

# Prosodic Mixes: Strategies in Multilingual Language Acquisition

**Madalena Cruz-Ferreira**

*National University of Singapore*

## Abstract

The paper reports preliminary findings of an ongoing study of prosodic mixes in the speech of three trilingual siblings. The children are primary bilinguals in Portuguese and Swedish, and acquired English as the language of schooling. Prosodic mixes are defined as the intrusion of prosodic patterns of one language into another.

From the earliest stages of linguistic development, the children made use of prosodic strategies in order to communicate in their native languages, clearly indicating that they take prosody as a crucial conveyor of both linguistic meaning and linguistic identity. The current transfer of foreign intonation patterns to a native language involves pasting of English prosodic patterns onto segmental structures of Portuguese that are either equivalent or made equivalent to their English counterparts. The mixed patterns do not however replace all instances of corresponding adequate native patterns, suggesting that the process is not one of mechanical transfer but of experimentation.

In the light of these observations, it is argued that prosodic mixes constitute evidence of strategies that multilingual children appear to develop in their process of language acquisition, and that consist in testing, in other languages at their disposal, the meaningful patterns observed in one language.

## Key words

*host and guest language*

*multilingual acquisitional strategy*

*prosodic mix*

## 1. Introduction

This paper reports preliminary findings concerning prosodic mixes in the speech of trilingual children, whose languages are Portuguese, Swedish, and English. Prosodic mixes, defined as the intrusion of prosodic patterns of one language into another, have to my knowledge not been discussed in the literature on child multilingualism so far, and this study is therefore presented as a first step in filling this gap.

If phonology is the Cinderella of bilingual studies, as Watson (1991) claims at the outset of his study, prosody must be Cinderella's broomstick. In bilingual studies, the acquisition of native-like prosodic patterns by so-called primary bilinguals, children learning two languages from birth, is largely taken for granted if mentioned at all, as is the crucial role played by prosody in the acquisition of language itself. In studies on second language acquisition, on the other hand, foreign intonation is widely recognized as the last bastion of a non-native accent, "foreign intonation" taken as the use, in a second language, of prosodic patterns belonging to the first language of the learner. Accent, phonetic or prosodic, remains one's linguistic name card, whether in native to native or native to non-native

**Address for correspondence**

39 Chancery Lane, #01-01 Villa Chancery, Singapore 309568. Fax: +65-255-4446; e-mail: <mcf@pacific.net.sg>

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exchanges, and this paper addresses a different type of “foreign accent,” the multilingual accent due to adoption of a foreign prosody in a native language.

The children in this study are native speakers of both Portuguese and Swedish, and learned English as the language of schooling. The acquisition of English eventually had a noticeable effect on the intonation of their Portuguese, in particular, where several prosodic patterns typical of English came to be used.

From the earliest stages of linguistic development, the children made consistent use of prosodic devices specific to either Portuguese or Swedish in order to communicate in each of their two native languages. The use of these strategies strongly suggests that they take prosody as a crucial conveyor of both linguistic meaning and linguistic identity. In the light of these observations, the paper argues that one reason for the transfer of foreign intonation patterns to a native language may lie in the continuing use of prosodic strategies as discovery procedures in the exploration of meaningful linguistic patterns.

## 2. Background

Data are taken from an ongoing study on the speech of three trilingual siblings, two girls and one boy, collected from birth through tape recordings, video tapes, and diaries. For ease of reference the children are identified by their real names, Karin, Sofia, and Mikael, aged 11;1, 9;2 and 7;0, respectively, at the time of writing. The children have been raised bilingually from birth in a mixed family where the mother speaks (European) Portuguese and the father (Central Standard) Swedish, according to the one person-one language principle.

Portuguese is a stress-timed Romance language, whose words are predominantly stressed on the last but one syllable and which has drastic vowel reduction in unstressed syllables. Swedish belongs to the Nordic group of Germanic languages, and is a so-called pitch-accent language, in which parts of its polysyllabic vocabulary may be distinguished by tone alone. The two distinctive prosodic patterns, associated with stressed syllables, are called Accent 1 (acute) and Accent 2 (grave), and their physical features vary from dialect to dialect. In the dialect spoken in the family, Accent 1 has a simple fall and Accent 2, also called double tone, has two falls, one on each successive syllable, the second more prominent than the first. Swedish is stress-timed with no significant vowel reduction in unstressed syllables. For details on the phonological and intonation systems of Portuguese see Cruz-Ferreira (1995, 1998) and, for Swedish, see Engstrand (1990) and Gårding (1998).

The children's regular contact with English started at ages 6;11, 5;1 and 2;11, respectively, when the family moved first to Hong Kong and then to Singapore, and the children started schooling in English. At school, the children are mostly exposed to British accents from both adults and peers, although they are familiar with a number of other accents of the language, Australian, American, Singaporean, and non-native, as they are familiar with several accents of both Portuguese and Swedish. Their exposure to Portuguese continues almost exclusively through the mother, as well as from visits to Portugal that include contact with monolingual Portuguese children, or from sporadic guests. Swedish has a broader input spectrum: besides the father, guests, and visits to Sweden, where they also have contact with monolingual Swedish children, the children have regularly attended Swedish

Supply school from the age of six in the countries where the family has lived. Karin lived in Sweden until age 2;0, Mikael and Sofia never did. Karin lived in Portugal from 2;0 to 4;2 and later from 5;11 to 6;11; Sofia from seven weeks to 2;3 and later from 4;0 to 5;1; Mikael from 1;9 to 2;11. In all of the contacts in Sweden and Portugal, the one person-one language principle can be easily maintained. The parents adhere strictly to it, although they are both fluent in both languages, as well as in English. The parents use mostly Swedish to communicate with each other in the presence of the children, in order to compensate for the children's greater daily exposure to Portuguese through their mother. When speaking among themselves, the children use mostly Portuguese and now English too, Swedish being reserved for discussion of happenings specifically connected with Sweden like, for example, skiing.

