agree with the subject of the sentence, estos carros, not the indirect object[10] me 'me.' The child might have difficulty with the verb gustarse and other verbs for which 'experiencer' is the indirect object + the 'object experienced' is the subject. However, examples of this type in the data are not plentiful enough to be conclusive. More data need to be collected.

b. A second example is in the use of the demonstrative pronoun. For example, if the child pronounces ese, as in ese carro, with an intonational pattern associated with a demonstrative pronoun before a noun we can establish an obligatory context for the copula: ser and an article.

(2) Nonlinguistic context.

a. For example, in the sentence, Toma este libros, uttered by Juan Carlos, we note that the adjective este and the noun libros do not show number agreement. Either the adjective is correct as it stands and the noun should be in the singular, libro, or the adjective should be in the plural, estos, and the noun is fine as is. We cannot determine which of the two analyses is correct without recourse to nonlinguistic context. By resorting to the nonlinguistic context in which the sentence was uttered, which in this instance was while Juan Carlos was handing the investigator a book, we can exclude one of the interpretations and accept the other as appropriate for the situation. There are other utterances in the data which from a purely linguistic standpoint are grammatical but are inappropriate when considered in conjunction with the nonlinguistic context in which they were uttered.

b. To illustrate with a second example from Juan Carlos' data, consider Quiere, quiere ice cream 'want (3rd person singular) want ice cream.' This utterance would be grammatical if he were attributing the desire to eat ice cream to his mother or some other 3rd person singular referent. However, since the sentence was uttered just after the ice cream man's truck had gone past and Juan Carlos' nonverbal response was to jump up and down, we can quite safely assume that the expression Quiere, quiere ice cream was predicated of a 1st person singular subject, i.e., himself. Admittedly the linguistic context also plays a role in identification of the subject of discourse. The intonational pattern of the utterance was not interrogative; it was affirmative and of a supplicative nature.

(3) Linguistic prior context, from child to others. In this section we will consider two examples of linguistic prior context, one in which the linguistic prior context comes from the child's utterances and the other in which it comes from another person's speech.

a. To start with we will take an example from Ana's data, Uno está acá y uno está acá "One is there and one is there,' uttered while the child was looking at a comic strip of Snoopy. Since there are so many things that a child could be focusing his attention on in such a situation, we are not sure what is being referred to. Without knowing the referent of uno, how can we ascertain whether or not the gender of the indefinite pronoun is correct? We find that only by looking at Ana's text prior to the utterance are we able to determine what the antecedent of uno is. In the same discourse and while looking at the same frame, she had said, El tiene dos caras 'he has two faces.' Then she proceeded to point out each of the two faces she has seen by saying Uno está acá y uno está acá. Since the antecedent of the indefinite pronoun uno is cara, feminine, its gender is incorrect.

b. The second example we will consider comes from a dialogue between Juan Carlos and his mother. His mother told him to ask the investigator if she would like a dessert by saying Pregunta a Dolores si quiere dulce 'ask Dolores if (she) wants dessert.' With that he turned to her and said ¿Quiere dulce? '(do you) want dessert?' Obviously there is nothing intrinsically wrong with addressing the investigator in the 2nd person polite 'you' form of the verb, especially since the addressee is quite a bit older than the child. However, what makes this form of address incorrect is its inconsistency with the address forms previously used by the speaker with the addressee, i.e., the 2nd person informal 'you' form. Granted there are cases where

a speaker consciously switches from tu to usted after having reevaluated his position with respect to the addressee. But in this case, conscious switching cannot be attributed to the child because he did not maintain this address form throughout the rest of the discourse.

(4) Linguistic subsequent context. In the data there are examples of expansion made by the child himself which facilitate the coding of obligatory morphemes.

a. We can observe an excellent example of this type in a narration by Ana about the fish in her aquarium. At one point in the narrative she introduces the topic of number of fish by saying Hay three 'there are three.' Given this sentence we would assume that there are three fish in the aquarium. Only in the subsequent utterance, Now tengo two 'now (I) have two,' do we discover that there were three fish, not that there are three fish. Neither the linguistic context of the sentence itself nor the prior linguistic context would have allowed us to set up an obligatory context for the past tense of the verb haber. Likewise, the nonlinguistic context would not have required haber to have been in the past tense. In this particular instance, it was the linguistic subsequent context which made it possible for us to identify the obligatory past tense morpheme context for haber.

Finally, to reduce variability as de Villiers and de Villiers did (1973), only transcripts providing five or more obligatory contexts for a given morpheme were used in judging the percentages of obligatory context for that morpheme.

Analysis of the Data

Table I shows the results of the computations for MLU and the percentages of morphemes supplied correctly when required. Some of the morphemes that showed gradual growth curves in de Villiers and de Villers' (1973) study also show gradual growth curves in Table I--in particular the article and the copulas, estar and ser. While Cazden (1968) suggests that there are similar types of growth curves of acquisition for the progressive and the possessive in English, no such curves are apparent in these data for Spanish. If we look at the progressive in Table I, we see that there are a sufficient number of obligatory contexts for only one informant, Ana. And, of course, it is impossible to discuss the progressive morpheme, or any morpheme for that matter, in terms of a curve given only one value. As for the possessive, a curve may be obtained from the three percentages, 0%, 50%, and 50%, which correspond to the percentages of correct usage of this morpheme in

TABLE I

Relative Frequency of Occurrence for Each Morpheme Correctly Used by Each Child.[a] Proportion of Times Each Morpheme is Correctly Supplied in Obligatory Contexts, in Percentages.

