Acquisition of Jamaican Phonology

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Summary

This dissertation provides an initial descriptive analysis of the acquisition of phonology by Jamaican children. It covers the acquisition of syllable structure, segments and features, the use of phonological processes and the effect of variation in the adult language. The Jamaican speech community includes speakers of Jamaican English (JE), the acrolect, and Jamaican Creole (JC), an English-lexicon based Creole language. JC includes the basilect (the variety most distinct from JE) and the mesolect. The mesolect includes a mix of features of the acrolect and the basilect in addition to some unique features. In exploring the appropriate framework for discussing the acquisition data I proposed a model of the Jamaican Creole continuum that recognises the three language varieties, the existence of monolinguals in each and multilinguals in all combinations. This model is accounted for within the Optimality Theory (OT) framework with "fixed" grammars for acrolect and basilect and a variable grammar for the mesolect. In a theoretical excursus, I propose a Dependency Phonology (DP) based representation of sub-segmental elements that is applied to the acquisition data within an OT framework. In the remainder of this summary, I outline the main methodological considerations, a synopsis of the results and some of the implications of the findings.

The main controlled variables in the selection of informants were the age of the children and the education level and area of residence of the primary caregiver. In addition to these criteria, language use, impairments and sex were also considered. In order to cover the age period 1;0 to 4;6 in the limited time available, two age groups were selected. One sub-group in each community has children who were approximately 1;0 year and the other sub-group has children who were approximately 2;6 years, at the beginning of the data collection period. In order to be able to examine the influence of variation in input, children were selected from different areas and from families with different educational backgrounds. Informants whose caregivers had only primary education were selected from the relatively isolated rural community of Guys Hill and those with university or college education were selected from the town of Linstead, in the same parish. They are referred to as the pre-secondary (Pre-Sec) and post-secondary (Post-Sec) groups, respectively. A reserve group of four children was selected from St. Andrew. The apparent variety of language used was noted during the selection process. The lack of impairments was determined by questions to the caregivers and observation of the children, before and during recordings. As far as was possible an effort was made to get equal numbers of boys and girls in each subgroup.

Two children from each of the primary subgroups, a total of eight, were recorded once per month for two years from 1;0 to 3;0 and from 2;6 to 4;6 for each age group, respectively. The remaining 12 primary children were recorded at quarterly intervals for the two year period. All the children, in both age groups, in Saint Andrew were recorded semi-

annually for two years. Audio and video recordings of primarily spontaneous utterances were done for 30 to 40 minutes at each data point, using Sony equipment. Picture books were the main elicitation items, but various toys and games supplemented these.

The data were transcribed according to the transcription guidelines of the Child Language Data Exchange System (CHILDES), called the CHAT transcription system (c.f. MacWhinney, 1991 and Sokolov & Snow, 1994). All the available monthly data for children between 1;0 and 2;0 were transcribed. This applies to four children. All the remaining data for children in the younger subgroup (1;0-3;0) were transcribed at quarterly intervals. Quarterly transcriptions were also done for two of the older children, but for the remainder only twelve-monthly data points were transcribed. The data from the four Saint Andrew children is held in reserve.

Frequency counts of the children's attempts at the adult words and segments were done, using programmes that are integral parts of the CHILDES system. A child is deemed to have acquired a segment if the frequency data shows 75% correct realisation of that segment. Where there are 50% to 74% correct realisations, the segment is noted as emerging. A minimum of two attempts at a segment is required for possible acquisition to be determined. These criteria were also applied to the acquisition of syllable structure and features. The majority of the children in a group had to have 75% correct realisations for acquisition by the group to be established. For the group data, calculations of mean and median ages were done based on those ages at which there was clear evidence of acquisition of the particular phenomenon.

A notable observation is that there was significant individual variation in the development of the phonology of the children studied. It is, however, probably more significant that the variation is mainly in relation to the ages at which the different phonological phenomena were acquired. Statistically, the sequence of acquisition is significantly similar in most cases. The Post-Sec group showed a tendency to acquire the phonological phenomena earlier than the Pre-Sec group, but the differences are not significant in most cases.