### 3. Remarks on the role of prosody in multilingual language acquisition

The children's process of language acquisition in Portuguese and in Swedish proceeded normally, according to patterns described in the literature on language acquisition. There are, to my knowledge, no studies on language acquisition in Portuguese, but for Swedish see Roug, Landberg, and Lundberg (1989). All three children started babbling early, around the age of 0;2, taking the onset of babbling as the incipient modulation of an egressive airstream for the pleasure of sounding. Disregarding personal preference in babbling of favorite sounds, babbling skills progressed with the acquisition of back vowels before front vowels, plosives before fricatives, voiced segments before voiceless, labials and velars before alveolars and dentals, and open syllables before closed. Oral vowels preceded nasalized vowels (which are phonemic in Portuguese), back rounded and front unrounded vowels preceded front rounded vowels (which are phonemic in Swedish). The exploration of their audio-articulatory capabilities also followed the expected succession in babbling drift, whereby from around 0;4 the children stopped babbling non-Swedish and non-Portuguese sounds, and started producing definite gibberish in each language. The evolution of the children's babbling of contour tones is also predictable from the literature on language acquisition (see Cruttenden, 1979), with falls preceding alternations of falls with level tones or of falls with rises, and low levels preceding high levels. The Swedish double tone appeared at around 0;10.

From the end of the first year, the children would maintain “gibberish dialogs” with each parent in each language, where not only the phonetic patterns but also the rhythmical and intonational patterns typical of either Portuguese or Swedish were clearly patent. One example is Sofia's “connected speech routine” at age 1;1: in Portuguese, she produced [káká'káká], replicating the language's vowel reduction and penultimate stress, as well as using the palatal lateral nonexistent in Swedish; in Swedish, she had a succession of [hiti] strings, with distinct vowels and the glottal fricative nonexistent in Portuguese, the last string in each utterance bearing double tone. This strongly suggests both that their languages were in place and that the children were aware of both: the children “sounded” Portuguese or Swedish when they spoke and chose to sound so according to interlocutor.

Prosody thus played a crucial role in signaling to the interlocutor which language they were speaking before the one-word stage. Moreover, in dialogs in either language, the children made use of prosodic strategies as substitutes for vocabulary that for some reason

failed them. For example, when prompted in Swedish to name an object for which they were able to articulate the Portuguese word only, they would hum a Swedish double tone on a schwa-like vowel. That is, they would use an intonational device assumed as probable or at least acceptable in the language of the exchange, instead of using a word in another language, a strategy that ceased to be used from around 2;0, due to rapidly expanding vocabulary in both languages. In other words, when adequate vocabulary was unavailable, the children appeared to be avoiding language mixes in monolingual dialogs from a very early age, which is interesting in the light of the use they make of prosody later.

The point is that the children seem to take prosody as a crucial clue in their search for the ways in which to convey meaning in different languages. The search takes however different forms, depending on increasing articulatory proficiency and increasing knowledge about language. In the preword simultaneous acquisition of Portuguese and Swedish, their search is apparent in the use of language-specific intonation patterns with the segmental carriers that their developing articulatory skills enabled them to articulate. When English came into the picture, the children were already acquiring two other languages, and learning that intonation patterns co-occur with words and constructions in a language. They were also learning that different languages may have specific intonation patterns, or may share similar patterns: for example, the Swedish double tone does not occur in Portuguese, but a rising tone may be used in both Portuguese and Swedish to signal a question or a request. Precisely because they are learning uses of intonation (there is evidence that the learning of intonation may go on well into adulthood, see Cruttenden, 1982), and keeping to their treatment of prosody as a crucial indicator of linguistic meaning, the children need to check whether the new intonation patterns encountered in English are specific to the newcomer language. Since the children had by then outgrown the strategy of attempting to convey meaning through intonation alone on wordless carriers, their strategy appears to consist in testing the new patterns in another language, resulting in prosodic mixes as detailed in the main body of this paper.

A list of conventions used in the presentation of examples from the data follows.

## 4. Conventions

- In the examples, each of the three children is referred to by their initials, K(arin), S(ofia) and M(ikael), followed by age.
- The examples are written in ordinary orthography. For blends (marked by asterisks) and cases where the children's colloquial pronunciation clips words, an assumed orthography will be used. Clippings are marked by ‘ before the clipped word (one example in (5) below).
- In multilingual examples, English is written in unformatted font, Portuguese in *italics* and Swedish underlined.
- Blends, where features of more than one language are present, are given between \*asterisks\*.
- < > indicates the context preceding the example, where relevant.
- { } indicates presumed target of an utterance, where relevant.
- Phonetic transcriptions follow the IPA model.

- Utterances whose intonation patterns are under analysis are written in ordinary orthography. The word bearing the nuclear tone is written in CAPITALS. Shorthand notations are used before the syllable bearing the respective prosodic feature, as follows:

/ tone group boundary (signaled by pause)

` high-fall (fall from high, ending in mid or low)

, low-fall (fall from low, ending at lowest normal speaking range)

„ Portuguese extralow-fall (fall from low, ending below lowest normal speaking range)

˘ English fall-rise (fall from high or mid, then rise)

^ rise-fall (rise from low or mid, then fall)

## 5. Multilingual mixes

The speech of multilinguals is often characterized by systematic intrusions of one of their languages into another, resulting in utterances where structural features ascribable to more than one language are present. Several labels, among them codeswitches, mixes, and blends, and corresponding definitions of the linguistic processes involved, have been proposed in order to distinguish among each type of intrusion (see Myers-Scotton, 1993; Romaine, 1989, for a review of terminology). For the purposes of this paper, I believe that none of the current definitions will be done major violence by assuming the intrusions to fall into two major types, successive and simultaneous, exemplified below.

A few other terminological clarifications are required. The term *mix* (and its inflections) will be taken to mean any intrusion, that is, any instance where an utterance is not a clear example of one language only. This is the sense in which the word is used in the title of this paper. A mnemonic way of referring to the languages involved in mixed utterances is to call them *guest* and *host*, using these terms in their everyday sense of a guest being invited by a host for a purpose, but not belonging home at the host's. In Grosjean's (1995) terminology, "guest" words intrude into a "base language," whereas Myers-Scotton (1993) uses the terms "embedded language" and "matrix language," respectively. Grosjean's "base language" appears to me to suggest a basic patterning on which the guest word constitutes a variation, whereas Myers-Scotton's "embedded language" suggests a structural dependency of (features of) the intrusion on (features of) the matrix language. At what I would call the *locus* of a mix, each point in the utterance where a mix occurs, there may be no way to tell which language constitutes the base, or which language is embedded in the other, particularly in the case of an utterance, or parts of it, whose segmental structure belongs to one language and whose intonation belongs to another. The terms *host* and *guest* strike me as neutral labels to indicate cases where one feature of one language is called to perform a function in another, with no implication of which language is dominant.

