THE DEVELOPMENT OF INTONATION AND DIALOGUE PROCESSES IN BRAZILIAN PORTUGUESE: A STUDY OF TWO CHILDREN

by

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ABSTRACT

The study focuses on the development and characteristics of intonational systems from the proto-language through to the one-word stage and up to the production of the first multi-word utterances. It also deals with the relationships holding between the development of intonation and adult-child linguistic interaction.

Data from two Brazilian children, one boy (from age 1;0 to 2;0) and one girl (from age 1;2 to 1;8) were recorded in audio- and video-tape sessions, mostly in natural settings, where the children were interacting with their mothers and other persons in the family circle: a trained interviewer frequently being present.

A description of the development of the intonational systems is given through the examination of the contexts of use of the tones which the subjects produce in situations of dialogue with their senior interlocutors. In addition to pitch-range and pitch-direction, other prosodic features are taken into account, where relevant, namely loudness and rhythm. Some instrumental evidence is given as support for the analysis provided.

The characteristics of the first multi-word utterances are studied, such as prosodic strategies for the production of longer utterances and the emergence of cohesive intonation across successive utterances (the first 'paratones').

Finally an account is provided of the importance of intonation in expounding role- and turn-taking subsumed in this work in terms of the dialogue processes of specularity, complementarity and reversal.

Intonation, together with other prosodic features, is found to have a gestaltic character and to be one of the richest resources for the processing, building-up and construction of the linguistic system by the child. Its emergence is assumed to be closely linked with interaction formats between the child and his/her senior interlocutors.

To Daniela and Raquel,

for their love and understanding

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INTRODUCTION

1. A brief account of different approaches in the study of the emergence of intonation

During the last fifteen years or so, there has been a growing awareness of the importance of the role of intonation in the acquisition of language, although this issue did receive scattered references in earlier decades of this century.

Intonation has been approached in various ways, according to the different perspectives in which it has been considered.

From a descriptive point of view, there has been the listing of the most constant features (prosodic and paralinguistic) present in the child's speech and in the adult's speech addressed to the child. As far as the linguistic input is concerned, a difference has been demonstrated in the use of prosodic features in speech addressed to young children as compared to adult-directed speech. Higher fundamental frequency, greater pitch range, a preference for certain contours (mainly a great amount of rising tones where grammatically unexpected), the use of falsetto, lower rate of utterance (tempo), frequent whispered parts of the utterance, over-prolonged duration of certain content words, and many cases of more than one primary sentence stress, have been found to be some of the most characteristic prosodic modifications. These have been observed in different languages and cultures (Ferguson, 1964; 1977; Sachs, Brown & Salerno, 1976; Ryan, 1978; Stern, Spieker, Barnett & MacKain, 1983). Garnica (1977) has shown that some of the modified features referred to above are not present in adult speech addressed to older children, that is, at around five years old. In brief, the adult

seems to be aware of prosodic adjustments in his speech when talking to children of different ages.

The sensitiveness of the pre-verbal child in discriminating different intonational patterns has been pointed out. Kaplan (1969) has noted that eight-month old infants can make discriminations in rising and falling terminal contours as well as in stress.

From the standpoint of the child's speech, work done on the emergence and development of intonational and other prosodic patterns shows that they start to get established during the pre-verbal stages. Actually, the view that the child can master intonational patterns of his mother tongue before syntax and even before the production of the first recognizable words is quite widespread. This has served to justify a wide spectrum of interpretations about the acquisition of language, which range from behaviouristic views (see, for example, Lewis, 1936, according to whom the mastering of pitch and stress patterns is a result of training and external stimuli) to nativist views (cf. Bever, Fodor & Weksel, 1965, who claim that the correct location of stress, pause and intonation before the child can produce multi-word utterances must indicate a prior knowledge of the linguistic structure). Anyway, it is nowadays generally accepted that the first adult-like intonational systems evolve from previous proto-linguistic stages. Lewis (1936), for example, noted that the pre-verbal child responds to intonational patterns from a very early age. He can imitate adult intonation addressed to him from the age of some months and whenever he is stimulated to babble. When the child reaches the age of around 0;10, imitation of stress, pitch pattern and number of syllables is clearly observed in his speech. Tonkova-Yampol'skaya (1973), studying the development of intonation

in Russian children from one to twenty-four months old states that 'speech development in children begins with development of intonation' (page 137) and that there is a gradual approximation of the child's intonation to the intonational structures of adults. Konopczynski (1977), who studies the emergence and development of intonation in French children from 0;6 to 3 years old, also stresses the central role of intonation in pre-verbal communication. The first intonational patterns to appear in the proto-language are said to evolve from babbled sound-carriers (Menn, 1976). Many cases of what has been labelled 'jargon', i.e. long unintelligible stretches of utterance, have been reported, which give the intonational 'impression of sentencehood', because the number of syllables, the stress and intonation are very similar to the adult 'target' (Peters, 1977).

Crystal (1979), studying the development of prosodic systems from the first months of the child's life to the multi-word stage, and basing himself on existing work on the subject, establishes five stages in the acquisition of prosody. The first two cover the prelinguistic antecedents of prosodic features, from birth until around 6 months. They are vocalizations with attitudinal or biological function ('pleasure', 'hunger', 'discomfort', 'recognition', etc.). Stage II is distinguished from Stage I by virtue of the first attempts at phonological interpretation made by the adult of the prosodic features produced by the child. In Stages III and IV, there is the gradual fixation of intonational patterns, as a result of the increasing phonetic stability of the babbling patterns, which gradually become language-specific. In Stage IV, there is the fixation of a stable intonational matrix, normally restricted to certain variable segmental stretches. These primitive units or 'proto-words' are also referred to by Dore (1975) as 'phonetically consistent

forms'(PCF), whose prosodic component is more stable than the segmental one and has a distinctive function. In Stage V, as linguistic units show greater syntagmatic complexity, tonic contrastivity (contrast in tone group prominence), rhythm patterns and contrastive pause begin to appear. At this point, the child's prosodic system begins to look like the adult's.

Intonation has also been studied in relation to its grammatical and pragmatic functions. From the grammatical standpoint, it has provided support for the assignment of the status of sentence to one-word utterances in the one-word stage. According to this approach, since the child produces intonational contours interpretable as single-word utterances, his prosodic elements must indicate knowledge of an underlying structure (Bever, Fodor & Weksel, 1965). Dore (1975) presents counter-arguments to the nativist proposal for the holophrase. He argues that, in this stage, the child has not enough intuition about grammaticality nor acceptability, which is crucial to the generative-transformational methodology; he denies, like Bloom (1973), that the child has a tacit knowledge about the notion of sentence. Instead, he opposes to the sentence the notion of speech act as the linguistic unit which the researcher must operate with in the study of early linguistic development. The primitive speech act contains a rudimentary referring expression (proto-proposition) and a primitive force (which will develop later into illocutionary force of the utterance), guaranteed by the intonational pattern of the utterance. Thus, for example, the word mama (a rudimentary referring expression) appears in his data with three different intonations: a falling terminal contour, used when the child labels his mother or some doll as his mother; a rising terminal contour used to ask, for example, if an object belongs to his mother; and an abrupt rising-

falling contour, used to call his mother to him when she is some distance away. The child thus utters three different types of speech act: 'labelling', 'requesting' and 'calling', whose different illocutionary forces are expressed by intonational variation.

Halliday (1975) also has a functional approach. Differences in intonation are said to indicate differences in a primitive set of (semiotic) functions, in a period in which the child does not have means of expression at the morphosyntactic level.

From the point of view of comprehension, prosodic elements are seen as clues for processing and interpreting utterances. Experimental work has been done to find out from what age children start to relate prosodic elements to the thematic structure of the utterance (in terms of given/new, topic/comment) and to textual cohesion (Cruttenden, 1974; Cutler & Sweeney, 1980).

In brief, most of the studies done on the development of intonation are peripheral to the more general issues concerning the acquisition of language, cognitive development and communicative competence. With the few exceptions referred to above, the way whereby the child gradually masters the intonational system of his mother tongue has not yet had comprehensive consideration. The systematic studies about the acquisition and development of intonation have mostly been restricted to the pre-linguistic stages, namely up to the beginnings of protolanguage. Apart from the studies described above, little has been done on the emergence and development of the initial sets of intonational systems in later stages. As soon as the child is able to produce the first words, the supra-segmental component of the utterance appears no longer to be considered an important source of expression in the child's speech. In other

words, the further development of intonation is relegated to a rather marginal place, because of the predominance of other aspects of the utterance. As Cruttenden (1974) remarks, most work on the acquisition of intonation deals with more or less isolated prosodic features rather than with the emergence of what is considered intonation in the literature, namely the division of utterances into tone groups, the identification of the nucleus and the differential use of various pitch contours. Moreover, when such a study is made (cf. Konopczynki, 1977), it is limited to the acoustic or auditory description of the contours, with no reference to discursive (or other) meanings which intonation is known to carry.

To the best of this writer's knowledge, no work has been done on the emergence of what in the adult language is called the 'tone unit'. This is, in fact, one of the goals of this thesis.

2. Aims and rationale of the study

This is a longitudinal study of the speech of two Brazilian children in their second year of life. The focus is on the way whereby intonation emerges from proto-language and evolves into adult-like intonational units used in longer utterances. An important aspect of the study is the relationship holding between such emergence and development, and the linguistic interaction of adult and child. Within this general framework, four connected goals are pursued:

1. The emergence and development of the initial tone systems in the two Brazilian children during a period which ranges from proto-language to multi-word utterances.

2. The way whereby the intonation (and some other prosodic parameters) is gradually acquired in relationship to dialogue processes between the child and his senior interlocutors.
3. The importance of intonation as a strategy both for production (building-up of the child's own linguistic constructions) and for processing (clues for comprehension of the speech to which the child is exposed).
4. The emergence of the tone-unit and intonational macro-structures (paratones).

The hypothesis underlying these aims is that the acquisition of language has a discursive character, of a social or inter-individual nature, and that the prior acquisition of basic communicative processes is a prerequisite for the acquisition of the linguistic system. The interest in social interaction is represented, in this case, by the first social contact of the child: the micro-social context of the relationship between the child and the mother. The view of language as a constitutive process is adopted here (cf. Franchi, 1977; French & Woll, 1981). As French & Woll (1981) have stated, 'social setting and relationships are not seen as independent or external variables which operate upon the child to determine his language development. Rather, they are established and maintained by the concrete interactional behaviours through which the child enacts them in collaboration with those around him' (p.157).

3. Methods and data

Data from two Brazilian children, one boy (Tiago, hereafter represented by T.) and one girl, (Raquel, the daughter of the author of this thesis, hereafter labelled R.) were recorded in monthly video- and weekly audio-tape sessions. T's data cover the period from 0;11.20 to 2;0. The analysis of the intonational system of R. involves data from 1;2.10 to around 1;8. However, some recorded data of this child's further stages (from 1;8 to 1;11) were also considered to demonstrate prosodic strategies related to the construction of longer utterances and paratones (Chapter 4), as well as intonation related to dialogue processes (Chapter 5). The recordings were done mostly in natural settings, where the children were interacting with their mothers (hereafter M.) and other persons in the course of family life: in the case of T., a seven-to-eight year old sister (Berenice, labelled B.) and, in the case of R., occasionally the father (F.) and the three-to-four year old sister (Daniela, hereafter D.). A trained interviewer (I.) was frequently present at the recordings of T., taking contextual notes. The tapes used for analysis are available at the Department of Linguistics, Instituto de Estudos da Linguagem of the State University of Campinas, Brazil.

As can be seen, there is an age gap between the two subjects. The reasons for this are that I firstly became interested in R's speech for her complex use of intonation, at a time when she did not have the adult means of lexical or syntactic expression. So recordings of her speech were started when she was already at the one-word utterance stage. Having observed some intonational units in R's speech, I became interested to find out how such units emerged

in earlier stages of language development. There was a project in progress in the Department of Linguistics in the State University of Campinas, in which R's data were incorporated and data from other children from an earlier age were available, among them the data from T. They were selected for study from age 0;11.21, that is to say, before the emergence of the first tone units, and I also decided to compare the intonational systems and the dialogue processes of the two children.