In looking at the syllable structure development path for the twenty primary children in the project, there was significant individual variation in the ages at which the various stages were acquired. However, it is equally clear that all the children followed a similar development path in terms of the sequence of acquisition. The application of Spearman's rho and Pearson's test of correlation of rank order established that there were no significant differences between the two groups in the order of acquisition of each stage. With this similarity in mind, a five-stage profile as presented in (1) was recognised for all the children.

(1) Syllable structure development stages for all the children

Stage I (≤1;3):	Open syllables	-	CV
	Disyllabic forms	-	CVCV
Stage II (1;0-1;6):	Onsetless syllables	-	V
Stage III (1;1-2;3):	Closed syllables	-	(C)VC
Stage IV (1;6-3;6):	Consonant clusters	-	(C)CVC(C)
Stage V (2;3-):	Syllabic consonants	-	CC̩

This is similar to the pattern found by some previous studies and contributes to the arguments recognising a universal pattern in language acquisition.

There was a general order of development to be seen in the acquisition of individual segments, although not as consistent as the syllable. There were also differences in the ages at which the individual segments were acquired. Oral stops tend to be acquired first, especially /d/ and /b/. Then we see nasals, fricatives, glides and liquids, in that order generally. It was also found that in general most segments were acquired syllable-initially before syllable-finally. The main exceptions were fricatives, some of which were acquired first in the syllable-final position. The profile of the development of the segments, generalised for all the children, is presented in Table S1.

Table S1: Generalised phoneme inventory development profile for all children.

Age	Syllable-initial Consonants	Syllable-final Consonants	Vowels
0;9-1;6	b d		ɪ a
1;6-2;0	m n p b t d k	n t	i ɪ u ɛ ʌ a
2;0-2;6	m n p b t d k g f s w j	m n p t k s	i ɪ ʊ u ɛ ʌ a ɪɛ
2;6-3;0	m n p b t d tʃ dʒ kj k g f v s w r l j	m n ŋ p t d k g v s z ʃ r l	i ɪ ʊ u e ɛ ʌ o a ɪɛ aɪ
3;0-3;6	m n p b t d tʃ dʒ kj k g f v s ʃ w r l j	m n ŋ p t d tʃ k g v s z ʃ r l	i ɪ ʊ u e ɛ ʌ o a ɪɛ aɪ
3;6-4;6	m n p b t d tʃ dʒ kj k g f v s ʃ w r l j	m n ŋ p t d tʃ k g v s z ʃ r l	i ɪ ʊ u e ɛ ʌ o a ɪɛ aɪ
Not acqd. up to 4;6	gj θ ð ʒ h z	b dʒ f ʒ	ɔ ʌʊ

With respect to the acquisition of features, the Pre-Sec group acquired none at an earlier age than the Post-Sec group. Except for two features, [Consonantal] and [Tense], which were acquired at the same age, all the features are acquired by the Post-Sec group earlier than the Pre-Sec group acquired them. Notwithstanding this difference in the ages of acquisition of the features, the orders of acquisition by the two groups are significantly similar at the 1% level, two tailed. The order of acquisition by feature categories for all the children is repeated in (2).

(2) Order of acquisition by feature categories.

a. Place

(Primary features): coronal, labial < dorsal.

(Secondary features): low, high < front < round.

b. Manner

(Primary features): consonantal < sonorant < continuant < sibilant.

(Secondary features): tense < nasal < lateral < rhotic.

Variation in use of phonemes was found in the caregivers' speech for both groups, but more so in the Post-Sec group. The caregivers of the Pre-Sec group were consistent in their more frequent use of the JC variants as opposed to the JE variants. The main variables examined were dental stop vs. dental fricative, palatal stop vs. velar stop, /ɪɛ/ vs. /e/ and /ʊʌ/ vs. /o/. In each case the former is the JC variant and the latter is the JE variant. In general the children acquired the more frequently used variants earlier than the less frequently used variants, but this was more so for the vowel variables than for the consonant variables.