Often, the answer to which of the languages is to be taken as host is straightforward enough, by taking as host the language in which the speaker initiates an utterance, or the language in which an exchange is taking place at any particular point in time. This of course allows for changes in host versus guest status in the course of one exchange. Language switches are typical in exchanges among multilinguals, and the children in this study are no

exception in that they may switch among their three languages during the same exchange: if language B, which had been guest during an exchange in language A, is subsequently taken as the initiating language, then B will thereafter be host. The assigning of host versus guest status may not be as straightforward in all cases of mixes, but it serves the purposes of the present study well enough.

The children in this study are, as indicated earlier, trilingual. The reason why I found no need to allow for, say, one host versus two guest languages, is that the overwhelming majority of their mixes involves only two languages at a time. There are in the data no cases of, say, an utterance in Swedish with one word in English inflected according to Portuguese grammar: the English word will have either English or Swedish grammatical features. In the whole of the data there are only two instances of a mixed utterance involving the three languages, both from the same child in exchanges with his father and both with Swedish host, one of them being:

- (1) M 5;8 -Den där killen med den där *côr de laranja* \*shirten\*.  
 the there the-boy with the there orange the-shirt  
 'That boy in the orange shirt.'

The word "shirten" has suffixed Swedish definite article and was pronounced [ʃɛtən], with English vowels and consonants and on a single fall, whereas the word for "orange" was pronounced in Portuguese. The whole utterance has Swedish intonation.

The investigation of whether trilinguals do mix bilingually only at the locus of a mix deserves separate study, as does the exploration of why trilinguals (or the trilinguals in this study) do not favor trilingual mixes at all. For a similar observation in a recent discussion of trilingual mixes, see Clyne (1997).

## 5.1 Successive and simultaneous mixes

Successive mixes involve a process illustrated in the title of Poplack's (1980) paper. The mixed utterance includes consecutive constituents that are each clearly ascribable to one of the languages at a time in, as it were, an on-and-off usage of them. Each mix triggers compliance with lexical, grammatical, and phonetic rules of its own language and is therefore segmentable into identifiable constituents within that language. Since the term *codeswitching* evokes sequential turning on and off of each language, successive mixes are treated below under the heading "codeswitches".

Simultaneous mixes occur where the codes of both languages are blended at the locus of the mix, resulting in co-occurrence of features belonging to both languages at that point in the utterance. Typical mixes of this type in the data are lexical items from one language inflected according to the rules of another. Simultaneous mixes are treated below under the heading "blends".

### 5.1.1 *Codeswitches*. Codeswitches may involve any constituent as guest:

#### • WORDS:

- (2) S 8;10 -Make him do a kullerbytta.  
 'Make him do a somersault'

## • PHRASES:

- (3) M 5;5 -*Há um menino assim com cool shoes lá na escola.*  
 there-is a boy this-way with cool shoes there at-the school  
 'There is a boy with cool shoes like these at school!'
- (4) M 6;1 -*A mamã dele não deixa brincar at the gate.*  
 the mummy his not lets to-play at the gate  
 'His mummy doesn't allow playing at the gate'

## • CLAUSES:

- (5) K 9;7 -*'Inda vamos sair à rua, mámi / 'cause it's pouring!*  
 still we-go to-leave to-the street, mummy  
 'Are we still going out, mummy, 'cause it's pouring!'

In all of these examples, both host and guest language had correct accent and grammar. In (5) each of the clauses also followed the intonation pattern adequate to each language, midlevel nucleus in Portuguese, high-fall in English (see Section 5.2. below for details on the nuclear approach to intonation analysis used here). I should perhaps note at this point that the idiosyncratic form used by the children to address their mother, *mámi* ['mami], which is nonstandard in Portuguese, has nothing to do with the English "mummy," as it became a habit one year before the children had any systematic contact with English.

5.1.2 *Blends.* For the sake of clarity, the presumed target of each utterance is given between curly brackets after each of the examples. Asterisks indicate blends.

Blends may involve guest features at any linguistic level:

## • LEXIS:

- (6) M 5;7 -Ska vi \*glua\* dom?  
 'Shall we glue them?'  
 {Ska vi limma dom?}

In this example, the English guest item was assigned host morphological features, the a suffix marking infinitive in Swedish, and pronounced [glua] with clear [l] and double tone.

## • MORPHOLOGY:

- (7) K 9;6 -*Onde é que \*estão as tesouras\*?*  
 where it-is that are the scissors  
 'Where are the scissors?'  
 {*Onde é que está a tesoura?*}

In this example, the child was referring to one pair of scissors, *tesoura* in Portuguese. *Tesouras* does exist in Portuguese, but meaning several pairs of scissors. The child apparently associated the final sibilant of the English word "scissors" with the final sibilant occurring in Portuguese after vowels, which in this language is a marker of plural, resulting in the mix. The use of the plural noun *tesouras* triggered plural concord in the verbal form *estão* and in the definite article *as*, hence the asterisked string of words. Incidentally, morphological blends are one of the rarest types of blends in the data.

## • SYNTAX:

- (8) S 7;7    -\*Isto tira para sempre\*!  
                   this takes for always  
                   ‘This takes forever!’  
                   {*Isto demora tanto tempo!*}

In this example, uttered on a typical Portuguese intonation pattern signaling boredom, with an extralow-fall on the last word, the phonetics, as well as the words and their morphology belong to the host language too. What makes the utterance unintelligible for monolingual speakers of the language is that the syntax is directly borrowed from the English “this takes forever” (with the word “forever” analyzed and translated as preposition + adverb): the Portuguese words have no meaning in this particular syntactical construction. The target utterance in curly brackets would be glossed in English as ‘This lasts so much time.’

## • PHONETICS:

- (9) M 5;10    -*Eu gosto desta \*música\**. [‘mjuzikʰə]  
                   I I-like of-this music  
                   ‘I like this music.’  
                   {*Eu gosto desta música.* [‘muzikə]}

The blended word is morphologically a Portuguese word, uttered with English accent. This type of mix, which is quite frequent in the data, has to my knowledge not been dealt with in the literature on bilingualism, where mixes involving grammatical levels have earned almost exclusive attention.