	Raul	Juan Carlos	Carlitos	Ana	Mean Percentage for Morphemes[b]
MLU	2.7	3.4	3.9	6.1	
Age in months	28	28	41	46	
Size of speech sample	227	232	235	235	
Future marker		44 (8/18)		100 (6/6)	
Present	100 (27/27)	94 (63/67)	100 (80/80)	99 (84/85)	98
Progressive				100 (10/10)	
Past regular	63 (5/8)	100 (13/13)	(4/4)	100 (26/26)	88
Past irregular		(2/2)	100 (5/5)	100 (6/6)	
Past regular and irregular	63 (5/8)	100 (15/15)	100 (9/9)	100 (32/32)	91
Imperative	60 (3/5)	94 (17/18)	100 (27/27)	100 (5/5)	89
Subjunctive					
Auxiliary				92 (11/12)	
Copula: estar	9 (1/11)	38 (15/40)	50 (4/8)	90 (19/21)	47
Copula: ser	24 (12/56)	50 (6/12)	68 (17/25)	67 (16/24)	52
1st person singular	62 (9/15)	43 (20/47)	95 (20/21)	100 (21/21)	75
2nd person singular			100 (5/5)	75 (6/8)	
3rd person singular	87 (20/23)	97 (37/38)	98 (51/52)	90 (86/96)	93
1st person plural					
3rd person plural			80 (8/10)	75 (18/24)	
Gender: masculine	100 (74/74)	96 (51/53)	94 (88/94)	72 (70/97)	91
Gender: feminine	27 (3/11)	93 (13/14)	96 (23/24)	83 (34/41)	75
Gender: masculine and feminine	91 (77/85)	96 (64/67)	94 (111/118)	75 (104/138)	89
Article	15 (9/61)	31 (25/80)	62 (29/47)	87 (51/59)	49
Plural	50 (7/14)	65 (13/20)	83 (20/24)	80 (24/30)	70
Possessive: de	0 (0/7)	50 (3/6)	50 (4/8)		33
A			84 (5/6)	91 (10/11)	
En	100 (5/5)		50 (4/8)	87 (14/16)	79

[a]The children are ordered according to MLU. Also shown are the age of each child, the number of utterances in the speech samples, and the percentage of required contexts in which each morpheme was correctly used by each child.

[b]The mean percentages of obligatory contexts in which a particular morpheme was used by at least three of the children is also given.

obligatory context for Raúl, Juan Carlos and Carlitos. Although the curve is not a gradual growth curve, we cannot assume given longitudinal data or data for several children in each stage that such a curve would not emerge. The curve obtained for the possessive might well be the result of individual differences among the children but not representative of acquisition in any one child.

Table 2 shows the individual ranks and average rank[11] of the 13 Spanish grammatical morphemes[12] produced by Raúl, Juan Carlos, Carlitos, and Ana using the percentages supplied in Table 1. Of course, the procedure of ranking the mean percentages depends for its validity on the assumption that the morphemes have similar growth curves and maintain essentially the same relative ranking at each MLU. This assumption on the whole is justified by the data, although when we consider the grammatical morphemes that have reached 90 percent criterion for each speaker in Table 3, some fluctuation is evident. However with the exception of en, for which there were fewer than five obligatory contexts in Juan Carlos' data, Raúl's morphemes (Stage III) that have reached criterion are a subset of Juan Carlos' morphemes (Stage IV). In the same manner, except for the morphemes for gender, all the morphemes reaching acquisition criterion for Carlitos (Stage V) are a subset of the morphemes acquired by Ana (post Stage V). And all of Juan Carlos' morphemes (Stage IV) are a subset of the morphemes acquired by Carlitos (Stage V).

The morphemes were next ranked in terms of the lowest MLU sample at which each morpheme first occurred in 90 percent or more of the obligatory contexts (the de Villiers' Method I), as shown in Table 4. As previously mentioned, only those morphemes were used for which at least three of the informants had five or more obligatory contexts in order to reduce variability.

In theory, the morphemes occurring in Stage III in 90 percent or more of their obligatory contexts would also be assumed to occur with an equal or greater frequency in Stages IV and V. This assumption was met, with a single exception: En reached criterion level for Raúl (Stage III) but not for Carlitos (Stage V) or Ana (post Stage V). It appears as if the relative high frequency of en in the case of Raúl might be the result of interference from English. Raúl, who was just a few months old when he was brought to the States, has spent the greater part of his waking hours in English-speaking surroundings. So it is quite possible that his early acquisition of en in Spanish was influenced by his prior acquisition of in and on in English, especially since in and on are among the first morphemes acquired by English-speaking children. Only the addition of data from monolingual Spanish speaking children will explain the confounded data.

Table 4 is relatively difficult to interpret given that three morphemes have reached the acquisition criterion in Stage III and four more in Stage IV. The three morphemes reaching criterion for Raúl in Stage III are en, gender (masculine), and present. Each of these is assigned a rank order of 2.0. Besides the three morphemes, four others were supplied in 90 percent or more of the obligatory contexts

Table 2

Individual and average rank[a] of the 23 grammatical morphemes in Spanish.