There is a widespread belief that intonation is connected with other prosodic features, namely rhythm, loudness, stress, duration and pause. The main concern in this work is with intonation - particularly with pitch-range and pitch-direction - which seems to carry the biggest load in the stages of development under consideration. But, in addition, other prosodic features of R. were studied because her system was the more developed one and fuller data were available for loudness, rhythm and some paralinguistic features (i.e. whisper) from her than from T. The role played by T's other prosodic features is referred to in his third stage, when they begin to contribute in effecting extra prominence.

The analysis of intonation was auditorily based and backed by observations of function in context, for which the video-tape recordings proved to be very helpful. Duration and loudness are easily perceived auditorily. But it was felt that the analysis of pitch could usefully be backed up by some instrumental evidence. Both a spectrograph and a pitch-meter were available for this purpose and were considered. The spectrograph was chosen in preference to the pitch-meter for two reasons. Firstly, there were background noises on the tapes so that the traces of the pitch-meter were not

very clear. Secondly, because the children's high frequencies went up to very high pitches, they were sometimes outside the range at which the pitch-meter was easy to read. In the spectrograph, despite the noises, the harmonics could be seen clearly enough to make the appropriate measurements.

Sixty-seven spectrograms were made in a narrow-band spectrograph Kay Sona-graph 6061B, a 85-16.000 Hz spectrum analyzer. Thirty-four of the spectrograms were from T's and thirty-three from R's data. Tokens for each tone (or variations of tones) which were considered typical of the shape of the tones at different stages of development were thus selected for spectrographic analysis. The analysis of the spectrograms consisted of calculating the fundamental frequency of the pitch movements. It must be stressed that the objective of this thesis is not to be an instrumental work. The spectrographic evidence is included in order to provide a limited amount of instrumental support as confirmation that the auditory judgements are well-founded. Although sixty-seven spectrograms were made for analysis, only a selection of them has been included in the appendix, in order not to increase the length of the thesis unnecessarily. Selection was made by taking every fourth spectrogram. Copies of the remaining spectrograms are available in the Department of Phonetics and Linguistics of the School of Oriental and African Studies of the University of London.

It is worth stressing that the spectrographic analysis confirmed most of the auditory judgements made, except for one classification (that of tone 4R) which had to be modified in the light of the instrumental analysis. This proves the usefulness of instrumental evidence when pitch assessments are involved (cf. Menn, 1976).

4. Notations

All the examples are dated by age of subject in what has become the conventional way in the literature: 1;6.29, for example, stands for 'one year, six months and twenty-nine days old'. In Chapter 6, where data from both children are used, the initial of their respective names comes before the date: R 1;6.29.

The examples for which actual measurements were made from spectrograms are numbered with the initial of the name of the subjects followed by the number of the spectrogram in the corpus. For example: T1 stands for the spectrogram number 1 from T's corpus.

With regard to the transcription of the subjects' utterances, in addition to the IPA symbols for the phonetic transcription, an adaptation of the O'Connor & Arnold (1961, Chapter I) syllable-by-syllable notation was found to be the most suitable for the stages of development under study. Since most of the children's linguistic productions are constituted by one-word utterances, and, therefore, the tone unit is most frequently restricted to one word, a detailed syllable-by-syllable notation was felt to be necessary. The intonation is marked by dots and dashes indicating height and/or pitch direction beneath the transcription of the segmental component of the utterance. For example:

ko'ɔka 'put'

But, in order to avoid unnecessary repetition and to adopt a more economical system of marking, a label is used to stand for a tone, for which a full description has already been given. For example: 1T stands for 'tone 1 in T's intonational system, a high-

low or rising-falling contour with a relatively wide pitch-range'. A detailed notation is given, however, throughout the thesis whenever it is relevant and makes the reader's task easier.

Stretches of the adult's utterances which are found to be relevant to the discussion are transcribed in IPA symbols in square brackets and with intonational notation when necessary. For example:

M. Não tá mesmo [nõw ´ta ´mezmu]

'No, (she) is not (here)'

The transcription of the adult's intonation is broader than the one adopted for the children: it is meant to give an idea of the contour involved rather than the pitch of each individual syllable.

Square brackets are not used for the phonetic transcriptions of the examples of the children's speech, except when reference is made to them within the text. In the case of the mother's speech, they are used whenever a transcription is given.

Other symbols used here are:

/	pause
...	interrupted utterance
>	decreased loudness
<	increased loudness
:	long vowel
∿ ∿	creaky voice
´	stress (placed before the stressed syllable)

5. Clarification of some terms employed

Pitch, tone, tone unit and nucleus are used with the meaning commonly ascribed to them in the literature (cf. O'Connor & Arnold, 1961; Crystal, 1969; Lehiste, 1970; Brazil, Coulthard & Johns, 1980). However, the common distinction between tone (lexical meaning) and intonation (sentential meaning) is not made in this thesis. Some explanation of the way these terms are used is therefore necessary.

Pitch is used as the perceptual correlate of frequency which is the acoustic parameter corresponding to the vibration of the vocal folds in phonation (Lehiste, 1970). Pitch-range (i.e. the spectrum of the highest and the lowest pitch) and pitch-direction (i.e. the up and down movements of pitch over time) are taken into account. References to pitch height are to be taken in relative and not absolute terms, both across subjects and within the intonational system of each of the subjects. An example of each case is given to illustrate these points.

(i) The category 'mid' in T's second stage has an average fundamental frequency of 300 Hz, whereas R's 'mid' pitch at the same age (the beginning of her second stage) reaches an average of 400 Hz.

(ii) The category 'low' in T's tone 1T (second stage) ranges from whisper (theoretically 0 Hz) to 250 Hz.

The phonological correlate of pitch is the tone and it is here being used as a working unit for the classification of the early intonational systems of the subjects. Contour relates to the shape of the utterance in terms of pitch-range and pitch-direction. Intonation is used as a general term which covers tone, pitch and contour. The intonational unit par excellence is the tone unit.

In this thesis, tone and tone unit coincide most of the time, for the constituent categories of the tone unit are not very easily identified when they consist of a very small number of syllables. Tone unit, though, is the term used when one of the subjects (R.) starts to produce longer utterances, for which the categories of nucleus, tail and head are clearly applicable. The definition of nucleus and tail in current use in the literature is here taken for granted. Head, however, is used here to include all syllables preceding the nucleus whether stressed or unstressed. The category of pre-head is not made use of because it was found not to be relevant nor contrastive in this stage of language development. Tone unit boundaries are not taken into consideration because theoretically each utterance produced by the child is coincidental with a tone unit.

What is felt to be a terminological inadequacy is deliberately maintained for lack of something more suitable, namely the dichotomy segmental/supra-segmental (cf. Crystal, 1969). The reason for such a decision is the necessity to single out the prosodic part as opposed to the sequence of phones of the utterance. But it is here assumed that the sound system of the early stages of language development is prosodic (Waterson, 1971) and postural (Halliday, 1975) rather than segmental.

It should be noted that intonation is here understood as a discourse unit rather than a grammatical one. At a time when no morphology nor syntax is present in the speech of the children, discourse is paramount and intonation is seen to constitute a rich means of linguistic expression.

'Basic' or 'senior' interlocutor refers, in the literature, to any older familiar interlocutor whose speech is considered mature. In this thesis, it is a generic term involving T's mother and older sister and R's mother. Sometimes, the interviewer (I.) is also considered.

6. Content of the chapters

A detailed description of T's and R's intonational systems is given in Chapter 1 and 2, respectively. T's intonational development is studied from late babbling until the one-word-utterance stage. The development of R's intonational system is considered from the production of one-word utterances until the beginnings of the multi-word stage. In addition, the contexts of use of the initial intonational systems of the children are considered.

Chapter 3 deals with the comparison between T's and R's early intonational development and shared differences and similarities in the use of pitch-range and pitch-direction.

Chapter 4 studies the prosodic strategies used by one of the subjects (R.), for the building-up of multi-word utterances as well as the emergence of intonational macrostructures (paratones), expressed by the cohesive succession of tones across utterances.

An account of the role of intonation in the linguistic expression of dialogue processes which develop between the child and his/her senior interlocutors is given in Chapter 5.

The appendix consists of two parts:

Appendix 1. A comprehensive table of T's and R's tone systems.

Appendix 2. Copies of selected spectrograms of both subjects.

7. Some theoretical considerations: indeterminancy of the first 'words'

It was felt inappropriate to consider the early word-like sequences rendered by the child as 'words', as their usage is very different from that of the adult word. The inappropriateness is discussed below. Two main arguments are given: one concerning the functional and categorial indeterminancy of the primitive word-like forms and the other concerning their semiotic fluctuation. Actual data from R's speech are used as evidence, although the same considerations apply to T's data.

Menn (1976) takes a similar view in relation to the main differences between children's early utterance-types and the words of the adult language. She points out three main features of children's early 'words': a) less phonetic control, i.e. a wider variation in sounds than in adult words; b) less semantic coherence, i.e. a wider variety of meanings than in adult words; c) lack of 'symbolic autonomy', i.e. children's utterances may be bound to a particular social or physical situation instead of referring to a wide range of contexts.

I. Functional and categorial indeterminancy of the first 'words'

The first argument is based on the functional and categorial indeterminancy and inconsistency that these child forms display. Several forms are employed with the same apparent function in the same situation and vice-versa: the same form is assigned to several situations with different functions. R's expression of events or phases of events provide useful evidence for this claim. There is no clear-cut distinction between nominal and verbal forms to express

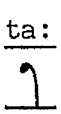
events, actions, activities or states in this early developmental stage. To express such meanings, the following forms are used indiscriminately:

1. Adult-like verbal forms. Example:

I. is sitting on the floor, with legs crossed

R. sits down on I's crossed legs and says:

ta: 'sit'



(1;2.21)

The form ta is based on the last syllable of the colloquial form of the verb sentar [sẽn'ta] 'sit down' of adult Portuguese. Other adult-like verbal forms used by this child are:

Child's form	Adult verbal forms	Translation
pa∿p ∿pø	põe [põj]	'put'
'abə∿abi or a'bə	abre ['abri] abrir [a'bri]	'open'
da	da [da]	'give'

2. Adult-like nominal forms. Example:

R. takes a ball (Port. ['bɔla]) out of the toy box

ábɔ 'The ball' (taking the ball)

Then she throws the ball behind her.

ábɔ: (throwing the ball)

(1;4.11)

The sequence ábɔ in the first utterance above may be referring to the object ball or to the action of taking the ball, whereas in

the second utterance it is more likely to refer to the action of throwing the ball, in spite of having its origin as a noun in the adult system.

There is a sequence of instances in a row in the video-tape session at age 1;3.8, which illustrates clearly the ambiguity and neutralization between noun and verb in this early stage of language development.

R. takes two balls which M. had given her and throws both of them.

a ˈbɔ: (throwing the balls) '(the) ball'

M. Ah!

R. looks at one of the balls rolling along the floor, while M. gives her another one.

M. Ta. 'Here you are' (literally 'take')

ada 'give' or 'take' (taking the ball, holding it up and looking at it).

ada 'give' or 'take'

da: (throwing the ball) 'give(?)' or 'take'(?)

(1;3.8)

To signal the same event (the second one being a replica, almost a replay of the first one) or the same phase of the event, R. uses first the adult-like nominal form bɔ: and then the adult-like verbal form da, perhaps because the action of throwing the ball has followed the action of taking the ball simultaneously with the answer da 'give' which follows the mother's action of giving it to her.

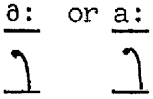
3. Vocalizations, (like adult interjective and onomatopaeic expressions).