I hasten to admit that all of the above examples of mixes were deliberately chosen to illustrate straightforward instances of either codeswitches or blends. Neither the literature on bilingualism nor the data under study warrant the assignment of all instances of multilingual mixes to the rather watertight classification above. In the present data, there are, for example, instances where the major constituent belongs to more than one language, with both lexis and syntax involved ([əəə] indicates a filled pause on a schwa-like vowel):

- (10) S 8;3    -*Tu podes dizer-me o telefone* [əəə] nummer?  
                   you you-can to-tell me the telephone            number  
                   ‘Can you tell me the telephone number?’  
                   {*Tu podes dizer-me o número de telefone?*}

This example has Swedish (and English) word-order in the last noun phrase. The hesitation between the two nouns seems to indicate awareness that the occurrence of a Portuguese noun in the one remaining slot of the utterance is blocked by the selected noun phrase construction. The choice of the Swedish noun indicates, in all likelihood, an attempted repair of the noun phrase structure. Filled pauses and other repair markers are currently being investigated in the data of these children, as they appear to be the rule where their utterances show structural conflict of the type illustrated above.

The justification for the proposed classification of mixes, as exemplified in (2) to (9), lies in that these types of mixes are by far the commonest in the data. The uses to which



similar types of mixes have been put in the literature on child bilingualism, particularly on the one versus two systems issue, are varied: To mention but two classical studies on the matter, Vihman (1985) uses mixes to support her claim of one underlying system, whereas Lindholm and Padilla (1978) use mixes to reinforce their hypothesis of early linguistic differentiation.

Interestingly, codeswitches, which evidence mastery of each of the languages involved by preserving their grammar and phonetics, are often cited as evidence to demonstrate that bilinguals have poor command of their languages. The argument has it that recourse to the wrong language means deficient or nonexistent mastery of the corresponding constituent or feature in the right language: this has been the point belaboured in the literature on (the lack of) bilingual synonyms as evidence for one underlying system. Blends, which in actual fact fuse features of two languages into one element unrecognisable by monolinguals of either language, have on the other hand been taken in the literature on child bilingualism as evidence of language separation, even by authors who otherwise contend that bilinguals have one underlying linguistic system, one case in point being Leopold himself (Leopold, 1954). (The fact that blends are usually the form under which borrowings are standardized into one language by articulate, monolingual, native speakers of it must, I suspect, have played its part in the assignment of full marks to the linguistic competence of bilingual blenders, articulate native status being as it is all too often denied to multilingual children otherwise. Blends are also, incidentally, the form of mixing preferred by comedians to mock foreign accents and grammars.)

I take the view that either type of mix proves mastery of both languages, in the sense that one cannot mix languages without knowing how to mix them. The term “mastery” refers of course to an ongoing process, not an end-product: the children are in the process of acquiring all three languages, and their grip on the rules of each language, as well as on the probable domain of application of these rules in each language, progresses accordingly. I also take the view that mixes furthermore reflect a crucial process in multilingual language acquisition. Mixes are one palpable result of the process of language exploration, without which no acquisition is possible, and which, in the case of multilinguals, must proceed by comparison among their languages: a linguistic device that has been proven to work in one language must be tested on another for results. Prosodic mixes, a further type of blend that constitutes the main object of this study, seem to corroborate this reasoning.

## 5.2 Prosodic mixes

This section deals with the analysis of utterances whose segmental constituents and prosody, respectively, belong to two different languages. In particular, it deals with segmental Portuguese utterances spoken with English intonation.

The reason for considering prosodic mixes as blends is that both segments and prosody are simultaneous within one constituent. As in the examples of blends above, constitutive elements that make up the blend may be isolated and ascribed to (some feature of) one of the languages, but the point is that they co-occur as instances of simultaneous choice.

Since the nature of prosodic blends disallows the choice of either segmental constituents or prosody as initiators in an exchange, the host language is here the language in which the ongoing exchange is taking place. Accordingly, in what follows, host refers to

the Portuguese language and guest to English. All the examples of prosodic mixes that are presented below may or may not preserve host features apart from prosody, but the prosody always belongs to the guest language.

The formal framework chosen to present the data follows the British nuclear approach. It should be pointed out that the present study is not concerned with theoretical issues involving the best way of representing knowledge about intonation, and that the nuclear approach seemed to provide the clearest formal framework in which to present the data. In the nuclear approach, the tone group is taken as the basic unit for the description of intonation, and in this study its boundaries are simply identified by pauses. Each tone group is viewed as composed of successive units, the most important of which is the nucleus, defined as the most prominent syllable within the tone group, and the one where the major pitch contrasts occur. Within the tone group, the nucleus may be preceded by a head tune, whose beginning is marked by secondary accent. The head may in turn be preceded by a prehead (see Ladd, 1980; O' Connor & Arnold, 1973, for details on this approach to intonational analysis).

The intonational devices analyzed in this study are two tones of English, the high-fall and the fall-rise, of which the first occurs in Portuguese too although with different uses and the latter is nonexistent in Portuguese, and tonicity, which concerns a choice regarding the placement of the nuclear syllable within a tone group (Halliday 1967). Choices in tonicity are unavailable in Portuguese, where the nucleus has fixed final position within the tone group. Details on relevant prosodic devices of both language are given in the discussion of the examples below. Although each of the following sections analyses one prosodic device in turn, it should be borne in mind that tonicity and tone are of course interrelated—as are, for that matter, prosodic mixes with other types of mixes. The examples that follow are by no means exhaustive, but represent a sizeable portion of the types of prosodic mixes that occur in the data.

One word concerning transcription: there is no accepted way of transcribing prosodic features of children's utterances by means of printable symbols. Problems in accuracy arise with child speech, as indeed they do with adult speech too, with the added difficulty that children do with prosodic patterns what they do with segments: they try them out by approximation and end up with utterances that resemble some recognizable adult tone. Since there is no available standard notation, shorthand symbols are included in utterances rendered in ordinary orthography, in the hope that the clarity thus procured will do no violence to accuracy. A full list of the notations used is given in Section 4. above.

5.2.1 *Tonicity*. English displays nucleus mobility within the tone group, often for contrastive purposes, whereas contrasts in tonicity do not exist in Portuguese, where the nucleus consistently corresponds to the last stressed word in the tone group. Contrasts that in English may be achieved by nucleus movement are rendered in Portuguese by means of syntactical devices such as clefting or changes in word-order. The use of syntactical devices for the purpose of contrast has been acquired by the children in Portuguese, as in:

< the mother has retold, at the children's request, stories from their baby-past that they're familiar with, and they ask for more. The mother starts on a new one, that Karin apparently hadn't heard before. >

- (11) K 8;1 -*Essa não conheço EU.*  
 that-one-not I-know I  
 'I don't know that one.'