Morpheme	Raúl (stage III)	Juan Carlos (Stage IV)	Carlitos (stage V)	Ana (post Stage V)	Average rank
Present	2.0	4.5	2.5	6.0	1.0
3rd person singular	4.0	2.0	5.0	9.5	2.0
Gender: masculine	2.0	3.0	8.0	18.0	3.5
Past regular and irregular[b]	5.0	1.0	2.5	3.0	3.5
Imperative	7.0	4.5	2.5	3.0	3.5
En	2.0		15.0	11.5	6.0
Gender: feminine	9.0	6.0	6.0	14.0	7.5
1st person singular	6.0	11.0	7.0	3.0	7.5
Plural	8.0	8.0	10.0	15.0	9.0
Copula: ser	10.0	10.0	12.0	19.0	10.0
Article	11.0	13.0	13.0	11.5	11.0
Copula: estar	12.0	12.0	15.0	9.5	12.0
Possessive: de	13.0	7.0	15.0		13.0
Future marker		9.0		3.0	
2nd person singular			2.5	16.5	
3rd person plural			11.0	16.5	
A			9.0	8.0	
Progressive				3.0	
Past imperfect				13.0	
Auxiliary				7.0	

[a]Ranking of mean percentages found in Table 1.

[b]The past regular and the past irregular morphemes were grouped together since there was no apparent difference in the behavior of the two in the data as was the case in English (Brown 1973).

Table 3

Grammatical morphemes that have reached acquisition criterion by the four children

Child	Morphemes reaching 90 percent criterion
Raúl: Stage III (MLU 2.7)	Present Gender: masculine En
Juan Carlos: Stage IV (MLU 3.4)	Present Past regular and irregular Imperative 3rd person singular Gender: feminine Gender: masculine
Carlitos: Stage V (MLU 3.9)	Present Past regular and irregular Imperative 1st person singular 3rd person singular Gender: feminine Gender: masculine Possessive: de
Ana: post Stage V (MLU 6.1)	Present Past regular and irregular Imperative Copula: estar 1st person singular 3rd person singular Possessive: de

Table 4

Order of acquisition of 13 grammatical morphemes based upon the lowest MLU sample at which each morpheme occurred in 90 percent or more of the obligatory contexts (Method 1)

Child	Rank Order	Morpheme
Raúl: Stage III (MLU 2.7)	2.0	Present
	2.0	Gender: masculine
	2.0	En
Juan Carlos: Stage IV (MLU 3.4)	5.5	Imperative
	5.5	Past regular and irregular
	5.5	3rd person singular
	5.5	Gender: feminine
Carlitos: Stage V (MLU 3.9)	8.0	1st person singular
Ana: post Stage V (MLU 6.1)	9.0	Copula: estar
Post MLU 6.1	11.5[a]	Article
	11.5[a]	Plural
	11.5[a]	Copula: ser
	11.5[a]	Possessive: de

[a]Since this morpheme did not reach the criterion level in the data, we cannot be sure of its order of acquisition. The order given in the table reflects the relative percentage of obligatory contexts in which the morpheme was correctly used.

by Juan Carlos (Stage IV): imperative, past regular and irregular, 3rd person singular and gender (feminine). 5.5 is the rank order corresponding to each of these morphemes. In addition to the seven morphemes already mentioned, only one other reaches criterion in Stage V (Carlitos): 1st person singular. Then only in post Stage V (Ana) does the copula: estar occur in 90 percent or more of the obligatory contexts. The other four morphemes, article, plural, copula: ser and possessive, have not reached criterion level in any of the data. When more than one morpheme reached criterion at the same MLU, the ranks were tied.

A comparison of the rank orderings of the morphemes obtained by Method II (Table 2) and Method I (Table 4) is shown in Table 5.

Table 5

Order of Acquisition of the 13 Spanish Morphemes in Terms of the Two Ordering Procedures.

Morpheme	Rank ordering for the children of the present study by Method I	Method II
Present	2.0	1.0
3rd person singular	5.5	2.0
Past regular and irregular	5.5	3.5
Gender: masculine	2.0	3.5
Imperative	5.5	5.0
En	2.0	6.0
Gender: feminine	5.5	7.5
1st person singular	8.0	7.5
Plural	11.5	9.0
Copula: ser	11.5	10.0
Article	11.5	11.0
Copula: estar	9.0	12.0
Possessive: de	11.5	13.0

A rank-order correlation (Spearman's rho) between the two orderings in Table 5 yielded a remarkable amount of invariance, + .83. The correlation is highly significant ($P < 0.001$). The high correlation between the two ranks suggests that the order of emergence of the morphemes for each child is similar to the acquisition curve for all the children taken as a group.

The next step in the analysis was to compare the average ranking of the 13 Spanish grammatical morphemes obtained by Method II (Table 2) and by Method I (Table 4) with the average rank orderings for the 14 English morphemes obtained by Brown (1973:274) and the de Villiers (1973:271). In Tables 6 and 7, the order of acquisition of the morphemes in the two languages are juxtaposed in terms of the two ordering procedures, Method II and Method I respectively.

Table 6

Order of acquisition of some of the 14 English morphemes from Brown's longitudinal study and de Villers and de Villers' cross-sectional study (Method II) compared to the order of acquisition of 13 Spanish morphemes in terms of Method II.