Example:

R. takes a cube and then throws it down.

a: (holding the cube up)

ə: or a: (throwing the cube down)



(1;2.21)

Thus, adult-like nominal and verbal forms, as well as vocalizations can be used to convey the same meaning or to refer to the same kind of situation. And, inversely, different situations can be expressed by the same form. It must be stressed that this is a transitional stage, (from around 1;2 to 1;5 in R's speech) in which early-acquired forms (vocalizations) of the above type co-occur with later-acquired ones (verb- and noun-like expressions).

II. Semiotic indeterminancy

The second aspect of this argument deals with the phonetic form of the child's utterances and the iconic character of the first word-like forms, that is to say, with the semiotic fluctuation of the first word-like forms related to the lack of a clear-cut discrimination between gesture and verbal signals.

There is a residue of babbled utterances still being used by this child on a par with those adult-like ones which have just been described. They are used mainly in some specific situations related to verbal play and to activities which involve the use of rhythmic body movements or movements in the physical world that the child

observes. They are vocalizations accompanying the child's ongoing action. When engaged in such activities, the child keeps repeating some babbled sequences which display different configurations depending on the sort of activity involved and on the gradual sophistication and discrimination the child displays when acting upon objects and persons. Here are some illustrations of the different types of vocalization accompanying actions.

(i) Repeated rhythmic sequences, constituted by a succession of V or CV syllables (a bilabial plosive or affricate plus front open vowel) with level pitch refer to continued activity, like crawling or rolling along the floor. The rhythm is given by alternation between weak (short) and strong (long) syllables. Sometimes up and down pitch variations in the middle of the sequence and creaky vowel quality accompany the rhythm. Diary notes show that R. has been uttering this sort of babble since age 0;8. Example:

bababa: While crawling backwards or rolling along the floor

(ii) A later discrimination towards patterning in babbled (or jargon) sequences made by this child relates to the recurrent or repeated activities which imply the repetition of little actions - each syllable or each set of two syllables corresponds to one little action that makes up the whole activity. Examples:

a a a a a (striking a teddy bear against the floor) (1;2.11)

pa pa pa (beating successively on the floor with a stick)

(1;2.27)

In the above examples, each syllable corresponds to a blow.

da da da da (while strolling about the room, pretending to be going for a walk, after having slung a handbag round her neck)

or

dan dan dan dan

(1;3.6)

Each syllable corresponds to a step or a swinging movement of the child's body.

As for the vocalizations accompanying goal-oriented actions, or little actions that make up bigger tasks, each having an ending point, their particularity is a terminal pitch tendency: a rising contour for the starting phase of the action and a falling contour for the ending point of the action. Example:

a: - raising the ball

a: - throwing the ball down

(several instances at around age 1;2 to 1;4)

Sometimes just the rising and falling movements are produced, in 'bocca chiusa' utterances (transcribed as [m]). Example:

m: m: - while inserting one small cube into a bigger one

(around 1;2 to 1;3)

The expression of goal-oriented actions and recurrent activities is not however restricted to vocalizations; their prosodic configuration may combine with adult-like forms (like [ábi] from ad. Port. [ábrir] 'open'). Therefore, both these vocalizations and the adult-like forms may be considered to have the same status in the child's early speech.

To sum up, there seems to be a typology of the vocalizations of this child during the period from 1;2.11 to 1;5 according to the type of action performed by her, or to the type of gesture involved in the action. The child's utterances seem to match the sort of movement involved in an action in the following way:

(i) Rhythmic or singing sequences, without terminal tendency, creating an impression of continuity in activities whose ending point is not clearly perceived. According to Vendler (1967) and Lyons (1977), "activities" are not goal-oriented and have no explicit ending point.

(ii) Rising and falling terminal pitch tendency in vocalizations and adult-like nominal or verbal forms relating to goal-oriented actions.
(OBS. T. has the same sort of proto-linguistic behaviour. A brief reference to this will be made in Chapter 1, pp. 36 ff).

Thus, it would be difficult to rule out gesture in the configuration of the unit which one would be tempted to call <u>word</u> in this early stage of linguistic development. In fact, there is rather a continuity between gesture and linguistic expression than a clear-cut difference between them. Furthermore, an iconic or transparent relationship between linguistic expression and referent in this transitional period is much more clearly seen than in the adult system, in which the principle of arbitrariness of the word prevails.

It has already been pointed out that a child's message in the one-word stage is complex - it is a regular combination of linguistic expression with at least one non-verbal element to constitute a

semantic relation (Greenfield & Smith, 1976). So, the child resorts to two semiotic systems at a time - a linguistic one and a gestural one. Caselli (1981) demonstrates that the communicative gestures are initially used by the child inside interactional routines with the adult which are very rigid at the beginning. Progressively, the gestures are used in more and more context-free ways. The first words are normally used in the place where communicative gestures were formerly used and for some time they are accompanied by the gestures that gave origin to them.

The evidence of T's and R's early vocalizations seems to provide further support for the view that the first words take the place formerly occupied by gestures. Furthermore, it seems to indicate that gesture, prosodic and paralinguistic elements as well as phonic sequences are constituent parts of a wider category that, for lack of a better term, will be called word in the present work.

CHAPTER 1

DEVELOPMENT OF T's INTONATIONAL SYSTEM

Data from 0;11.20 to approximately 2;0 will be considered in three stages of development. The first stage covers late babbling to the production of the first proto-words (from 0;11.20 to about 1;4). The second stage deals with the first tone system to appear in this child's speech (from 1;4 to 1;7). The third stage refers to the expansion of the initial sets of tones and to prosodic strategies related to the development of conversational processes.

1.1. First stage: 1;0 to 1;4. Characteristics of the transition from late babbling to the first tone group system in T's speech

In T's speech, at around 1;0, there is an overlap between "late babbling" (Boysson-Bardies et al., 1981) and "protolanguage" (Halliday, 1975). This period is considered as transitional from the pre-linguistic to the linguistic and one of its main characteristics is said to be that the child starts to fit his patterned babbling into his mother tongue's structures. Also, the first word-like forms start to be produced and intonation and rhythm appear now to be closer to those in the language the child is exposed to.

There are a number of issues that have been frequently raised in the literature about babbling. They are roughly the following:

- Is there a continuity between the patterns of early or late babbling and the first 'truly' linguistic productions, or, on the contrary, is there no close relationship between the babbling features and those of the first words?

- Are babbling patterns universals, since one can find close similarities in the most constant babbling features in many languages (cf., among others Ferguson, 1964), or do they shift to match the mother tongue?

- If babbling is a sort of preparation for speech, are the babbling patterns restricted by general human phonetic capacities or are there different routes in babbling, as is the case with other aspects of language development?

Recent studies have provided evidence that there is continuity between babbling and first words (see, among others, Tuaycharoen, 1977). As far as intonation patterns are concerned, Menn (1976) found that intonation contours used in late babbling stretches were the same as those used in the first proto-words. If other communicative pre-verbal behaviours are said to be closely related to the effective production of the first linguistic elements (cf. Bruner, 1975, among others), why should there not exist a formal continuity between late babbling and the first words? Furthermore, it has been argued that late babbling is both dependent on constraints in the child's speech capacities and on knowledge of the phonetic regularities of the child's linguistic community (see, for details, Boysson-Bardies et al., a and b, 1981).

Those questions, in spite of being useful to clarify some of the issues of the period under study, are not the direct concern of the present work. The aim is not to describe the phonetic peculiarities of T's late babbling. Rather, the approach will be restricted to, firstly, the study of the prosodic characteristics which precede (or prepare) the intonational systems in T's speech and, secondly, the observation of the relationships between the child's

production of intonation and the situations of dialogue where the late babbling occurs. What was noticed from the data analysed is that, once the child is able to utter the first word-like units, his adult interlocutor tends to recognize these 'raw' sequences as an indication of a new status of the child. He is now a potential partner and a true apprentice of linguistic exchange rules.

From approximately 1;0 to 1;4 T. has no recognizable intonational system. The pitch contours of his speech are not unequivocally assigned to a certain set of functions. They are, rather, inseparable from their segmental component. The contours T. produces are not systematic in the sense that they can be used with different 'segmental' sequences. Segmental and suprasegmental components are thus inseparable. As there is not enough data on solitary babbling at play to assess its relevance to the development of intonation, it is excluded from the study of T's pre-verbal stage.

The following categories of T's protolanguage will now be examined:

1. Vocalizations accompanying action.
2. Sentence-like intonation.
3. Word-like forms.

1.1.1. Vocalizations accompanying action

Late babbling forms in T's speech are neither random nor unintentional. They are, rather, standard repetitions of sequences always assigned to certain standard situations. They are functionally meaningful and have a systematic character in the sense that they are frequent and related to a certain set of contexts. When uttered

by the adult who repeats the child's utterances, they have a conversational character and aim at establishing a possible dialogue with the child.

Some illustrations of T's intentional babbling forms are given below. As can be seen they refer to vocalizations accompanying actions.

pø (breathy voice) - trying to put the bracelet into the box (1;1.8)

s s s
φ φ φ
- blowing or whistling fricative sounds uttered when busy with some manual action (mainly action on containers) or when manipulating some objects, or when reaching out his hands to pick up an object. (around 1;2)

m m m m - rhythmic nasal sequence, successive up and down pitch, uttered when moving to some specific goal (for example, when enthusiastically crawling towards his sister to join in some activity, at 1;1.8).

b a: βa: βaβaβa - while tapping a chair. The vocalization accompanies the rhythm of his movement; each syllable corresponds to one beat. (1;1.22)

rk rk rk rk
palatal clicks
R R R
- while manipulating toys. (around 1;2)

A major piece of evidence for patterned babbling is one standard sequence, with some variations, which T. utters during some

2 - 3 months. It relates to some situations when the child is engaged in some long manual activity which implies a series of little tasks leading to a pre-established goal (for example, when piling up rings to make up a doll). The sequence is uttered repeatedly during the action. It has the following characteristics:

Two syllables separated by a pause. The first part of the sequence is a CV syllable, constituted by an alveolar or palatal obstruent (voiced or voiceless) plus a central or front low vowel. This syllable has a rising terminal tendency, a 'forte' or 'crescendo' loudness, and is sometimes uttered with a creaky quality of the vowel. The second part is constituted by a syllabic nasal, fricative or obstruent, either labialized or not, preceded or not by a glottal stop. Intonationally it is mid to low falling contour. There can be an optional syllable in the middle or in the end of this sequence, constituted by a CV (alveolar or glottal stop + central unrounded vowel), mid-low to low falling contour or mid level. The order between the first and the second syllable may be inverted. Anyway, the nasal element will always have falling contour and the CV element, a rising contour. Example:

ta ʔm

ta: β̃w̃

dæ m^{w}

The auditory impression gained is always of a very rhythmical form. It may be uttered with closed mouth, giving the impression

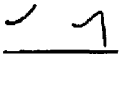
of a 'bocca chiusa' melody, marking the rhythm with rising and falling pitch movement combined with loudness. T. hardly ever has eye-contact with an adult when this sequence is produced. It seems to be integrated with the movements of his arms manipulating objects, as though the child was verbalizing his own body movements, as it is not like any adult utterance addressed to him. The same sort of similarity between gesture and speech is found in R's protolanguage, but with different phonetic characteristics (see page 29 for the relationship between R's gesture and language in this period).

1.1.2. Sentence-like intonation

The intonations in the babbling forms just described bear no similarity to adult intonation. There are, however, some instances of utterances with intonational contour and rhythm very similar to certain adult contours and rhythmic units, although the 'segmental' part is nonexistent in the adult's system. This child's adult interlocutors tend to interpret such utterances as a sentence because of their intonation. They are said in situations in which an exclamatory expression would be predictable, for example, when his brother (Ma.) or his sister (B.) enter the room where the recording session is taking place, or when he wants to call the interlocutor's attention emphatically to something particularly important for him, as when he manages to take the lid off a tin. This intonational contour is used mainly to convey exclamation or surprise in Brazilian Portuguese. Here are some examples:

His brother comes into the room. T. looks at him, very excited.

a: wui '?'