In this sentence, the Portuguese pronoun *eu* was singled out as a focus of contrast and shifted to final position to enable it to bear the nuclear accent. In English, however, focus can be signaled without change in word order. The English equivalent of (11), "I don't know that one," would have its nucleus on the first word. Manipulation of the child's utterance and of its English translation shows that the English equivalent can have its nucleus shifted, corresponding to different meanings which are rendered in Portuguese by alternative word-order:

- (12) I don't know THAT one.  
*(Eu) não conheço ESSA.*  
 I not I-know that-one  
 I don't KNOW that one.  
*Essa (eu) não CONHEÇO.*  
 that-one I not I-know

Insertion of personal pronouns is optional in Portuguese, in that verb forms are marked for person too, but it is of course obligatory in (11), since the pronoun *eu* is the focus of the contrast. Where syntactical mobility is disallowed by the grammar of Portuguese, intonational devices take over, either by cutting the utterance short where the relevant word may bear the nucleus, or by splitting it into two tone groups in such a way that the word to be accented is given final position in the first tone group. The second tone group is typically uttered on a low-level tune and has a nuclear extralow-fall. For example, if a listener misunderstands the word *falei* in the constructed example

- (13) *Eu falei com ,ELA.*  
 I I-spoke with her

the speaker may repeat the utterance as either of the following:

- (14) *Eu FA ,LEI.*  
*Eu FA ,LEI / com „ELA.*

Nucleus shift is also used in English in order to de-accent given or "old" information, a use of tonicity discussed in Cruttenden (forthcoming). This use is apparent in the children's Portuguese in the following examples:

< Mother, to a sulking Sofia: *Porque é que não falas?* >  
 'Why don't you speak?'

- (15) S 8;3 -*Porque eu não `QUERO falar.*  
 because I not I-want to-speak  
 'Because I don't want to speak.'  
 {*Porque eu não „QUERO.*}

This was uttered on one tone group, bearing nuclear high-fall (see Section 5.2.2 below for uses of the high-fall in the children's speech).

< Mother: *Quem é que quer um gelado?* >  
 'Who wants an ice-cream?'

- (16) M 6;0 - *EU quero!*  
 I I-want  
 'I do!'  
 {*Quero EU!*}

Both (15) and (16) show apparent avoidance of alternative syntactical devices available in Portuguese, to favor English prosodic devices in conveying the required information. The next example shows a different use of tonicity, where the first utterance by the child is under analysis:

< Mother: *Tu não queres aprender, pois não?* >  
 'You don't really want to learn, do you?'

- (17) K 10;1 - *Eu QUERO. / Mas não consigo perceber ISTO.*  
 I I-want. But not I-manage to-understand this.  
 'I want to learn. But I can't manage to understand this.'  
 {*Quero SIM. Mas não consigo perceber ISTO.*}  
 I-want yes.

The use of a nucleus on the word *quero*, which is repeated from the mother's question, *queres*, apparently follows a typical usage in Portuguese, where given information is not de-accented. Compare other exchanges, where the children follow the idiomatic Portuguese usage of accenting given information:

- (18) < Mother: *Despacha-te para irmos às COMPRAS.* >  
 'Hurry up so we can go shopping.'  
 S 8;6 - *Não quero ir às COMPRAS. / Quero ficar a BRINCAR.*  
 not I-want to-go to-the shopping I-want to-stay to play  
 'I don't want to go shopping. I want to stay home and play!'

My interpretation of (17) is thus that the accenting of *quero* in Karin's utterance indicates a choice between *quero* and *não quero*, her asserting of the "wanting," as opposed to the "not wanting" implied in the mother's utterance. The insertion of the optional personal pronoun *eu* here appeared to me to serve the purpose of setting off the intended contrastive nucleus *quero*, which wouldn't be clear in a one-word utterance.

The following is a clear example of contrastive nucleus shifting:

< Discussing handedness with his mother, waving his left hand >

- (19) M 6; 10 - *O Johan escreve com ESTA mão.*  
 the Johan writes with this hand  
 'Johan writes with this hand.'  
 {*O Johan escreve com esta MÁO.*}

Examples (15) to (17) show that their use of tonicity in Portuguese often applies to

constructions whose syntax seems to be modeled on English, whereas (19) exemplifies a “pure” transfer of prosody to Portuguese. The children seem to favor tonicity for discursal organization of their utterances over other, nonprosodic, processes available in Portuguese, whether or not the prosodic mix co-occurs with mixes in other linguistic levels.

5.2.2 *High-fall*. Of the three prosodic devices under analysis, the high-fall is the only one common to both Portuguese and English. The shape of the tone is similar in both languages, starting above midrange and falling to mid or low. The difference lies in their use. The high-fall is the tone on which (attitudinally neutral) statements of facts and Q-word questions are commonly uttered in English. In contrast, its use in Portuguese consistently involves utterances where attitudinal involvement on the part of the speaker is clear. The tone does not occur in neutral statements or Q-word questions in this language, where the children also prefer the Portuguese low-fall.

In Portuguese, the high-fall occurs in enthusiastic utterances, whether answers, as in (16) above, or spontaneous reports, and is otherwise associated with strong overtones of anger or impatient insistence. The children make prodigal use of the high-fall, although I have no statistical data to confirm my conviction that they use it more often than other Portuguese-speaking children. The undeniable fact is, however, that many of the dialogs of the children among themselves, and many of their reports on the activities of one another, regardless of language, are very angry and very impatient. A high-fall can be marginally acceptable in these cases, but the idiomatic choice for most of their furious outbursts in Portuguese would be the extralow-fall, a tone which they appear to underuse for these purposes (again, I have no statistical support). One difficulty in the analysis of their use of the high-fall in Portuguese thus lies in that it is not clear-cut whether they are mixing guest prosody here too or whether they are simply overextending one adequate expression of fury in Portuguese. In other words, although it seems clear that they have by now learned the core of meanings associated with the high-fall in Portuguese, it remains unclear whether they have learned the scope of the use of this tone in Portuguese. The following analysis is therefore presented on a tentative basis.