Morpheme	English (Brown)	English (de Villers)	Spanish (Vivas)
Present[a]			1
3rd person singular	10[b] 11[c]	12[b] 6[c]	2
Gender: masculine[a]			3.5
Past	9[d] 5[e]	7[d] 5[e]	3.5
Imperative[a]			5
En	2.5[f] 2.5[g]	2[f] 1[g]	6
Gender: feminine[a]			7.5
1st person singular[a]			7.5
Plural	4	3	9
Copula: ser	(7)[h]	(10)[h]	10
Copula: estar	(13)[i]	(9)[i]	12
Article	8	8	11
Possessive: de	6[j]	11[j]	13

[a]This morpheme was not among the 14 English morphemes studied.
[b]Brown and the de Villiers analyzed their data in terms of two 3rd person singular morphemes; this is the 3rd person regular morpheme.
[c]This is the 3rd person irregular morpheme.
[d]In a similar manner, two past morphemes were scored in English, the regular past and the irregular past. This is the regular past.
[e]This is the irregular past.
[f]The English gloss for en is 'in' and 'on.' Brown and the de Villiers scored 'in' and 'on' as separate grammatical morphemes. This is the rank order they obtained for 'in.'
[g]This is the one they obtained for 'on.'
[h]What was scored was different for the two languages in spite of the fact that there were two morphemes tallied in each language. The two morphemes that were tallied in English were the contractible and the uncontractible copula. This corresponds to the uncontractible copula.
[i]This corresponds to the contractible copula.
[j]The possessive 's morpheme was studied in English.

The data in Table 6 and Table 7 do not actually lend themselves to comparative analysis. One gets the impression that we are comparing apples to oranges. Only three of the morphemes in Table 6 and Table 7 are superficially parallel in the two languages: plural, article and possessive. But when these morphemes are studied more carefully, none of them is equivalent to the comparable English morphemes in their syntactic and semantic functions. Consider the possessive first by examining the syntactic similarities of the possessive morphemes in the two languages and then following this with a discussion of their semantic similitudes. Although the two possessives are rough translation equivalents of each other, the syntactic position of de in Spanish is much more similar to that of of in English than to -s in English, e.g., la cola de la yegua 'the tail of the mare.' Just as de and of are syntactically more similar than de and -s, so there is also a greater semblance in their semantic fields. In adult grammar the possessive de is used to relate possessions to both animate and inanimate possessors as is English of, while the use of English -s is limited to animate possessors. One might hypothesize that in the child's grammar the semantic field of de in Spanish parallels the semantic field of -s in English--restricted to only animate possessors. However, this was not the case. There are several examples in Carlitos' data where he correctly employs de in the context of inanimate possessors, as in the following example: y una cosa de esa 'and a thing (part) of that (set).' Or one might posit that initially the child correctly supplied de only in conjunction with animate possessors and then later used it correctly for inanimate possessors. Nevertheless, in Carlitos' data, there are examples of de being supplied correctly for inanimate possessors and being omitted for animate possessors, e.g., esta no es de este 'this (piece) is not (part) of this (game)' and este Carolina 'this (game) (is) (of) Carolina.'

To illustrate the disparity between the grammatical morphemes in the two languages with a couple more examples, consider gender and the copula. Clearly gender is not a comparable morpheme since English does not mark for gender. On the other hand, although there are copula markers in both languages--in fact, two copula markers in both languages, uncontractible and contractible copula in English and ser and estar in Spanish--the copula cannot be easily compared, because the distinctions made between the copulas in each language are on different levels. In Spanish the child using ser and estar must differentiate between permanent and temporary attributes of the copula. He must choose the correct form on semantic grounds whereas the English speaking child may choose one of the forms--the contractible copula--on purely syntactic grounds. The disparity between the two sets of copulas goes even further. Contraction of the copula is only an optional rule in that it is just as grammatical for the child to say I'm hungry as to say I am hungry. On the other hand, given a certain context in Spanish, the Spanish speaking child has no freedom to choose either ser or estar. For example, it is obligatory for the child to employ ser to relate permanent qualities as in (yo)soy

una muchacha '(I) am a girl' or (yo) soy medico '(I) am a doctor.' It would be ungrammatical to say *(yo) estoy una muchacha or *(yo) estoy medico.

Given these problems in comparison, the best we can do is to look at the data closely and make some observations concerning them. In English, in and on reach the 90 percent criterion before any of the other morphemes do, followed by the plural, and then the past regular and irregular morphemes. The corresponding morphemes in Spanish are acquired in a different order. In addition, the 3rd person morpheme(s) is (are) acquired after in and on in English but before en in Spanish. However, in all three studies, the plural morpheme emerges before the article.

As we have just seen, the real difficulty in juxtaposing the grammatical morphemes from the two languages is the incompatibility of their classificatory systems. Where one language (Spanish) has one past morpheme, the other, English, has two. Where one language has two copulas which are semantically different (Spanish), the other has only one (or two--contractible and uncontractible--that are syntactically but not semantically different). Where one language has gender, the other (English) has no grammatical device for marking gender agreement.

Discussion

Brown (1973) observes that not only information about the order of acquisition of the grammatical morphemes in languages other than English is needed but also detailed descriptions of the semantics and grammar of the morphemes. As stated earlier, the inflections in English have been schematically ordered in terms of grammatical and semantic complexity. However, such a detailed description as yet is not available for other languages.