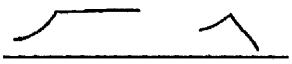


M. Esse foi o Marcelo. 'This was Marcelo'.

(1;1.8)

B. comes into the room. There is a record playing on the record-player. T. is keen on music and loves to be with his sister when listening to it. He looks at B., very excited.

newtikutə / skohje '?'



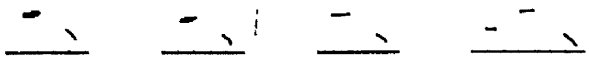
(1;3.17)

These utterances have no meaning in Portuguese. The 'meanings' are interpreted or guessed by the adults on the basis of intonation only. It is worth noting that this 'exclamation' contour will be productive in T. some six months later. In this late babbling period, however, it is quite difficult to decide whether or not the production of this contour is an embryo of what will be a meaningful contour later on. The only evidence there is now for considering it as an 'exclamatory' contour is the adult's interpretation.

1.1.3. The first words

In this period, the first utterances recognizable as words by his interlocutors start to appear in T's incipient vocabulary. They bear a certain degree of similarity with the adult forms. At the beginning, his mother does not understand them, but she soon integrates them, by repeating them, thus making a reference point for mutual comprehension. Here are some instances of word-like forms:

kojze ∿ kojzɛ ∿ kojza ∿ kojzada



(1;2 to 1;3)

This sequence, phonetically similar to coisa [ˈkojza] 'thing' is always uttered when T. searches for something.

[φidʒiw] - uttered when T. involuntarily drops something.

His mother interprets it as caiu [kaˈiw] 'fell down', perhaps because of the termination -iw (which would probably remind her of the past tense inflection of one of the verb classes in Portuguese) and because of the situation (it is an achievement marker that she has been using in the same circumstances referring to achievements or accomplishments performed by T. or herself). She repeats the child's sequence and then gives the corresponding adult Portuguese expression, commenting upon the fact and T's action:

M. [pídʒiw?] Que que caiu? O bonequinho? O bonequinho caiu, sim. Caiu, né? Você tirou e ele caiu"[pidʒiw]? What's fallen down? The dolly? Yes, the dolly fell down, Fell down, didn't he? Yes, the dolly fell down".

This process is quite common in the establishment and development of dialogue, as shall be seen further on. It is as if the mother understands that the child is able to say something about the situation, and she helps him, repeating his form, and giving him an identity as interlocutor.

Other word-like forms are as follows:

tira	-	Port. tira	[ˈtira]	"take off"
tsõ	-	tchau	[tʃaw]	"good bye"
məmə	-	mamãe	[məmõj]	"mummy"
ʔo||la	-	bola	[ˈbɔla]	"ball"

(around 1;2 to 1;4)

What is curious about these first word-like utterances is that most of them are produced with rising-falling or high-low pitch movements which are the embryo of a rising-falling contour which will become established later on. These are the first recorded manifestations of this contour.

Another word-like form is da (this stands for a CV syllable, composed of an alveolar or palatal plosive voiced or voiceless plus an unrounded front open vowel). It is reported in the literature on the acquisition of phonology that this sequence is a kind of universal babbling tendency, as it is found in many unrelated languages. It is an optimal contrast for the production of the first syllables (Jakobson, 1968). In Portuguese, however, the informal and colloquial use of the request give is [da]. And a possible answer to da is ta ('here you are' or, literally, 'take it'). T., like R. and many other Brazilian children, have this form in their early vocabulary. The utterance da is interpreted by the adults as a request by the child - and the contexts in which the child uses it allows for such interpretation. At the beginning (at around 1;0 to 1;2) it is not certain whether this is an instance of a universal babbling pattern in the sense that it is constrained by the child's phonetic abilities or if it is language-directed (acquired through the child's exposure to his environment). And, under the classification of T's late babbling adopted here, it is ambiguous as to be considered as word or patterned late babbling form. But, as has already been stressed, there is categorial indetermination and interplay among the possible verbal signals the child can produce in the early periods of language development.

At around 1;0 to 1;2 the form da was phonetically and prosodically inconsistent in T's speech, and was used with many fluctuations in pitch, loudness, timing and voice quality:

M. Dá o cinzeiro pra mamãe, dá. "Give the ashtray to mummy, will you?"

dæ: (he does not give the ashtray)

M. Dá... Ai, que lindo! Dá mesmo, heim? "Give... Oh, how lovely! You will give, won't you?"

da ɗa:ɗa

T. finally gives M. the ashtray

M. (taking it) - Dá pra mamãe, dá. Ai, que lindo, ele deu pra mamãe. "Give it to mummy, give. Oh, how lovely, he did give it to mummy".

(1;1.8)

Thus, maybe da started as a babbled form as it is still used alongside the protolanguage.

T. gradually makes this form more consistent, by uttering it either with the Portuguese command neutral contour - rising-falling mid to low - or with rising intonation, for polite - or impatient (with increased loudness) request. Both the contours assumed by T. are present in the frequent da-utterances his mother addresses to him: [da] (imperative) [da:] (polite request) and [ta] (neutral assertion). Da is used by T. indiscriminately as give and take.

Another word is [ʔaj] (mid-high rising contour), corresponding to adult ai [ay] ˈowˌ uttered when struggling to get through a hard task or when observing another person accomplishing what appears to be a hard task. The origin of this item is his mother's exclamation whenever he faces a difficult situation, always uttered with rising contour. T. will use this item with this fixed contour from 1;2.21 until the end of the recorded data analysed here (about age 2;2). From 1;6 onwards, it will be extended to the general meaning 'volition' (insistent request, with accompanying gesture).

Summary

To summarize the main points considered in T's pre-linguistic stage three points should be noted:

1. Simultaneously with many stretches of non-patterned fluctuations in pitch and other prosodic parameters, the child exhibits observable attempts at patterning in babbling forms, both segmentally and suprasegmentally.

2. Although the segmental sequences may be quite different from the adult's, adult-like intonation in relatively long stretches of utterance shows that this child is somewhat sensitive to the intonational contours of the language he is exposed to. However, there is no evidence of systematic contrasts in intonation up to this point. The adult tends to interpret the intonational configuration of some of the child's longer utterances as having the same functions as some contours of his own system, but this does not necessarily mean that there is a correspondence with the child's usage.

3. As the first words begin to appear, they are combined with the prosodic pattern of the adult form as originally used to the child. In this sense, they pave the way for the first contours which will be part of T's initial intonational system in the second stage.

1.2. Second stage: 1;4 to 1;7

In the previous stage, T's babbling-like forms ranged from one- or two-syllable sequences to sentence-like utterances constituted by several syllables. From age 1;4 onwards, one-, two- and three-syllable words begin to get consistent in form and become more productive. Thus, there is a tendency towards stability as regards the number of syllables in T's utterances. This is the beginning of the so-called one-word (or holophrastic) period of language development. It is also characterized by the gradual mastery of the first recognizable intonational 'system', with contours similar in form to the ones in the adult system, but they are systematized in a different way.

1.2.1. Phonetic characteristics of T's intonational system from 1;4 to 1;7

Around 1;6, T. already has a system of 4 basic contours; the phonetic realizations are described below under the headings of tones 1T, 2T, 3T and 4T.

Tone 1T  or 

Two-syllable utterances: a high to low or rising-falling contour. First syllable always in the mid-to-high degree of this child's pitch range; second syllable low. Sometimes there is a pause between the two syllables. There is always an observable difference in fundamental frequency between the highest and the lowest pitch of this contour. Both syllables are stressed.

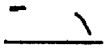
Below are illustrations of this contour, with measurements calculated with the aid of instrumental analysis.

aki 'here'

(T2 1;5.21)

Two falling movements: a very slight and functionally irrelevant one (noticeable through instrumental analysis) from 424 to 409 Hz (≠ approximately 15 Hz) and a terminal fall from 236 Hz to 194 Hz. The difference in fundamental frequency between the onset and the terminal pitch is approximately 229 Hz.

a / ki 'here'



(T18 1;6.24)

First syllable at 395 Hz, second syllable a fall from 354 Hz to 291 Hz in fundamental frequency. There is a pause between the two syllables.

This contour may also appear with monosyllables (generally a high fall movement over a single syllable), as can be seen in the example below.

nõw̃ 'no'

(T17 1;6.24)

A continuous fall from the onset at 375 Hz to the terminal point at 187 Hz.

With three-syllable sequences, the first syllable is generally low or mid-low level, the second and third having the same prosodic

constitution as two-syllable sequences. Example:

ka ka / ko 'monkey'

(T21 1;6.24)

Three pitch levels: onset at 319 Hz, peak at 389 Hz and low terminal at 222 Hz.

Tone 2T

A low-falling contour, pitch range usually mid-low to low. It is generally uttered with a lower degree of loudness than 1T. Occurring in one-, two- and, very rarely, in three-syllable utterances. The main feature of this contour is that it is a low fall, i.e. the pitch difference between the onset and the low terminal level is small. Sometimes there may be a slight rising movement in the onset. Examples:

wawaw 'dog'

(T1 1;4.29)

A small rise from 333 Hz to 342 Hz at the onset (which was noticed only through instrumental analysis) and a terminal point at 289 Hz. The difference between the highest and the lowest pitch level is approximately 53 Hz.

aw 'dog'

(T16 1;5.24)

A low drop from 291 Hz to 250 Hz.

Tone 3T

Rising contour, generally an upward glide from mid-low or mid to high. Sometimes the terminal pitch slides to a very high pitch or to a falsetto voice quality. This contour is restricted, in this period, to a one-syllable utterance. The vowel is always long.

Example:

βa:ʃ 'more'

(T4 1;7.1)

Continuous rising movement from 318 Hz to 477 Hz over a single syllable.

Tone 4T

Each syllable has a level pitch in two-syllable utterances; the first is relatively mid pitch, level or slightly rising, the second higher than the start of the first one, sometimes produced with a slight falling terminal movement. Second vowel long. If used in three-syllable utterances, there are three level pitches rising in steps (- ¯ ¯) each syllable, on a level pitch. Or there may be a step up of two level pitches, with the third syllable having a falling terminal tendency (- ¯ .). The pitch order of the syllables may be reversed: first the high, then level terminals lower than the first one: (¯ -:). The third or second vowel is long. If uttered on monosyllables, a high level pitch occurs on the single syllable. Generally 'forte'. The initial syllable may be slightly rising instead of level.

Examples:

mõne: 'mother'

(T22 1;6.24)

A small rise 322 Hz to 375 Hz in the onset, then a level terminal at ±330 Hz.

sisiλa 'Cecilia'

(T8 1;7.11)

Three level pitches, in a rising range: 333 Hz, 416 Hz and 458 Hz, respectively.

Tones 1T and 2T appear with several words, whereas tones 3T and 4T are restricted to certain utterances, which, conversely, only appear with those contours.

1.2.2. Contexts of use of T's initial intonation system

Tone 1T

This is the most frequent contour in T's speech in the period from 1;4 to 1;7 - it covers about 60% of his utterances. Its production started in a rather asystematic way some time before (for example, when T. imitates the onomatopaeic sound of barking uttered by his sister: ɔw ɔw, from ʔaw ʔaw).

Tone 1T corresponds to an emphatic assertion in his mother's and sister's speech addressed to him with rising or high pretonic. T's mother uses this contour emphatically, having ascertained that she has got the child's attention, and that they are both engaged in a common interest. Moreover, the utterances used with this contour

are simplified, for they are mostly one-word utterances. The contexts in which this contour is used are now given for comparison with the child's usage.

1. A 'didactic' use. The mother's speech is very didactic and classificatory. She is always very eager to play naming games with the child and keeps calling his attention to objects and their respective names, urging him to repeat them. Example: 'Tiago, say "porco" [por/ko] 'pig'. Furthermore, every verbal response that the child produces is responded to. It is always repeated and there is always a tendency to 'correct' what she considers the wrong pronunciation of the particular word involved. This normative attitude is common both to T's mother and to his sister. The tendency of the senior interlocutor to correct a child's mispronunciations has been reported in the literature. Maia (1981) claims that the mother's requests for repetition of the child's utterance aim at corrections of pronunciation of phonologically immature renditions by the child, and that the elicitation tactics occur when the mispronounced word pertains to cognitive and linguistic domains that have long been mastered by the child. Though the normative attitude of the mothers whose speech was studied by Maia was not explicit (it was subtly actualized through exclamatory repetitions, expansions and requests for repetition) as in the case of T's mother, it shows the adult's sensitivity towards the phonological development of the child. In fact there is now a widespread belief in the study of language development and child/adult interaction that the adult sets limits for the phonological acceptability of the child's productions.