In a few instances, however, the transfer of the tone from English into Portuguese can be safely assumed, because the syntactic structure of English is either transferred too or adapted. This is the case, respectively, in the following two examples, the first of a typical furious exchange:

< to her brother, exasperated at his awkwardness >

- (20) S 7;9 -*Tu* *˘*PARVO!  
 you idiot  
 ‘You idiot!’  
 {*˘*PARVO! } or { *Seu* *˘*PARVO! }  
 idiot                      your idiot

In Portuguese, personal pronouns may optionally be used in insults only where there is copula insertion, as in (*Tu*) *és (um) parvo!*, ‘You are an idiot!’, and the high-fall is not used at all in contexts where both parties are within earshot of each other—an insult with a high-fall is acceptable, and is in fact the rule, for example, from car to car (or to pedestrian) in the context of urban congested traffic. Example (20) thus shows a nonidiomatic rendering of an

English construction, pronoun + insulting word, including its intonation. Compare with:

< Mother snaps at her to stop giggling >

(21) K 9;6 -*Eu não POSSO ajudar!*

I not I-can to-help

'I can't help it!'

{*Não consigo PA „RAR!*}

Not I-manage to-stop

Blends typically break rules in each of the languages involved, and in some cases, of which (21) and (8) above are examples, it is difficult to say whether the utterance in itself is in fact an instance of Portuguese or of English, that is, what exactly is intruding on what. (21) may have been intended as Portuguese, by the criterion of language of the ongoing exchange, but I have difficulty in seeing it as anything other than an English utterance, with Portuguese words and associated Portuguese morphology and phonetics: the assumed verb patterning is adapted from the English idiom “I can't help it,” with each verb translated from their English equivalents, the assumed idiomatic meaning of (21) is the English one, the prosody is English, as is, in a crucial sense, the pragmatics of the utterance.

Example (21) cannot, however, be simply dismissed as a botched attempt at word by word rendering of its English equivalent. In other instances, the children are quite skilled at providing literal (and as meaningless) translations between their languages, as in (8) above. Instead, (21) appears to have been planned so as to accommodate the intended intonation pattern, a high-fall on the penultimate word. My guess is that the Portuguese utterance was fashioned in such a way as to allow transfer of the English intonation pattern with no adaptation. Noteworthy is also that the word carrying the nucleus in Portuguese, *posso*, is not a translation of the word carrying the nucleus in English, “help.” Lexical meaning seems irrelevant here, as long as the intonational pattern is respected. One assumption that might be ventured is then that prosodic patterns appear to be planned with their intended meanings, before the patterns are fleshed out with words, much like the structure of the noun phrase in (10) above appears to have been planned before the actual nouns were selected. The pasting of meaningfully adequate prosodic patterns onto lexically empty syntactic carriers seems thus to be a strategy used by the children in their attempts at conveying meaning, anticipated in the use of adequate prosodic patterns on wordless carriers before the one-word stage (see Section 3 above). That the prosodic patterns must now be vested with words, the words of the language in which the exchange is expected to take place, is a consequence of the present, word-wealthy stage in their linguistic development: the carrier remains secondary to the meaning conveyed by prosody. This is then a case of exact transfer of prosodic clues to meaning from another language, where the meaning encapsulated in the transferred prosodic forms is the crucial feature to preserve. The next section discusses this point further.

**5.2.3 Fall-rise.** Fall-rising nuclear tones do not occur in Portuguese, whereas they are very common in English. Several studies have been made on the meanings of the fall-rise in English, but the meaning that concerns the present study is best summarized in Ladd's (1980, p. 161) formulation of the fall-rise signaling “focus within a given set,” a label that encompasses the reserved, qualified overtones assigned to a statement bearing nuclear fall-

rise as opposed to one with (the unmarked) high-fall.

Where “focus within a given set” is conveyed through intonation in Portuguese, the tone is the rise-fall, the only bidirectional tone in the language. The children in this study use the rise-fall in Portuguese to express disbelief, sarcasm, or surprise, all of these being also meanings carried by the tone in the language. The first two are illustrated in:

< On her best friend >

- (22) S 7;9 -A *Lisa está zangada* CO<sup>ˆ</sup>MIGO.  
 the Lisa is angry with-me  
 ‘Lisa is angry with me.’

< Mikael threw a tantrum, claiming unbearable pain in order to have an ankle bandaged. Karin, seeing him remove the bandage half an hour later: >

- (23) K 9;9 -*Já não te dói o* <sup>ˆ</sup>PÉ?  
 already not to-you hurts the foot  
 ‘Doesn’t your foot hurt any longer?’

These examples show that the children have idiomatic command of at least some of the uses of the rise-fall in Portuguese. There are however very few examples in the data of use of the rise-fall to express reservation or qualification in Portuguese, even before English was acquired, suggesting that the full range of uses of this tone had not been mastered by then. For the expression of these meanings in Portuguese, the children now prefer the guest fall-rising tone. Karin was the first to use a fall-rise in a Portuguese host sentence, four months after starting regular attendance at an English-language school:

< Explaining to her mother how to forward messages to school >

- (24) K 7;4 -*Se quiseres dizer alguma coisa à Miss* <sup>ˆ</sup>PORTER / *é só escrever no* CA,DERNO.  
 ‘If you have any message for Miss Porter, just write it in the diary.’

The utterance has two tone groups, the first with a falling head preceding the nuclear fall-rise, which is a common intonational patterning in English, the second with high head and low-fall which is typical of unmarked statements in Portuguese. In this language, the whole utterance can be said on one tone group only, but giving a tone group to the subordinate clause requires a nuclear midlevel or low-rise in it. Since the proper name on which the nucleus falls in the first tone group was said in English, I have no way to tell whether the use of the fall-rise was triggered by incipient awareness and exploration of possible uses of the fall-rise in English through association with the “Englishness” in the name, or whether the girl pronounced the name in English in order to enable the Englishness of the accompanying fall-rise. Portuguese pronunciation of this and other foreign names is otherwise common in mother-child dialogs.

In some cases, the children use the fall-rise when they codeswitch into English at the point where the nucleus occurs, as in the above example or as in

- (25) K 9;11 -*Não posso comprar* <sup>ˆ</sup>STICKERS? *Eu compro com o meu* DI  
<sup>ˆ</sup>NHEIRO.  
 not I-can to-buy stickers I I-buy with the my money  
 ‘Can’t I buy stickers? I’ll buy them with my own money.’