Slobin (1973) suggests that with sufficient information on the sorts of formal devices that appear difficult to learn we will be in a position to make a much clearer formulation of the capacities and strategies involved in language acquisition. He elaborates by saying that it is necessary to compare the formal devices which are used to express the same semantic intent. The copula: estar and the copula: ser together express the same semantic content as is found in either the English contractible copula or in the uncontractible copula. The copula in English reaches the criterion of mastery relatively earlier than do the copulas in Spanish. What can this difference be attributed to? Slobin (1973) suggests a general operating principle (E) which may be helpful in answering this question: "Underlying semantic relations should be marked overtly and clearly. Universal EI: a child will begin to mark a semantic notion earlier if its morphological realization is more salient perceptually" (p.202). Although ser and estar mark two different concepts (ser is used in the context of predicates that tell what or who the subject is while estar is used in the context of predicates that tell the position or

condition of the subject), in not all contexts are estar and ser in complementary distribution:

¡Que bonita es!	She is beautiful. (always)
¡Que bonita está!	She looks beautiful. (now)
El agua es roja.	The water is red. (always)
El agua está roja.	The water is red. (temporarily)

What the child is actually confronted with is learning two morphemes with which qualities are attributed to nouns. Then, depending upon whether the speaker presupposes the attribute to be temporary or permanent, he selects the corresponding copula to express the relationship. Possibly, learning the distinction between ser and estar has as a prequisite learning (cognitively) basic, constant properties of objects, as opposed to transient qualities of characteristics. Therefore, it is quite plausible that the late acquisition of the copula in Spanish is attributed to the necessity of learning two different intangible meanings for the copula. Obviously, this suggestion hinges on the supposition that the child is predisposed not to see the distinction but must learn it through language. Alternately, we could argue that children do see the distinction and in order to learn the English copula they have to learn to ignore it. But if this were so, then the English copula should be later than the Spanish one, which it is not.

It also seems as if there may be interference in learning ser and estar due to the demonstrative pronouns whose phonetic shape is most similar to them: esa, ese, eso, esta, este, esto. In fact, the difference between the demonstrative pronoun esta and the present 3rd person singular of estar, está, is entirely one of stress (first syllable vs. final syllable, respectively). Therefore, it is conceivable that the child neglects to mark the copula estar early because he cannot perceptually distinguish it from the demonstrative pronoun.

The copulas both in English and Spanish are basically redundant markers and generally do not convey any new semantic information, (although examples were presented at the top of the page in which ser and estar expressed new semantic information: temporality or permanency of the attribute). Historically, the copulative function of the verb 'to be' appears to have been a secondary development in the Indo-European languages (Lyons 1968:322). In Latin it was optional in certain sentences, e.g., predicated sentences. We will see in the ensuing paragraphs that the acquisition data reflect the historical development of Indo-European and that as a semantically empty place holder, the copula is difficult to master.

In Raúl's data, the copula estar is omitted in the following environments:

$$\left\{\begin{matrix}\text{ese}\\\text{este}\end{matrix}\right\} \text{\_\_\_\_\_ (Noun) aqui}$$

$$\left\{\begin{matrix}\text{allí}\\\text{acá}\end{matrix}\right\} \text{\_\_\_\_\_ Noun}$$

It is of interest to note that the obligatory contexts in which estar is deleted are either before or after locative adverbs. In the following environments, the copula ser is omitted:

{este / esto / ese} _____

¿este _____?

However, in these same environments ser and estar were not omitted when they were patterned after adult models in which the copulas were present. In addition to correctly employing the copulas in imitations, there were a couple other instances in Raúl's data in which the copula was used appropriately, for example, in

Cowboy soy yo.

But we may not presume that Raúl is actively able to segment these morphemes since they do not appear elsewhere in the data. Expressions such as the one above may be learned as set phrases.

In order to account for the omission of ser and estar, we may assume either no rules have been formulated for the insertion of the copula or rules block their insertion in specific contexts. If we were to postulate blockage rules, they would be of the form: (1) aquí or acá tells where the subject is, do not insert estar, and (2) esa, ese etc. tells who/what the subject is, do not insert ser. However, since there is little reason to credit Raúl with knowledge of where to place copulas in other sentence patterns, we will assume no rule formulation.

Juan Carlos also omits the copula estar in the following environments 100 percent of the time:

Noun _____ aquí
este/a _____ aquí/allí
Aquí _____ Noun

In these contexts, ser is supplied incorrectly 10 percent of the time. Unlike Raúl, Juan Carlos does not have a rule that totally blocks the co-occurrence of a locative adverb with the copula estar. What his rule blocks is the co-occurrence of estar with a locative adverb accompanied by either a noun or esta/este. It permits estar to co-occur with aquí in the presence of no, ese and yo, as in:

no estan aquí
ese está aquí
honey yo estoy aquí

Evidently, Juan Carlos is in the stage of differentiating between ser and estar. However, we note that ser is supplied correctly a greater percentage of the time than estar.

Carlitos' data reminds us of pivot grammars written for English-speaking children (Braine, 1963); estar is supplied correctly before aquí, but not following aquí. In addition, it is not found before other locatives such as en el tren, which seems to indicate that estar has been learned before aquí but has not yet been learned in the context of locatives in general. Concerning the use of ser, there is no evidence in the data to suggest that at Stage V this morpheme has been acquired in the context of possessives.