2. Demonstration of actions and enumerations. What are labelled as 'demonstrations of actions' are related to interactional formats like games demonstrative of event structure, defined by De Lemos

(1981) as focal instances for the presentation of events and event structure to infants. When T's mother is engaged in such formats, for example, when she is demonstrating to T. an action like inserting objects into containers, she keeps signalling the various stages in which the action takes place. She keeps commenting upon her own action and, even when it is the child who is engaged in the action, she keeps verbalizing his actions, as though the linguistic information were an extension of the child's or her own performance. Their joint-activity is always mediated by her speech, stressing the most important steps of the action, and by the verbal contribution that T. soon learns to make in the dialogue. The mother's 'explanation' frequently takes the form of an enumeration, with the contour(s) ⌣ ⌣ ⌣ ↖ in which the final part (corresponding to the completion phase of the event) is auditorily the most prominent.

3. Completive use. When stressing the completion phase of an action accomplished by T. or herself, or someone else's achievements or accomplishments.

Example: Caiu [kaíw] 'fell down'.

4. Naming objects of common interest, either when presenting them to T., or when T. directs his gaze towards an object. Example:

M. is showing T. some objects and naming them

M. Olha as tampinhas... Tampinha. Latinha, Pulseira

'Look, little tops. A little top, a little can and a bracelet' (1;4)

A brief account of the contexts in which T. uses tone 1T is now given:

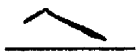
1. When signalling the completive phase of the event or its preparatory phase. When it refers to the preparatory phase of the event, it may be indiscriminately assigned to a modality meaning (announcing he is going to perform a specific action) or a request (asking his interlocutor to perform a specific action on his behalf). In the first example below, tone 1T relates to the announcement of the completive phase of the action that the child has just performed; in the second one, the child announces that he is going to perform an action.

1T sẽdew 'switched on' (a) Looking at the lamp that has just been lit and then looking at his interlocutor (around 1;6)

(b) Looking at his interlocutor before pressing the knob of a toy-telephone (around 1;6)

2. When repeating part of his interlocutor's utterance of an immediate preceding turn, whether or not addressed to him.

M. (talking to I.) Ontem ele falou uma outra palavra: sapato [sápatʊ] . Ele falou bem direitinho. 'Yesterday



he said another word: shoe. He said it quite properly'.

1T sapatʊ 'shoe' (looking at his mother)

(1;7;23)

3. Calling his interlocutor's attention to something (as though he were inviting him or her to share a common interest), after having focused on it with his eyes or picked it up.

1T utka 'music' - Looking at his mother, after having focused on the tape-recorder.

(1;5.21)

As can be seen from the data above, the function underlying all the contexts of use of this contour is to establish someone as his interlocutor, in addition to eye-contact or any other attention-getting device. This is the distinguishing feature between this tone and tone 2T. Not surprisingly, the most obvious similarity between T's and M's usage of this tone is its emphatic function.

Tone 2T

The low fall is typical of neutral statements in the adult speech. This tone was used by the child in the following contexts:

1. When focussing upon an object, or observing an action in progress (either performed by himself or by others), but without sharing his attention with anyone.

2. When repeating an item said by his senior interlocutor in an immediately preceding turn, while engaging in an ongoing activity, with no eye-contact with the interlocutor.

3. In a general way, when, after having said something with tone 1T, he starts to act upon an object, either reaching out to pick it up or playing with it, or any kind of solitary action on objects. Or the other way round - a solitary action first (tone 2T) and then an invitation for shared participation (tone 1T).

The illustration below is a sequence of two utterances, said in a row in the VT session recorded at age 1;7.12, the first one with tone 2T and the second one with tone 1T. They show the difference

between the two contours, subsumed in the three points stated above.

2T pipiw 'birdie' - locating the object with his eyes, without establishing eye-contact with his interlocutor.

1T pipiw 'birdie' - looking at his interlocutor, showing the toy-woodpecker.

Some two months later, he will start using tone 1T preceded by a (from the familiar and colloquial forms a and o[ɔ], which stand for olha 'look'), as an attention-drawing device to call his interlocutor's attention to an object or an action.

The difference between tone 1T and 2T, therefore, has a discursive and pragmatic character. Tone 1T seems to convey the function of setting up the dialogue, either introducing a topic (about which the adult will always comment) or calling for attention from the interlocutor to the dialogue which is about to start. Tone 2T is his comment, or his solitary action or attention, or his speech after having prepared the way for the conversation. This is tantamount to saying that by this time T. has mastered some linguistic devices to engage in conversation with others. He has acquired some dialogical rules and his access to them is through differences in the intonational system. He is already able to establish meaningful intonational distinctions to cope with linguistic activity. And, moreover, he is able to create his own strategy of turning into a primary source of information what for the adult is not necessarily the only difference between egocentric and shared speech. That is why this second stage is considered as the origin of this child's own first true intonational system.

Tone 3T

This contour is restricted to two items: majʃ ∿ ajʃ ∿ maʃ ∿ βaʃ ∿ aʃ, from adult Portuguese mais [majs] 'more' and ujʃ ∿ uʃ, from luz [lus] 'light'. Both appear only with this contour. However, those two items do not appear in the same kind of contexts, which allows for the interpretation that the contour itself is inseparable from the 'segmental' counterpart of the utterance as in tone languages.

The contexts of use of these items are as follows:

3T majʃ 'more'. Generally a request for repetition of an action performed by the interlocutor, in the same way as used in his mother's or sister's speech directed to him. Nevertheless, besides this general use, T. extends it to:

- recurrence of his own action upon objects, when he accomplishes an action and announces he will perform it once more;
- the preparatory phase of an event, either requesting the interlocutor's action on his behalf (to start a game, for example), or announcing to the interlocutor that he is going to start a game;
- enumeration of objects in a series.

The examples below are typical situations of occurrence of this item:

T. takes a box of blocks and tries to take one block out. He does not manage to do it, then looks at M. and says: 3T majʃ

T. collects various objects from the floor and keeps giving them to M. Each time he reaches out his hand towards M., he says: 3T majʃ

In ritualized games, when M. tells T. nursery rhymes, touching his fingers or names pictures in a book, he says [3T maj∫], making her repeat the game.

The item [3T u∫] 'light', is used to name the lamp, the sunbeam that comes through the window and is reflected on the floor and the little red lights of the tape recorder. It is always used in conjunction with [sẽdew] 'switched on' (both with tones 1T and 2T). This term originated in a game that was his favourite during some two months. It involved joint action between his sister and himself in successively turning the light on and off. His sister first used to draw his attention showing him the electric light or the plug, saying: 'Tiago! A luz... [a'lu:s] 'the light', then she would turn it on and say: "acendeu [asẽndew]" ('switched on').

In adult Brazilian Portuguese, one of the functions of this tone is to indicate unfinished statement, the speaker implying that he will continue his proposition. T's mother always uses it when demonstrating actions to him. It is a didactic form of interaction, thus segmenting the whole action into its constituent parts and making the corresponding speech coordinate with the demonstration of her actions to the child. As an unfinished statement, she also uses it to convey approval or acknowledgement to which will be added some sort of comment. Example:

T. stretches out his legs to show his shoes.

1T papa 'shoe'

M. Sapato... é... O pé tá com sapato. 'Shoe...

yes... The foot has a shoe on'.

In this early stage of development, T. incorporates both the segmental and supra-segmental parts of these items from the interlocutor's speech. Once incorporated, the child makes the most of the expression he is able to produce, extending it to other dialogical situations. So far, he is not able to abstract the contour from its segmental counterpart, but the use of those 'moulds' appears to prepare the productive integration of this tone into his intonational system.

The first attempts at enchaining words show that the items involved maintain the original intonation of the isolated usage.

B. Tiago! O´a luz! A luz! Apagou! 'Tiago! Look, the light! The light! Switched off!'

3T u:ʃ 'light'

B. Apagou... Acendeu... 'Switched off... Switched on...!

1T + 3T pago uʃ 'Switched off. Light...'

(1;6.20)

Tone 4T

This tone is typical of the vocative in Brazilian Portuguese, which T. seems to master from this period. At the beginning, he assigns it to mere reference to the names of the persons of his familiar circle and not only for calling. For example, at the mention of his sister, he says: 4T bi:se: 'Berenice!' Or, as a response to his mother's question 'Where is daddy?', he answers: 4T papàje: 'daddy!' He will soon make the distinction between calling/non-calling through intonation, assigning tone 4T just for calling purposes.

However, in this stage a side-effect of this calling device begins. It evolves to a kind of phatic device to signal his

conversational slot in his dialogue with his mother, when assigned to the item mõj ∿ mõjɲe ∿ mõjne 'mother' Example:

4T mõj ne; 'mother'

M. Heim? O menino, ne?

'Heim? the boy, isn't it?'

1T mine:ɲ^{W} 'Boy?'

M. Me-ni-no. Fala. 'Boy. Say'.

4T mõj'ɲe 'mother'

M. Que é? 'What is it?'

1T mi/ni/nu 'boy'

(1;7.23)

It is worth noting that, in the above example, T. supplies the correct answer required by his mother's request, i.e. 'Say boy'. But before answering, he uses the vocative form in a position where it is not expected - to signal that he is going to answer, in other words, to signal his turn to speak. Such a conversational (phatic) use of the vocative seems to be T's own strategy as it is not found in adult speech.

Table 1 below summarises T's initial intonational system as described in Stage 2.

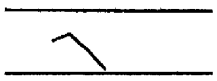
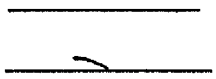
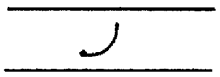
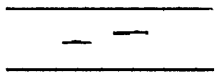
Tone	Graphic representation	Phonetic characteristics
1T		High to low or rising-falling contour. Substantial pitch range between the highest and the lowest levels.
2T		Low-onset falling contour. Small range between the highest and the lowest pitch.
3T		Upward glide mid-low or mid to high, long vowel.
4T		Usually level pitch at different heights, either a step up, with an optional fall at the end, or a step down.

TABLE 1. T's initial intonation system (1;4 to 1;7)

1.3. Third stage: 1;7 to 2;0

This stage is characterized by a reorganization of T's intonational system. His previous system is expanded - the contours become diversified and are extended to a wider range of utterances and contexts, thus responding to more delicate needs of expression and engagement in dialogue. However, the observable changes are not abrupt, but gradual. An embryonic process around 1;7, for example, will have diverse formal characteristics (as manifested intonationally) some months later. However, since the process involved is essentially the same, though with different formal manifestations, the period that ranges from 1;7 to 2;0 is treated as the same stage, but with 2 subdivisions: 1;7-1;10; 1;10-20.

From this stage onwards there is an increasing distinction of prominent syllables from the non-prominent ones in production. So far, the disyllabic word, for example, had two stresses - each syllable was a strong one. Perhaps T. starts to be aware of the stress-timed rhythm of the language he is exposed to. The tonic prominence of the syllable is defined, in T's speech, as a combination of 4 parameters:

- loudness (i.e. 'polysyllabic loudness', according to Crystal, 1969): it has a higher degree of loudness than the non-tonic syllables.
- stress (i.e., 'syllabic loudness', in Crystal's terms, defined as greater breath force): it is the stressed syllable and generally coincides with the stressed syllable of the input.
- duration: it is longer than the others.
- pitch: it generally bears the nuclear movement of the tone.