But cases where the fall-rise is used in otherwise purely Portuguese utterances abound too:

- (26) S 8;4 -*Temos que ir para a CAMA? Mas tu disseste às NOVE!*  
 we-must to-go to the bed but you you-said at nine  
 'Must we go to bed? But you said at nine!'

In both (25) and (26) the girls are making it clear for their mother that she went back on her word after having promised them something, that is, they are expressing their perceived contradiction of an expectation that had been verbally expressed by the mother before. The children do this by repeating or paraphrasing the unexpected demand by the mother, but with a nuclear fall-rise that introduces the qualification required to remind their mother that a set of alternatives exists to her latest instructions.

The combination of fall-rise in the first tone group followed by rise-fall in the second, however, makes both (25) and (26) sound very foreign in Portuguese. The idiomatic prosody in these examples would be a rise-fall in the first tone group, followed by a high-fall to mid in the second. It is interesting to note that in both cases the second tone group has a rise-fall, in what may appear as a correct "baffled" use of it in Portuguese: through its use, the children apparently tried to recover, in the second tone group, one meaning of the correct intonation pattern that they failed to use in the first, but the problem is that a baffled rise-fall cannot follow a qualifying rise-fall in the same Portuguese utterance. In other words, a nuclear rise-fall cannot occur in the second tone groups of either (25) or (26). Another example of recovery, in a second tone group, of the qualifying rise-fall adequate in the first is patent in (17) above.

The transfer of the qualifying use of the fall-rise to Portuguese recurs in the next two examples:

< Mother gapes at Sofia helping herself to four slices of bread at snack time >

- (27) S 8;4 -*Mas eu não vou comer TUDO!*  
 but I not I-go to-eat all  
 'But I'm not going to eat it all!'

< Mikael, interrupting a conversation between his mother and sisters about computer facilities at school. (...) indicates an unfilled pause, when the mother and sisters fell silent staring at him, before he assured himself that he had the floor >

- (28) M 6;6 -*Na minha escola (...) Na MINHA escola temos um  
 in-the-my school in-the my school we-have a  
 computa'dor que toca MÚSICA.  
 computer that plays music  
 'In my school (...) In my school, we have a computer that plays music.'*

Before the pause, Mikael was in all likelihood aiming at the neutral intonation pattern for statements in Portuguese: his utterance was cut off after a low prehead followed by the beginning of the high head tune on the word *escola*, signaled by '. When he resumed, he both shifted the nucleus to *minha*, in order to mark contrast (see Section 5.2.1 above), and used a fall-rise on it. The final tone group has the Portuguese neutral intonation pattern for



statements, low prehead followed by high head and a nuclear low-fall.

The fall-rise has become very common in the speech of all three children, where it is used instead of different tones of Portuguese: in (25) to (27) it corresponds to the rise-fall, in (28) to midlevel or low-rise. Regardless of what the idiomatic Portuguese intonation pattern would be in the cases where they use a fall-rise, and regardless of whether the nuclear word is spoken in Portuguese or in English, a systematic pattern of usage emerges from the data, concerning their preferred uses of the fall-rise. The fall-rise replaces one use of the rise-fall in Portuguese, the focus within a set, whereas the rise-fall is kept for utterances that principally involve the children's feelings towards the situation that they are verbalising.

## 6. Prosodic mixes and multilingual acquisitional strategies

The first fact to keep in mind is that multilingual children are acquiring their languages (this reminder may not be as trivial as it seems in view of experiments like the one reported in Watson, 1991, pp. 39–40, where control groups of monolingual adults were used to assess bilingual children's production of VOT). Prosody needs of course to be acquired too.

Another apparently trivial observation, that nevertheless keeps puzzling researchers and parents alike, is that multilingual children will mix their languages (see Harding & Riley, 1986, for a review of opinions). So will fully articulate monolingual adults who move to a country where a foreign language is spoken; so will beginner learners of both the guitar and the violin stumble over mixed fingerings. Mixing has to do with available ingredients, if one may be forgiven for the culinary simile, not with baking skills: if multilinguals did not mix, there would be serious reason to suspect abnormal audio-articulatory development.

A third fact to keep in mind is that studies on child multilingualism naturally concentrate on mixed utterances, because the children are multilingual. Mixed utterances are however but one portion of the speech production of the children involved. The analysis of perfect monolingual utterances by multilingual children goes largely unnoticed, no matter the percentage of these compared to mixed utterances in the whole of their speech production, because the children are not monolingual. This focus is obviously a consequence of the nature of studies on multilingualism but equally interesting would be an analysis of the monolingual, mix-free speech of multilingual children despite their multilingualism, not least because consistent disregard of the unmixed utterances in each language for the benefit of the mixes risks vouching for a characterization of bilingual speech as, by definition, mixed. Multilingual children do not, by definition, produce mixed speech only: mixes are one feature, not the constitutive feature, of the speech of multilinguals, and they are the one that arouses the curiosity of researchers.

This study is no exception. Prosody is no exception either to the mixes that will occur in the speech of multilingual children: learning involves experimenting, and experimenting involves testing of assumptions induced by observed regularities. In multilingual language acquisition, assumptions about language (Saussure's *langage*) naturally involve all of the particular languages at the disposal of the child (Saussure's *langue*), and observed regularities in any language will be tested in the other available languages. That the results of multilingual testing turn up in the form of mixes has to do with the limits within which each

particular language is allowed to vary, not with deficient learning strategies on the part of the child.

Multilinguals usually mix both ways, that is, from and into any of their languages. The degree of intrusion in each language depends, aside from psycho-social factors, on linguistic proficiency in it. Prosodic mixes, as documented in the available data, apparently work one way only. The data include recordings made during spontaneous play with English-speaking children at home and no deviations from standard English prosody attributable to either Portuguese or Swedish were noted in the data (for the purposes of comparison, the most useful study of the production of intonation in native English-speaking children remains Crystal (1979), although it encompasses mostly the first two years of life). Since no recordings were made in class or during play at school, assessment of the children's "native-like proficiency" in English relies on parent-teacher conferences and school reports: no report remarks on lack of proficiency in English, and teachers either had no comments on specific questions about linguistic proficiency or showed surprise at learning that English is not a home language of the children.