Based on the variants they had acquired, approximately one third of the children appear to be developing as monolingual speakers. Half of the monolinguals are speakers of JE and the other half are speakers of JC. The remaining children, a clear majority, show evidence of being bilingual. The bilingual Post-Sec children showed evidence of acquiring JE and JC; the JC variety may be either the basilect or mesolect. The bilingual Pre-Sec children appear to have been acquiring two varieties of JC. The children studied appear to be representative of the Jamaican population in terms of language use. With the majority of the children being bilingual, one would probably assume that the diglossia model would provide a very effective account. However, the evidence that three of the children were developing as monolingual acrolectal speakers (the 'high' variety in a diglossia) poses a problem for the diglossia model as a single model of the Jamaican language situation.

The framework in which the data were presented in Chapters 5 and 6 accounts for acquisition in terms of the children having their own phonological systems then they progress towards the adult system by incrementally adding new features and structure and by combining these in more complex ways. Before the adult system is acquired, the children, in that account, apply various phonological processes to adult target forms to get them to conform to their existing systems. Fewer processes are necessary as they move closer to acquiring the adult system. The use of most of the phonological processes was sporadic or zero in the Post-Sec group earlier than in Pre-Sec group. However, the order in which the use of processes decreased are significantly similar. The dental fricative process was still in full use at 4;6, for the Post-Sec group. However, there is no evidence of this process in the Pre-Sec group. The Pre-Sec caregivers do not use dental fricatives, therefore the children are unlikely to acquire these forms until they are exposed to them from a source external to the home environment, most likely in a second language situation.

An alternative approach to the acquisition process was mooted in a theoretical excursus at the end of the dissertation, beginning with the proposal of a modified version of the DP representation of sub-segmental features. The sub-segmental features that were proposed were presented in terms of OT constraints and used to demonstrate how the acquisition process is accounted for in the OT approach. In this account, children begin acquiring their phonological systems with a default constraint ranking that results in most children producing coronal consonants and low vowels irrespective of the input. As they acquire more of the grammar the constraints are reranked allowing a wider variety of outputs. Individual variation occurs in terms of the time interval between rerankings and in terms of the intermediate points at which the reranked constraints are placed.

OT was also used in the dissertation to provide an account of a model of the Creole continuum that includes monolinguals and multi-linguals. This model was accounted for within OT with a variable constraint hierarchy for the mesolect and fixed hierarchies for the acrolect and basilect. According to OT, the optimal output candidate for an input form is selected based on the satisfaction/violation of a set of ranked constraints, whose ranking vary for different language varieties. This OT approach accounts for the implicational relationship between variants and does not allow unattested co-occurrences of variants.

In applying OT to the Creole continuum I had to determine the source of the input for the various language varieties. The conclusions from this determination could be applied to the nature of the interaction between two languages in a L2 learning situation. In this situation, I suggest that the assumptions that the L2 learner makes about the L2, in relation to her L1, are applied at the input level not the output level.

In addition to the scientific interest in child language in Jamaica there is a practical need to understand the nature of the linguistic competence of children at different stages of language development. This impacts on clinical applications and education policy. The three essential steps for the correction of phonetic and/or phonological disorders, assessment, diagnosis and treatment, are focussed primarily and necessarily on the speaker with the disorder. However, they are useless without some indication of what the normal phonological profile should be for the particular age group concerned. The findings of this study provide an initial indication of these profiles.

One of the first steps in the improvement of the education system in Jamaica should be the official recognition of JE and JC as two distinct languages. The children should become literate in their mother tongue, while learning English, which is required in Jamaica for higher levels of education. An often-mooted solution is to include the use of JC in schools, at least for primary education, while teaching English as a second language. This must necessarily begin with an understanding of the linguistic competence of a child entering the education system. It does not necessarily mean that English has to be second in terms of 'status' or official function, but simply that it is taught using a method that recognises that the learner already speaks one or more languages. Many persons, including linguists and educators, have made this proposal.

What this study contributes to the education policy debate is some supporting evidence for the common assumption that many of the children entering schools do not have an adequate command of the language of education, English. Further it gives an indication of the extent to which children may be bilingual or monolingual and in which of the language varieties. This is useful for assisting in the selection of the language variety to be used in schools and it should help teachers to have an idea of what is the norm for a child at various ages and what is deviant. It contributes to the foundation on which to build a more user-sensitive education system, towards which the Jamaican Ministry of Education is sympathetic, but which is still 'under consideration'.