1.3.1. Period from 1;7 to 1;10

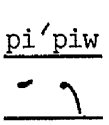
From about 1;7, T's falling tones (1T and 2T) start to expand with the inclusion of what is here labelled 5T and to have some variations. A new rising tone starts to be produced (6T). The phonetic characteristics of T's intonation system in this period are given below.

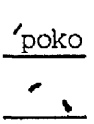
1.3.1.1. Phonetic characteristics of T's intonational system from 1;7 to 1;10

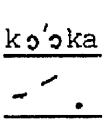
Falling tones (1T, 2T and 5T)

Tone 1T

The same description as for the previous stage, but now a prominent syllable is increasingly audible. Examples:

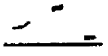
pi'piw 

'poko 'pig' 

kɔ'ɔka 'place' 

Spectrographic information, taken from the utterance [kɔ'ɔka] spoken in the AT session at age 1;8.13 provides an illustration for this tone.

kɔ'ɔka 'place'



(T28 1;8.13)

A slight rise in the first, pre-nuclear syllable from 295 Hz to 365 Hz (mid). The nuclear syllable is relatively mid-high, i.e. above the threshold of 400 Hz:416 Hz. The last syllable is low, at approximately 250 Hz.

It is quite usual for the last syllable to be very faint, whispered or near-whispered, as can be illustrated by the spectrogram

representing the utterance [pakako] 'monkey', classified as tone 1T.

pákako 'monkey'

(T25 1;7.29)

A step up from first syllable at 319 Hz to the second and nuclear syllable at 348 Hz. Last syllable whispered (nothing visible on the spectrogram).

Tone 2T

The same as the previous stage, but now, as with tone 1T, the position of the stressed syllable starts to coincide with that of the adult model. A single falling movement from the onset to the end of the utterance, mid-low to low. Normally 'piano'. Examples:

a´pɔjta 'the-door' apo´kiw 'the-little pig'

´puku 'pig' wa´waw 'dog' nõw 'no' ka´kaku 'monkey'

The spectrographic evidence shown on page 47 is valid for this tone.

Tone 5T or .

The onset is normally rising, or, if level, normally higher than that of tone 1T. The nuclear syllable is rising from mid to above 400 Hz followed by a stepping or sliding drop to low. A typical realization of this tone may be seen in the utterance below, taken from spectrographic analysis.

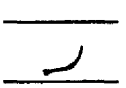
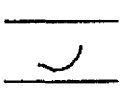
pa´kako 'monkey'

(T23 1;7.29)

Two rising movements: pre-nuclear syllable from 346 Hz to 390 Hz; the nuclear syllable has a steeper rise from 302 Hz to 412 Hz. The last unstressed syllable drops to 258 Hz.

Rising tones (3T, 4T and 6T)

In addition to tone 4T, typical of vocatives (whose terminal tendency is rather level than rising), which is maintained with no formal or functional change, there are two rising contours: tone 3T, which undergoes some changes and a new rising tone (6T).

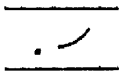
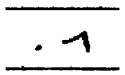
Tone 3T  or 

The same as the one used with [majs] 'more' and [ujs] 'light' in the previous stage. [ujs] disappears, but [majs] continues with the same intonation, employed in the same contexts as before. (This continues until approximately 2;0). But the contour extends to other utterances and contexts. Furthermore, this tone undergoes a phonetic change: the onset, when used in multi-syllable utterances, is higher than the starting point of the nuclear rising movement, thus resulting in a complex fall-rise contour. Spectrographic evidence for this description is given below.

pa´ka:ku 'monkey'

(T30 1;7.29)

A mid onset: 340 Hz then a long rising syllable from low pitch at 204 Hz to 386 Hz. A high terminal-fundamental frequency at 409 Hz, slightly higher than the previous pitch. As can be seen, the rising movement is a glide restricted to the long, stressed, prominent syllable.

Tone 6T  or 

Rising pitch mid or mid-low to relatively high, with an optional abrupt short falling movement in the last syllable, whether stressed or not. The illustrations which follow are based on spectrographic evidence and show rising terminal and short falling terminal respectively.

ʔa´ʔa 'slip away'

(T12 1;10)

First syllable rising from 287 Hz to 361 Hz; second syllable rising from the level of the previous pitch to a high fundamental frequency at 555 Hz.

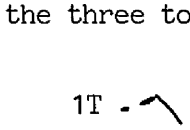
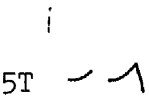
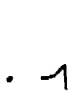
ne´ne 'baby'

(T20 1;7.23)

First syllable mid level at 304 Hz. Second syllable rising from this pitch to 376 Hz then falling terminal to low at 232 Hz.

1.3.1.2. Phonetic ambiguity between tones 1T, 5T and 6T

Ambiguity between 1T, 5T and 6T takes place in cases of three-syllable words, with the last syllable unstressed and when 6T has a final abrupt drop. There can be a rising-falling movement common to the three tones:

1T  5T  6T 

They can thus be very similar. Sometimes there is no means of distinguishing between them, except by resorting to non-linguistic

information. But a further difficulty arises, then: there are at least two contexts of use in which both tones 1T and 6T can be employed - the repetition by the child of the salient parts of the interlocutor's previous utterance as well as early responses to questions as will be seen on page 68. In this case, the distribution of tones by function is not helpful either to resolve the question.

A point must be stressed, though. Neutralizations and phonetic ambiguity are very likely to occur in this period of language development, especially when prosodic features are involved. Furthermore, overlapping and neutralization between tones has been said to happen in adult language too (see, for example, O'Connor & Arnold, 1961; Brazil, Coulthard & Johns, 1980; Couper-Kuhlen, 1982).

1.3.1.3. Contexts of use of T's third stage tones (period from 1;7 to 1;10

The contexts of use of T's tones are now given under two headings: 1) falling tones (1T, 2T and 5T); 2) rising tones (3T and 6T).

1. Falling tones (1T, 2T and 5T)

The examples that follow illustrate the uses of tone 2T, which will be treated before tone 1T for ease of exposition.

Looking at pictures of animals.

2T pa´kaku 'monkey' (pointing to one of the pictures)

M. Pacaco... (imitating T.). E aqui?

'Monkey... And here?'

2T ?apa´kaku 'the monkey'

M. E´... Outro, né? 'Yes... another one, isn't it?'

2T ˊotu paˊkaku (piano) - looking at the picture, pensively.
'another monkey'

(1;8.13)

T. has a toy-telephone in front of him. He looks at it and stretches out his hand to press the button that will make the telephone ring.

2T aˊpɛjta 'press' - while stretching out his hand, preparing to
2T ˊpɛjta 'press' perform the action, without establishing anybody as his interlocutor.
1T aˊpɛjta 'press' - asking his sister to press the button for him, or announcing he is about to do it.

(1;8.29)

Tone 2T, typical of neutral or "definite" assertion in adult Brazilian Portuguese, has in this stage the same functions as in the previous one. It is used when T. has no interlocutor established, when he looks at the object he is about to act upon or just to observe. It is a sort of egocentric or solitary speech, in which he uses items acquired in the course of dialogues with others.

In the speech addressed to T., the low fall is mainly related to assertions and confirmations of his requests and demonstrations of actions to him. That can be seen in the example below, where his sister confirms and acknowledges T's request, employing a low fall.

1T koˊɔka 'place'

B. Coloca, assim (without looking at him, and

placing the little animal on the roof of the stable)
'Place, like this' (yes, like this).

(1;8.13)

The examples below illustrate the distribution of tones 1T and 2T.

T. and M. have been playing with a toy-stable, jointly putting little animals into it and taking them out. M. holds up a little pig and shows it to T., who already holds some animals.

M. Porco. Porco. 'Pig. Pig.'

T. looks at the objects, pensively.

2T ′puku 'pig'

M. Porco. 'pig'

Then M. holds on to T. and draws him across the room to find a better position so that the camera can focus on him (this is a VT session). While his mother is not attuned to his attention, T. keeps saying:

1T a′poko 'look pig'

1T ′poko 'pig'

1T ′poko 'pig'

6T a 'look' 1T ′poko 'pig'

(1;7.12)

Tone 1T, as in the previous stage, continues to serve a function that may roughly be characterized as 'emphatic declaration'. It is very frequent in T's speech in this stage as compared with tone 2T, which is considerably reduced in the data. It seems that this child is learning how to establish the difference between emphatic and neutral assertion through intonation, more specifically, through the difference between low fall with a relatively higher or rising head (emphatic assertion) and low fall with a relatively low head (neutral assertion). Or it could be said that the pitch range of the contour for emphatic assertions is wider than that for neutral assertions (as in adult Portuguese).

The first instances of answers to yes/no or wh-questions show a preference for tone 1T. Example:

M. E esse aqui, o que que é? 'And this one, what is it?'

1T ´ato 'cat'

I. Pato 'Duck'

1T ´ato 'cat'

M. E´o gato. 'It is the cat'

I. Gato, isso mesmo. 'Cat, that's it'.

(1;10.15)

Tone 1T is also used to convey the meaning of didactic repetition of the interlocutor's previous utterance, implying a certain articulatory effort. Example:

T. gives a toy-animal to M.

M. Esse é a galinha [galiɲa] 'This one is the hen'.

1T ga´li... (trying to produce the word 'hen')

T. gives another toy-hen to M.

M. Galinha (didacticly)

1T ga´lila (with visible articulatory effort)

(1;10.8)

Both modality and request are conveyed by tone 1T in utterances which originated in the adult's directives addressed to T. From about 1;8, modality and request start to be restricted to 'verb-like' forms, mainly to verbs of movement corresponding to the adult's imperative form. From this period on, when uttered with tone 1T, the name of an object seems to be restricted to 'shared attention on the object'. This means that, by this time, it is possible that T. starts to

process linguistically the difference between first order and second order entities (cf. Lyons, 1977); in other words, between things and events.

There is a peculiarity with the 'imperative' forms of the verbs the child uses. Just as was the case with item [sẽdew] 'switched on' (which is much less frequent now, since he has different interests concerning the variety of the jointly-played games he is exposed to), there is no formal difference between the category of mands (demands and requests) and modality. He will say the same 'imperative' form to ask for an action on his behalf and to mark his own intention of performing an action. Example:

1T ˈpɛga 'take' - looking at M., after pointing to an object which is a short distance away.

M. Pego. Vou pegar. 'I take (it). I'm going to take (it)' (Yes, I will. I will take it).

(1;7.23)

1T ˈpɛga 'take' - looking at the object which slipped down under the chair, and preparing to pick it up.

(1;8.13)

The same neutralization is found in the child's usage of:

koˈɔka	'place'	ˈfɛsa	'shut'
ˈpusa	'pull'	ˈpɛjta/apˈɛjta	'press'
ˈliga	'turn on'	põj	'put'
ˈabi	'open'		

This ambiguity, however, is likely to have been set up by his mother's (or sister's) constant instructions. His mother always waits now for T. to perform his task, hard though it may be, whereas before she demonstrated the actions, segmenting the bigger action into

smaller ones, and accompanying such a segmentation with imperative forms. In the event of any difficulty arising, she gives T. instructions about how to perform the action, instead of doing it herself. The child, then, takes in the signal related to the situation (imperative form) and creates a rule: "the signal heard in that particular situation applies to the performance of smaller actions embedded in a general task". This rule is generalised to the segmentation of parts of his own actions. That means that he uses an expression applied to a second person in the dialogue, but referring to himself (first person). Observe, for example, the following piece of interaction between T., his sister and his mother. In his two utterances, T. is using the adult imperative form (2nd person) to express the action he is going to take. In the last three utterances of the sample below, T's M. and sister are encouraging him, by the use of imperative form.