In Ana's data, ser is not found following esa, esta or esto, which constitute obligatory contexts for this morpheme. We might attribute this absence to the proposal made earlier, that esa, esta, etc. tell what the subject is. Ser is correctly supplied in the context of possessives. Estar is correctly employed before aquí and has also been learned in the context of color terms, as in no está red, and in the context of other attributes, e.g., esa está duro. But it has not yet become a productive morpheme in relation to all locatives. In the following two examples from Ana's data, locative relationships are ungrammatically expressed by ser:

*es en el boat
*aquí es.

Another complicating factor in the acquisition of ser-estar is that Spanish does not require a subject with verbs in all contexts as does English. As long as the referent is known, it is equally grammatical to say es grande or ella es grande. The child learning Spanish may be at a disadvantage since the word order distribution in a declarative sentence, and in a yes-no question for that matter, is as often VO as SVO. The child, faced with learning how to use language, cannot master all the grammatical structures of a language at once. What he does is to concentrate on a few, if not just one, at any one point in time. It is likely that the child chooses to attend to word order distribution rather than to grammatical morphemes in a language in which some of the constituents are optional.

In the preceding paragraphs we have discussed the relative late acquisition of the copulas: estar and ser in Spanish in terms of semantic complexity, perceptual saliency and the amount of new information conveyed by them. Morphemes that are basically redundant and convey no information not already explicit in the sentence are some of the last to be acquired. The copula is definitely a candidate for this classification with the sole exception of its use before a set of attributes which may be either temporal or permanent. But this would not explain the relative lateness of the acquisition of the copula in Spanish since the copula in English is redundant too. However, assuming the child in Spanish must learn the distinction between ser and estar, or at least learn to map the distinction, acquisition of the copula is complicated by Spanish word order distribution, (S)VO,

and by the frequent presence of the demonstrative pronouns whose phonetic shapes are very similar to the copulas. And even if the child has only to map the general distinction between ser and estar, can we attribute to him knowledge of the subtle difference existing between Ella es gorda and Ella está gorda? It seems likely that experience with the Spanish language helps him construct these concepts.

Not all the grammatical morphemes in Spanish are more complicated than in English although it might appear to be the case at this point. Glancing back at Tables 6 and 7, we will recall that the Spanish past tense is one of the first morphemes to be acquired. If this is one of the first morphemes to reach criterion in Spanish, why aren't the English past tense morphemes also among the first to be acquired? This phenomenon of relatively late acquisition could be attributed to the formal complexities of the English past tense. In English many of the most frequently used verbs are irregular, undergoing vowel gradation or suppletion in their past tense forms. True it is the case that several of the more commonly used verbs in Spanish undergo either suppletion or monophthongization for the past. Yet the past tense is always marked by a regular change in the thematic vowel, e.g., present, viene; past, vino.

In general, and in the present data, the 3rd person singular morpheme, acquired before the other persons, occurs more frequently than the other persons in Spanish. In addition, this person can always be directly imitated by the child, still maintaining the same referent, while this is not true for the 1st and 2nd persons.[13] However, it might appear as if this would not explain the relatively early acquisition of the 3rd person singular in Spanish since American parents also do a large amount of 3rd person singular talking. But recall that the marker for the 3rd person singular occurs only in affirmative declarative sentences in English. In both questions and negations the marker for tense and person shifts to the dummy auxiliary. Thus, in English, the only marked person in the paradigm for the present tense is the 3rd person singular and only in the affirmative declarative sentences is this marker attached to the main verb. In contrast, all verbs in Spanish are marked for person, number and tense. Furthermore, the inflection remains constant in affirmations, negations and questions. In essence, the 3rd person singular in Spanish is neither the marked form in the paradigm nor is its frequency dependent upon the sentence type as is the case in English. And as a final note, the 3rd person singular in Spanish, as in all the persons, is often the sole clue to who/what is the subject of the sentence. As we have seen earlier in the paper, subject deletion is an optional rule. Generally speaking, when the subject is deleted, the listener has no difficulty knowing what it is, due to the person and number inflection on the verb.

Gender seems to be acquired before the article.[14] In scoring the data, gender was not tallied, i.e., either correct or incorrect, for an article that had been omitted, even if the article were omitted in an obligatory context. Where the article did appear, gender was scored. The gender of the article appeared to have been learned in

connection with the noun, judging from the fact that the greatest number of the children's mistakes in gender were in demonstrative pronouns, not in articles. The gender of the demonstrative pronoun must be the same as that of the noun which it is pointing out, as in

masc. masc. masc.
este es un libro

Returning to the article, I propose the following reason for its late acquisition: according to Slobin (1973) homonymous forms tend not to be the earliest forms learned by children. El is the 3rd person singular masculine pronoun and the singular masculine definite article, and la is the feminine regular direct object and the singular feminine definite article.

In Brown's data the plural was one of the first grammatical morphemes acquired. In Spanish, the plural is one of the later morphemes. Like gender in Spanish, plurality must be marked on the demonstrative pronouns, the articles, the demonstrative articles, and the adjectives. The verbs in Spanish are also marked for plurality, which I counted as obligatory contexts for the 1st person plural and 3rd person plural morphemes. In Table I, we saw that none of the speakers had five obligatory contexts for the 1st person plural and only two of the speakers had a sufficient number of obligatory contexts to calculate a percentage for the 3rd person plural. A comparison of these two verbal plural percentages (80 percent for Carlitos and 75 percent for Ana), with their percentages obtained for the nominal plural marker (83 percent and 80 percent respectively), indicate no significant difference in the order of acquisition of the nominal and plural verbal markers. We also notice in the data that plurality is not redundantly marked. The children, when they mark for plurality, begin by marking either the noun or the verb for plurality; however, they do both in different sentences. It seems plausible that a child learning a complicated inflectional system such as that of Spanish has to pick a strategy of marking either the verb for plurality:

¿Porque se van to la escuela todo eso? (Ana)
'Why (do) all (of) these go to school?'

or the article:

Se mete la ropa porque no se va los caballito. (Ana)
'(You) put the rope on because (so that) the horses won't leave.'

or the demonstrative adjective plus the noun:

¿Y que está haciendo esos niños? (Ana)
'And what are those children doing?'