This leaves the question of why English, the "foreign" language, should encroach on the "native" language, a phenomenon common enough and observed by Haugen as early as in 1953 (Haugen, 1953). Imitation is excluded, except where imitation from one another may be involved, in that no Portuguese speaker with whom the children have had any contact mixes tonicity or fall-rising tones in their utterances (for uses of the high-fall, see the provisos in Section 5.2.2 above), for the simple reason that, as is my own observation, these two prosodic devices are exceedingly difficult to acquire by Portuguese learners of English in the first place.

The appearance of English in the linguistic lives of the children had indeed interesting effects: Although there are in the data sporadic examples of mixes (mostly blends), other than prosodic, involving Swedish and Portuguese before the family's move to Hong Kong, the children started mixing more Swedish into Portuguese and vice-versa only after they started mixing English into both. To mention one striking example, tonicity choices exist in Swedish too, but were never a feature of the children's Portuguese before they started speaking English. The reason for the grip of the prosody of English on one of their native languages, as well as the question of why they do not significantly mix Portuguese or Swedish into English, may lie in that English has become not only the language of schooling, a powerful model, but especially the language of their peers and of play, an irresistible model. Due to the family's several moves to different countries, and despite residual contacts with monolingual children in both Portugal and Sweden, Portuguese and Swedish remained "parental" in their status, mother (and father) tongues in the literal sense of the words.

Another reason might be that the children are following a learning strategy that involves experimenting with something new on something familiar, much like a child will probe for prospective friendship with a new, unusual, classmate by shedding old habits and accommodating new ones. English is the popular newcomer, the language of which they are aware and that deserves full attention, claiming territory where two linguistic systems are already in place and working, and therefore taken for granted. The following anecdote, in its self-contradiction, may clarify the un-newsworthy character attached to a long-familiar language:

< Karin, to a Swedish child at Swedish school, three months after the move to Hong Kong >

(29) K 7;2 -Du måste springa fast!

'You must run fast!'

< Karin fell suddenly silent, and then, amused and slightly embarrassed, asked her mother: >

K 7;2 -*Como é que se diz "depressa" em sueco? Agora só sei em inglês!*

'How do you say "fast" in Swedish? I can only say it in English now!'

apparently not noticing that she could "say it" in Portuguese too.

The newness of English would predict that as English becomes more natural, that is, as the children stop noticing it as a new language, the reverse mixing will occur more often. Mixes of either Swedish or Portuguese into English began in fact to appear in the speech of all three children about three years after the move to Hong Kong, although they are very rare. One example is (2) above.

The fact remains, however, that their accent is due to prosody, the level of language that was learned first and through which they chose to make themselves understood even before the one-word stage. This makes their instances of mixed speech sound all the more odd that their accent remains perfectly Portuguese otherwise. Prosody is powerful, but the children never mixed, say, Swedish double tones into Portuguese words, nor failed to produce them in Swedish words carrying that pattern. Their use of pitch is moreover regulated to suit the adequate, culture-bound overtones of exchanges in each of the two languages, dampened in Swedish, emphatic in Portuguese, showing that they are very much aware of pitch modulation and of the different uses to which it is put in different languages.

All three children are furthermore aware of both form and meaning of intonation patterns in themselves. They understand and use prosodic sarcasm, the use of intonation to belie the literal meaning of an utterance. This means that the children know that intonation patterns can not only convey meaning in themselves, irrespective of the expected meanings given by segmental structures, but also override the meaning of the segmental structures. It is only natural that patterns, any patterns, that are consistently associated with specific meanings in a new language should be tried out in another, and prosody is no exception.

In order to mix melodies, however, the children must also be aware of their combinatorial possibilities in other linguistic levels, that is, which structures accept which tones. This is apparent in their pasting of specific prosodic devices of English onto segmental structures of Portuguese that are either equivalent or made equivalent for the purpose, in the assumption that the meaning will be preserved. In other words, they are associating, in what turns out to be the wrong language, particular types of syntactic structures and particular melodies that have been proved meaningful in another language. In terms of strategies for the acquisition of language, this strikes me as no different from the (wrong) extension, by both multilinguals and monolinguals, of the regular past tense rule to irregular verb forms that were before produced correctly as wholes, once the past tense rule is learned as a rule. As extension of the regular past tense rule shows firm command on both the rule and the class of items to which it presumably applies, so do prosodic mixes show knowledge of the

structure of each language, a knowledge profound enough to enable transfer of guest features onto host structures that are manipulated in order to assist the conveyance of meaning.

## 7. Conclusion

The crucial role played by prosody in the early, bilingual, development of the children in this study anticipates the role that prosody came to play in their quest for knowledge about language when a third language was added to their repertory. Prosodic mixes seem in fact to constitute a strategy for learning meaning, in that they reflect the result of experiments carried out from language to language in order to verify observed meanings associated with patterns in one language, the powerful language of their peers.

The function of the mixed prosodic devices is clearly seen as useful, or their use would not be extended to one language that lacks them. If “lack” is the key word here, the children may be doing with prosodic devices what other multilingual children are said to do when they lack bilingual synonyms: the children are taking the easy way out of using one acquired feature of one language in another. If, however, “extend” is the key word, we might be instead dealing with a strategy in language acquisition, one which could perhaps shed some new light on reported lack of bilingual synonyms too. Multilingual children use one language to explore another, in order to learn language-specific constraints in the process of working their way up linguistic competence in several languages. The data in this study do not warrant any assertion to the effect that multilingual children use one language as a substitute for another in any principled way: not all uses of English tonicity, high-fall or fall-rise are mixed into Portuguese, proving that the mixes are indeed the result of ongoing exploration and of not mechanical transfer. The acquisition of prosody in Portuguese, as well as of sophisticated syntactical means of expressing meaning contrasts in this language is ongoing too. This study has attempted to show that multilingual language acquisition, the parallel probing of each language in turn, appears to proceed chunk by chunk, as it were, as combinatorial possibilities are explored at each sighting of a potentially meaningful pattern: the English fall-rise tone, say, is assigned a meaningful “slot” in Portuguese, in the same way that the Portuguese rise-fall is, and will be removed from this language against convincing cumulative evidence that the tone carries no meaning in it.

On a broader basis, this study may lend support to the view that mixes, far from being tell-tale vents through which multilingual children avoid sorting out conflicting linguistic systems, vouch instead for remarkable command of the principles governing linguistic meaning and its progressive acquisition in each language. The end-product, language, is “mistake-proof,” in the words of Tannen (1989, p. 42). So, I would add, is its acquisition.

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