T. is playing with a car.

M. Traz aqui, traz. Vamos guardar na caixinha? 'Bring it here, will you? Let's put it into the little box'.

T. brings the toy and reaches out for the box.

1T kɔ́ɔka 'place'

M. Coloca. 'place' (imitating T.)

T. places the toy into the box.

M. Colocou! '(You) placed (it)'

T. tries to take the car out of the box

1T ́aβi 'open'

M. Abra! 'Open!'

B. Puxa! 'Pull!'

M. Puxa, Tiago. Põe! Pegue! 'Pull, T. Put! Take!'

(1;8.13)

5T

This tone conveys the generic meaning of admiration and agreeable surprise, mainly in locating favourite toys or pictures in a book. In this sense, it is quite like adult usage. Example:

T. sees the picture of an animal in a book, points to it and shows it to the people around him.

5T pákaku 'monkey'

M. É... 'Yes'

(1;7.29)

2. Rising tones (3T and 6T)

3T

As seen earlier, this tone is typical of enumerations and incomplete statements in adult Brazilian Portuguese. From the beginning of the recorded data, T's mother makes great use of this contour (rising or falling-rising) when addressing T., in typical situations such as the following:

1. Pointing to pictures in a book, either introducing a topic or making an enumeration. Examples:

- o macaco... o urso... o gato... 'Monkey... bear... cat...'

2. Selecting an object, before inviting T. to a joint activity.

- a bola... Vamos brincar com a bola, vamos? 'The ball... let's play with the ball, shall we?'

3. Repeating T's utterances as a form of approval.

1T utka 'music'

M. Música ... Aperta aqui, o'. 'Music...

Press here, look'.

4. In a similar token as in 2., but the child not having said anything, only having shown an interest in something, by pointing or by gaze contact.: "O gato... O gato tem papá, Tiago" ('The cat...

has got food, Tiago')

after T. had shown an interest in the picture of a cat.

5. In most of the cases, in enumeration-games, either in everyday routines or in ritualized and well rehearsed games, like pointing to the parts of T's face and naming them. Also in enumeration of successive actions which T's mother demonstrates to him.

Thus, a major feature underlying this tone in M's speech is 'incompleteness' or 'inconclusiveness'. The listener has always to wait for the completion of an initial expression uttered with this contour. In this sense, the enumeration sequence is a quite typical situation of such an "incompleteness" feature. At the beginning, T. seems to have captured this feature in concrete situations of dialogue and assigned it to a fixed item with no abstraction of the contour (maj's "more") in which the segmental and the supra-segmental components are absolutely inseparable. Later on, he seems to have abstracted the meaning conveyed by the contour itself as he extends it to other items. Examples:

M. Vamos guardar os bichinhos?

'Let's put back the little animals?'

T. takes a toy-animal and puts it into the stable.

3T bi´tʃɪ:w̃ 'little animal'

(1;7.12)

Pointing to the figure of an animal in the book

3T páka:ku 'monkey'

M. O pacaco? Quedele? Olha a mãozinha do "pacaco" aqui; a boca, o olho, a orelha... ('The monkey? (copying the word from T.) Where is he? Look, the monkey's little hand here; the mouth... the eye... the ear...

(1;8.6)

2) 6T

This tone gradually becomes the favourite tone in T's speech. Its uses have different characteristics according to the period of development involved and to the engagement in conversation with his partners. This is what led to the subdivision of the third stage into two periods:

- from 1;7 to 1;10, in which there is complementary distribution between tones 1T, 5T and 6T.

- from 1;10 to 2;0, in which there is a neutralization of the three tones and an overextension of tone 6T to contexts previously taken by the other two contours.

From 1;7 to 1;10, tone 6T is restricted to the following contexts:

1. When looking for an object, searching for it with the eyes - and, as far as action is concerned, reaching out for an object preparing to perform an action. In other words, marking the non-existence of an object or action in his perceptual field, and his intention both to locate an object and to perform the action.

6T pi ˊpiw 'birdie' - looking around for the toy-woodpecker

6T ˊpoko 'pig' - putting the toy-pig on the roof of the toy-stable to make it slide down and fall on the floor.

(Both the above instances refer to around age 1;8).

2. Checking the names of objects in a way that suggests he is beginning to acquire confirmation questions. Since, however, there are only a few isolated instances, this hypothesis cannot be generalized for the period concerned (i.e. 1;7 to 1;10).

M. Os bonequinhos, vamos pegar? 'The little dolls, let's take them?'

6T baŋli ˊi (pointing to the objects which his mother labelled as 'little dolls' and which are actually little cylinders with a sphere on the top. T. refers to this sphere).

M. Heim?

6T abali ˊi 'little ball'

M. Que boli... A bolinha? [bɔˊliɲa]. Eˊ.

'Which little b... The little ball? Yes.

(1;8.13)

3. 'Infinitive-like' forms serving the functions of both mands (requests for action on the child's own behalf) and modality (announcement of the child's own actions).

Here are some examples of infinitive-like forms in T's speech.

adult Braz. Port.		Child's forms	Translation
abrir	[ábri]	aˊbi	'open'
subir	[suˊbi]	uˊbi/suˊbi	'climb' or 'go up'
fechar	[feˊʃa]	fɪˊsa	'shut'
descer	[deˊse]	deˊse	'go down'
pegar	[peˊga]	pəˊga	'take'

4. Repetition of the topic introduced by his interlocutor. Compare the examples below. In the first piece of dialogue, his mother calls T's attention to the various toys available for both of them to play with together. He always repeats the last item of his mother's utterance.

M. E o gato? Gato, gato. Onde e que ta o gato? Ta aqui! Certo? E o brinquedo? [brĩɲ'kedu]

'And the cat? Cat, cat. Where is the cat? It's here, OK? And the toy?

6T bə'ka:to 'toy?'

M. Vamos abrir. O au-au Outro au-au . Vê o que ele tem aqui, o au-au. 'Let's open. A bow-wow! Another bow-wow! See what he has here, the bow-wow!'

6T wa'waw 'bow-wow?'

M. O au-au. Tem uma bolinha, tem o pipiu e tem o bibi... '(Yes), the bow-wow. There is a little ball, there is the birdie and there is the car'.

6T bi'bi 'car?'

M. E, o bibi. 'Yes, the car'.

(1;9.24)

When it is T. who introduces the topic, he normally makes use of one of the emphatic contours - tones 1T or 5T, or alternatively by means of the vocative [mõj] 'mother' plus an utterance with tone 1T:

I. E'a Cecília que quer ver a borboleta. Cadê? 'It's Cecilia who wants to see the butterfly. Where is it?'

M. Mostra a borboleta pra Cecília. 'Show Cecília the butterfly'.

But T. prefers to focus on something else and to point to a picture of a bottle of milk.

5T u´suku 'Oh, juice!'

M. O suco! 'Juice!'

4T ´mõne: 'mother'

M. Heim?

1T ´suku 'juice'

(1;9.24)

So, the interaction between T. and his mother has the following characteristics, as far as topic introduction and the incorporation of tones 1T and 6T are concerned:

T. introduces topic ⌒ Mother responds ⌣

M. introduces topic (any emphatic or inconclusive tone) T. responds ⌣

1.3.2. Period from 1;10 to 2;0. Reduction of tones - over-extension of tone 6T

From approximately 1;10, the use of tone 6T begins to extend to other contexts including those of the two 'emphatic' tones 1T and 5T, and its occurrence expands to new dialogue situations. In fact, there seems to be a gradual neutralization of the previous 'emphatic' tones in favour of an over-extension of the rising tone. The phonetic ambiguity among the three contours when uttered with final unstressed syllable sequences seems to be productive from the point of view of the child's speech.

1.3.2.1. Phonetic characteristics of the over-extended tone 6T

The phonetic realization of tone 6T from 1;10 takes the following configurations:

One syllable utterances. A single long syllable, rising pitch mid to high or rising pitch with an abrupt less audible falling contour at the end of the utterance. Example:

pɛ or pɛ 'foot'

Two-syllable utterances. In general, T. tends to avoid using one-syllable utterances. He tends to precede what would be a monosyllabic utterance by the vowels [u] or [a], corresponding, in the input to his speech, to the adult Portuguese definite articles o and a, which precede nouns or adjectives in noun phrases, or to the copula é [ɛ] 'is'. The fact that T. can produce the definite articles in some sequences does not mean, however, that they have the same function as in adult Brazilian Portuguese. The presence of an article seems to be the result of the incorporation of salient parts from his interlocutors' utterances, being thus processed as an unanalysed chunk and part of the 'word'. The same happens with copula + noun. Examples:

I. shows a toy-train to T. and says: 'It's the train.

Piui [piu'i] (onomatopaeic sound of the train whistling).

T. responds:

6T u'mi 'The-mi?' (or something like 'the piui')

M. Hm?

6T u'mi (id.) 'the-mi?'

(1;11.7)

6T ɛ′piw 'is-(it)-bird?'

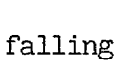
(1;7.3)

6T u′pɛ 'the-foot?'

(1;7.3)

The examples above thus show that T. processes such particles as part of the word itself. As a result, he makes disyllabic an utterance which in the speech addressed to him is originally monosyllabic. For the purpose of the present analysis, therefore, they are treated as two-syllable utterances. In this case, the first syllable is usually mid or mid-low, the second syllable high level or rising-to-high. Usually there can be a short but sharp falling movement in the terminal movement of the contour, as in:

te′sew 'happened'



(T34 1;11.14)

First syllable mid level at 375 Hz. Nuclear movement rising to high (522 Hz) then falling to near-low (312 Hz).

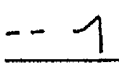
Three-syllable utterances. The same configuration as with two-syllable utterances with two possibilities related to the last syllable:

(i) if it is stressed, it can either sustain the rising (or level high) movement up to the end of the utterance or suffer a short sharp fall to frequencies below 300 Hz.

(ii) if unstressed, it is usually uttered on a low pitch after the highest peak of the contour. This weak syllable can frequently be uttered in whispered or creaky voice.

Below are some illustrations based on instrumental evidence.

upa′ʔaw 'the woodpecker'



(T10 1;11.2)

First two pre-nuclear syllables mid level (340 Hz); nuclear movement rising to high (426 Hz) then falling to low (299 Hz).

abi´i: 'open'

(T34 1;11.02)

First syllable mid level at 340 Hz. Nuclear movement starting in the second syllable and extending to the last, with fundamental frequency rising from 409 Hz to 431 Hz. Then a sharp fall to 295 Hz.

ʔiʔa´pɔ: 'slipped away'

(T9 1;11.02)

The pre-nuclear syllables are level; the second being slightly higher than the first: 376 Hz and 390 Hz respectively. The nuclear movement is a rising one, reaching the peak at 548 Hz and sustaining it up to the end of the utterance.

T. generally avoids four-syllable utterances tending to reduce them to three-syllables. There are a few instances of four-syllable utterances, though, all of them stressed in the third syllable. Example:

ʔaʔa´ʔia 'bird'

(T11 1;11.18)

First two pre-nuclear mid level, the same pitch for both syllables (348 Hz). Nuclear movement: rising from 454 Hz to 513 Hz then falling to 333 Hz.

6T coincides with the adult intonation typical of yes/no questions, invitation, polite requests and confirmation questions (both wh- and polar ones). In Brazilian Portuguese this contour is

actualized with a facultative abrupt falling pitch in the last unstressed syllables of the tone unit or in the nuclear syllable itself (cf. Aubert, 1978). The following example is taken from the data of the speech of T's mother.

Cê viu o pipiu lá na praia também

'Did you see the bird in the beach too?'

Cê gosta deste brinquedo? 'Do you like this toy?'

The incorporation by T. of this questioning contour with a facultative abrupt final drop seems to be a sort of fine discrimination of the prosodic elements addressed to him. Or, alternatively, from some prosodic elements in his input, he selects certain features and adapts them to the prosodic system he already has.

This overgeneralized contour is interpreted by T's interlocutors as confirmation or information questions, whether it is actualized with a rising or a falling terminal. So functionally both variations belong to the same category, though phonetically they may have different realizations. This is why they are considered as belonging to the same tone in the analysis presented here.