Another factor which might well hinder the acquisition of the nominal-plural morpheme in Spanish, in addition to the redundant marking just mentioned, is the phonetic realization of the plural

marker. In the Caribbean, and many other parts of Latin America, the plural morpheme is frequently realized as [h], a sound with low perceptual saliency.

As we have just seen, it is quite difficult to compare the developmental sequence of morpheme acquisition in Spanish to that of English since the morphemes themselves are not all in parallel constructions. However, in spite of these discrepancies and the small sample size, in this section I have attempted to discuss the cross-linguistic differences represented in Tables 6 and 7 in terms of formal complexity, semantic complexity and perceptual salience. The following scheme sums up the differences in morpheme complexity found between the two languages and discussed above:

Formal complexity

English plurals < Spanish plurals
Spanish 3rd person singular < English 3rd person singular
Spanish past < English irregular past < English regular past
English article < Spanish article

Semantic complexity

English copula < Spanish copula: estar
Spanish copula: ser

A final remark with regard to semantic complexity--in particular cumulative semantic complexity--is appropriate. Brown found it possible to order morphemes expressing compound meanings after those expressing only those meanings of which they are compounded. For example, he predicted that the plural and past should precede the 3rd person regular in emergence in English since the 3rd person regular entails number (x) and earlierness (y), which are meanings found in the plural and past respectively. These predictions were borne out for Adam, Eve and Sarah in English. Likewise, the plural and past are predicted to precede the uncontractible copula since the later morpheme also varies in form with number (x) and tense (y) (earlierness). Table 8 shows a partial ordering in terms of the above-mentioned source of cumulative semantic complexity.

Table 8

A partial ordering of English morphemes in terms of cumulative semantic complexity.

Plural (x)	<	Uncontractible copula (x + y)
Past irregular (y)		Third person regular (x + y)

May we assume that what is semantically complex in one language is also semantically complex in a second? In other words, will the semantic predictions Brown made for English based upon semantic complexity hold up for languages other than English, i.e., are they semantic universals? If not, are these predictions to be attributed to a combination of semantic and formal complexity in English making it difficult to tell where the effect is coming from?

Given that we have two orderings of Spanish morphemes (Tables 2 and 4), we can test whether or not Brown's predictions of cumulative semantic complexity are met in Spanish. When these predictions are checked against the average rank orderings found in Tables 2 and 4, not all of them are confirmed. The outcomes appear in Table 9.

Table 9

Outcomes of Brown's predictions of cumulative semantic complexity for the average rank ordering of Spanish morphemes (data taken from Tables 2 and 4 obtained by Methods II and I respectively).

Prediction	Method I	Method II
Plural < copula[a]	=[b]	+
Past[c] < copula[a]	+	+
Plural < 3rd person[d]	-	-
Past[c] < 3rd person[d]	=	-

Symbols
+ confirms prediction
- disconfirms prediction
= neither confirms nor disconfirms prediction
< the one on the left is acquired first

[a] Brown used the uncontractible copula

[b] The copula estar is acquired before either the plural or the copula ser. The latter two morphemes did not reach criterion level in the data; therefore, the prediction is neither wholely confirmed nor disconfirmed.

[c] Brown used the past irregular.

[d] Brown used the 3rd person regular.

Although one of the predictions (past < copula) is confirmed under both Method I and II, one (plural < 3rd person) is disconfirmed and the others are indeterminate. It is quite possible that more data would indicate that the plural precedes the copula. However, concerning the outcomes of the 3rd person with respect to the plural and

past, we would be hard put to say more data would change the acquisition order. The 3rd person per se is not semantically more complex than either the plural or the past. From a semantic standpoint, correct usage of it does not necessarily imply knowledge of plurality since the 3rd person morpheme which we are talking about in English and in Spanish is in the singular. Forced to choose the unmarked form of a countable noun, we would choose it in its singular form. Therefore, why is it that Brown designated the 3rd person to be semantically more complex than the plural or the past? Because in English, correct usage of this form depends upon the identification of the 3rd person in terms of number, singular versus plural, and in terms of tense, present versus past. However, in Spanish, unlike English, the 3rd person is acquired before the plural or the past. Although it is marked for person and tense, it appears as if from a formal standpoint, the 3rd person (singular) present tense is the unmarked form of the verb for the child. Thus, it logically follows that if it is the unmarked form, it is acquired earlier than the marked forms. Since the plural and the past are marked forms, they are acquired later.

As we have just seen, cumulative semantic complexity as discussed by Brown turns out not always to make the right predictions. It appears as if his operating definition of semantic complexity is in terms of all the knowledge an adult would bring to bear to a morpheme's use. And for a child to correctly use a morpheme in a more limited sense, no such knowledge is implied. Formal complexity perhaps plays a role in determining how semantically complex a form is, i.e., although the morpheme is semantically complex in an adult grammar, it may not be complex for the child if it is the unmarked form of the paradigm. We illustrated this point by contrasting the order of acquisition of the 3rd person in English and Spanish.

Conclusion

The grammatical morphemes in Spanish are qualitatively different from those found by Brown in English and their orders differ sequentially. Just glancing at either Table 6 or Table 7, we observe only three one-to-one correspondences between the number of morphemes in each of the two languages: article, plural and possessive. For the other morphemes we observe either a two-to-one correspondence or a one-to-two correspondence, or, in the case of the copula, a two-to-two correspondence: contractible and uncontractible copula in English and estar and ser in Spanish. But how can we compare contractible copula in English to estar in Spanish? We cannot. In instances where we can compare morphemes, we note that they vary in their sequence of acquisition, e.g,, in Spanish the plural is acquired after the past while in English the plural is acquired before the past.

Grammatical complexity and semantic complexity play major roles in determining the emergence of morphemes in any language. Cumulative semantic complexity as defined by Brown, like cumulative grammatical complexity is, at least in part, language specific. What is cumulatively (semantic) complex in one language need not be so in a

second; the 3rd person morpheme in English and in Spanish illustrates this point well.

Tentatively, we will have to rely on the orders of the grammatical morphemes found in Table 5 as reflections of the sequence in which grammatical morphemes are acquired in Spanish.

Not all verbal inflections have been discussed in this paper. The progressive, the future marker, and the auxiliary seem to reach acquisition level by Stage V. However, these forms were almost totally absent prior to Stage V (see Table 1: Raul and Juan Carlos), making it impossible to discuss them in terms of continuous data. Nor did the data permit us to identify with any reliability the acquisition of the 1st person plural or the 2nd person singular. The morphemes were used with 100 percent accuracy during Stage V; however, prior to this stage they were largely absent.

Clearly, more data need to be gathered, so that any necessary changes, additions and/or deletions can be made.

FOOTNOTES

1 Actually there are two different learning processes involved in stages two and three. In stage two, the child is beginning to use the morpheme in a limited number of environments, and in stage three not only does he use it in required environments but also in environments where it is not required. So in stage three he is faced with learning the exceptions, not the general rule as was the case in stage two.

2 However, results from studies conducted in the last ten years, e.g., Cazden (1968) and Brown (1973) indicate that in English the possessive precedes the article.

3 The same three children were studied by Brown and Cazden.

4 Although the copula does not always refer to earlier time, for it to be used correctly in 90 percent or more of obligatory contexts the child must necessarily take into account whether the topic is in the past or the present tense. Therefore, "earlierness" as it is being employed here is synonymous with the past/present tense distinction.

5 Note that "formal complexity" used in this paper is not in terms of Brown's use of the term, i.e., number of transformations defined cumulatively, but Slobin's (1973) "universal operating principles," whereby the acquisition of a morpheme is dependent upon its word order, surface preservation of underlying structure, clear marking of underlying structure, overregularization and semantic motivation.

6 In the data obvious interference from English (in their Spanish) is extensive, although it cannot be determined from these data whether code mixing is a typical fare or a function of the audience. Thus, it might be the case that if the speaker knows his audience is bilingual, there may be no need to separate the two languages.

7 Person and number were counted as one morpheme, since the 1st person singular and the 3rd person singular in each is a portmanteau morph.

8 In retrospect, my scoring could have more closely approximated Brown's if I had considered neither the present tense nor the 3rd person singular as separate morphemes but as part of the base form of the verb.

9 According to the system devised by Brown (1973) in English-speaking children, Stage I delineates the period in which the first multiword utterance is produced and goes up to MLU 2.0. Stages II, III, IV and V are defined by increments of 0.5 to the MLU of the preceding Stage.

10 The indirect object is missing in this utterance. For the sentence to have been grammatical Carlitos might have said, Aqui no me gustan estos carros 'Here no to me like these cars' or 'These cars are not pleasing to me here.'

11 Average rank was computed according to the de Villiers' Method II.

12 The original 23 morphemes have been reduced in number as a result of (1) the merging of the past regular and the past irregular and (2) the elimination of certain morphemes due to their sparse representation: future marker, progressive, past imperfect, subjunctive, auxiliary, 1st person plural, and 2nd person plural.

13 With the exception of the 2nd person plural inclusive, e.g., we (you and I) like each other.

14 Recall that the article refers to both the definite and the indefinite.

REFERENCES

Braine, M. D. S. 1963. The ontogeny of English phrase structure: The first phrase. Language 39, 1-14.

Brown, R. W. 1973. A First Language: The Early Stages. Cambridge, Mass.: Harvard University Press.

Cazden, C. B. 1968. The acquisition of noun and verb inflections. Child Development 39: 433-448.

de Villiers, J. G. and P. A. de Villiers. 1973. A cross-sectional study of the acquisition of grammatical morphemes in child speech. Journal of Psycholinguistic Research 2: 267-278.

Lipp, Ellen. 1977. The Acquisition of Estonian Inflections. Cambridge: Cambridge University Press.

MacWhinney, B. 1976. Hungarian research on the acquisition of morphology and syntax. Journal of Child Language, 3: 397-410.

Slobin, D. I. 1972. Cognitive prerequisites for the development of grammar. In Studies of Child Language Development, edited by C. A. Ferguson and D. I. Slobin. New York: Holt, Rinehart and Winston, Inc.