1.3.2.2. Contexts of use of tone 6T (1;10 to 2;0)

From 1;10 onwards, the following are the contexts of use of tone 6T:

1. Repetition (immediate specularity) of what the interlocutor said in conversation with the child in the immediately preceding turn, either of a familiar or an unfamiliar word. If the word is unfamiliar,

T. will utter it only in that specific situation and it is likely that it will not be productive until many months (or even years) later. And, even when the word is familiar to him, it is likely to be produced only in repetitions of items of the immediately preceding turn.

The piece of dialogue below illustrates a sequence of T's specular interaction, in which his mother expects T. to give some kind of information to a third person present in the conversation.

M. Conta pra Cecília, que bicho que tem na escola [is'kɔla], conta. 'Tell Cecília which animal there is in the school, will you?'

6T i'kɔla 'School?'

M. Heim?

6T i'kɔla 'School?'

M. Na escola. Conta que tem galinha... [ga'liɲa] '(Yes), in the school. Tell (her) that there is a hen...)

6T aa'liɲa 'Hen?'

M. Que mais? Qual é o outro bicho [biʃo] que tem lá? 'What else? What other animal is there?'

6T 'biso 'animal?'

M. Qual é o bicho? 'What animal?'

4T mɐ̃j 6T 'biso 'mother, animal?'

M. Coelho! Conta pra Cecília, Tem coelho! 'Rabbit! Tell Cecília. There is (a) rabbit!'

I. Que lindo! Tem coelho? [ko'eʎu] 'How nice! Is there (a) rabbit?'

4T mɐ̃j 6T kɔ'lɛlo 'rabbit?'
'mother'

(1;11.14)

According to its 'felicity conditions' (for definition of 'felicity conditions', see Austin, 1962; Lyons, 1977), the question is basically a search for information or, at least, for confirmation. The addressee has to answer it, otherwise he will make the dialogue unsuccessful. One would expect, therefore, that a dialogue like the one above would result in failure, since the interlocutor only 'answers' by means of the repetition of some prominent item (no matter what kind of prominence it involves) of the same content-word as contained in the question. Nevertheless, the above dialogue is not unsuccessful for the purposes of mother-child interaction, for the child's responses work out as indications for the mother that the child follows her directions in conversation. Not everything that is semantically 'empty' is meaningless in this stage of language development. It indicates that T. is mastering another function of the rises (see page 224 for further discussion).

2. Repetition of a prominent item of the interlocutor's utterance in the immediately previous turn in talk not addressed to the child:

I. (describing the context) Trocou de lugar, pegou, trocou de lugar o amarelo... [ama'rɛlu] 'He changed the place, took (it), changed the yellow one's place...'

6T ma'lɛlo 'yellow?' (interrupting his action for a while and looking at I.)

I. E', amarelo. 'Yes, yellow'.

(1;10.8)

3. Introducing a topic (for example, when showing somebody an object) or the other way round, when repeating the topic introduced by his interlocutors. Example:

T. takes a toy pig and holds it out to M.

4T mõ'ne 6T pu'kiɲo 'mother, little pig?'

M. O porquinho? E', deixa eu ver. E', porcão. O porquinho. 'The little pig?' Yes, let me see. Yes, big pig. The little pig'.

(1;10.22)

M. Como e' que o carneirinho faz? Mé! Mé! Fala, Tiago, fala. 'What does the little sheep do. Ma! Ma! Say (it), Tiago say (it).'

f. mɛ'ma'
<

M. Isto! 'Well done'.

6T a'βɛ 'the-ma?'

M. Heim?

6T ə'mɛ 'the-ma?'

M. Aqui no livro tem me', quer ver? Oi o me' aqui no livro. 'Here in the book there is "ma", (do you) want to see (it)? See the "ma" here in the book.

(1;10.15)

What T. seems to have learnt is to assume now the role of his mother. This is seen in his use of the question-like rising tone when presenting a topic for which he would previously have used tone 1T. The role that his mother has played so far can be illustrated in the typical situation:

T.	M.
- takes an object	says the name of the object on a
- looks at an object	rising or on a falling (emphatic) tone
- produces an intention-oriented	± says an utterance on a rising tone
vocal signal (babble or protoword)	(confirmation question)

Now, T. starts to proceed to a reversal of dialogue roles. By using a question-like rising contour utterance in the situation that was previously restricted to his interlocutor, he seems to be presupposing a turn (or a gesture) by his mother, and then makes a confirmation question based on such a presupposition.

4. Looking for an object. This usage seems to precede locative wh-questions ('Where is x?'), which were from the beginning until now the commonest questions addressed to him by his mother, not seeking for information (since she knows the answer), but expecting T. to fill the slot. Example:

T. looks for a toy.

6T bíkedo 'toy?'

M. O brinquedo. Vamos procurar o brinquedo.

'The toy. Let's look for the toy'.

(1;10)

5. Commenting upon the completive phase of an action or event whether performed by himself or by others. Example:

After having taken a small cube out of a bigger one.

6T ti'lo 'took off?'

I. Tirou! Tirou, sim! 'Took off! Yes, took off'

(1;10.15)

6. Request. In colloquial Brazilian Portuguese, polite requests may be expressed by imperative sentences with rising or falling-rising intonation. The question-like intonation supplies the politeness or gentleness of the request perhaps more successfully than its lexicalization through some element like 'please'. Now, as far as T's requests are concerned, it is ambiguous whether it was the 'politeness' feature of the rising tone that was acquired or if it

deals with an emphatic imperative, or else if it is an overextended use of confirmation questions. Example:

T. gives an object to the interviewer.

6T põj 'put'

I. Ponho. 'I put' (Yes, I will)'.

(1;10.15)

7. Answer to wh-questions, in routine and ritualized situations. This is the typical case of role-complementarity, (see Chapter 5), which starts in the previous stage (± 1;6). Now, T. starts gradually to reply to a wider variety of questions, but not - as would be expected, for it is so in the adult input - with a falling neutral assertion-type intonation. He answers to the questions with rising, question-type intonation, which maintains the 'question-chain' and brings back the question to the interlocutor. Thus, he opens the possibility of a new conversational turn to be filled, by means of a contour interpretable as question-like intonation. For more details about the discursive implications of T's rises, see pp. 222 ff, Chapter 5.

The piece of dialogue which follows illustrates a sequence of question-answer between M. and T., when they have been looking at a picture book.

M. Que que o gatinho tá fazendo? 'What is the kitten doing?'

6T o´lete 'the milk'

M. É... Ta tomando leite. E aqui? 'Yes ... (He) is having (some) milk. And here?'

6T mi´aw 'cat' (baby-talk)

M. Miau! Tá lavando a patinha, né, com a língua. 'Miau (baby-talk for 'cat'). (He) is washing his little paws, isn't he, with his tongue'.

(1;11.15)

It should be noted that T. starts to supply the answers where his mother supplied them before. Moreover, his mother confirms what he says, and provides more relevant information about the same topic.

1.3.2.3. Prosodic strategy for the production of Tone 6T

Gradually, as the rising contour becomes more and more frequent and overextended, one strategy at the level of the segment starts to compete with the preference for tone 6T. We shall call it 'prosodic strategy', because, although it is manifested through segmental features, it deals with the whole configuration of the word - both with segmental and supra-segmental components. It is the production of a glottal stop (which is non-phonemic in Portuguese) in the pre-nuclear part of the utterance, or just before the nuclear syllable. Examples:

pa´so ~ pas´ʔ o	passou	[pa´so]	'passed'
kas´ʔoxo	cachorro	[ka´ʃoxo]	'dog'
ka´po∿ʔap´ʔo ∿ ʔa´po	escapou	[iska´po]	'slipped away'
í´vəba∿tis´ʔaba ∿ is´ʤɔ va∿	ʔis´tɔva	[Cris´tɔvão]	'Christopher'
fi´sa fis´ʔa fechar	[fe´ʃa]	fechar	'shut'
pay´ʔĩyo∿ɔy´ʔĩnɔ ∿ ʔaʔa´ʔĩw̃ ∿ ʔa´lipo∿pasá´lĩw̃		passarinho	
		[pasa´rĩpo]	'bird'

The glottal stop is produced only with tone 6T. It precedes the tonic syllable, that, as we saw, is strongly prominent. However, the utterances with [ʔ] do not always have the same configuration. In other words, the [ʔ] varies with a series of other consonants and vowels that may occupy the same point in the word, which leads to the conclusion that it is not a stand-by device for further consonants, but rather a prosodic device that supports the prominent syllable with rising contour.

6T is now T's preferred contour. In the session corresponding to age 1;10.15, for example, from a total of 79 utterances, 5 are produced with tone 4T (6.3%), 4 with 3T (5.06%); 3 with tones 1T or 2T (3.6%) and 67 with tone 6T (84.8%). About one month later, in the sessions corresponding to ages 1;11.7 and 1;11.14, apart from the vocatives (4T), 100% of the utterances are produced with tone 6T. This situation goes on for about two months, until the child is approximately 2;0.

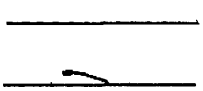
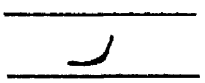
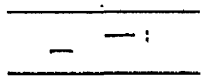
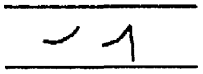
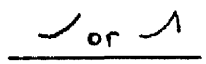
T., thus, proceeds to follow a strategy of reduction of the system of tones, along with an overgeneralization of tone 6T. It is likely that for two months, the tones 1T, 2T, 3T and 5T are part of his competence, although he temporarily abandons the falling tones in favour of a rising tone. In other words, a hypothesis could be put forward: that he 'knows' but does not 'produce' the falling tones, either because he wants to avoid the falls, or because he has a preference for the rising tone.

On the other hand, it could be argued that the temporary reduction of tones in this child's speech is just apparent and is caused by methodological constraints relating to the collection of the data. The fact that T. does not use the tones 1T, 2T, 3T and 5T in the AT and VT sessions from 1;10.20 to 2;0 does not imply that he does not produce them in other situations of everyday speech. He might both 'know' and 'produce' the falling tones, but this is hidden by limitations involving the recording of the data. Nevertheless, the fact that in those sessions the totality of the utterances, except for the vocative, is produced with tone 6T provides reliability to the hypothesis that there is a reduction of tones in this child's intonation system in the period that precedes the

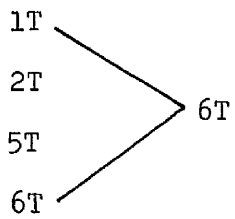
multi-word stage at least in the kind of situations recorded. The frequency displayed by tone 6T during almost 2 months is at least representative of this child's temporary tendency towards the use of the rising tones.

T's intonational system from 1;7 to 2;0 is shown in Table 2.

Period from 1;7 to 1;10

Tone	Graphic representation	Phonetic characteristics
1T		High to low or rising-falling contour. Wide pitch range between the highest and the lowest level.
2T		Low-onset falling contour. Narrow range between the highest and the lowest pitch.
3T		Rising upward glide generally mid to high, long vowel.
4T		Different degrees of level syllables (either s
5T		Two rising movements followed by a low terminal.
6T		Rising movement from relatively mid to relatively high. Abrupt fall likely to occur at the end.

Period from 1;10 to 2;0: Reduction of tones



3T is not used for some time

4T continues until the end of the period

TABLE 2: T's intonational system: Third stage.

NOTES OF CHAPTER 1

1. Data from a language acquisition project in progress in The State University of Campinas, Brazil.

CHAPTER 2

DEVELOPMENT OF R'S INTONATIONAL SYSTEM

Introduction

Paralinguistic features were taken into account in the transcription of the data, because they are used meaningfully by this subject from the start of the period studied, in conjunction with the initial intonational systems. Voice quality was the paralinguistic parameter considered, with the features 'begging voice' and 'whisper'.

In addition to pitch-direction and pitch-range, the prosodic parameters taken into account were:

1. Loudness, namely what Crystal (1969) call 'polysyllabic contrast', with five categories, 4 marked and one unmarked: 'fortissimo' (ff.), 'forte' (f.), 'piano' (p.) and 'pianissimo' (pp.). Crystal's meaning for those terms is taken as given, namely a change to a louder or softer level of the utterance.
2. Quantity or vowel duration, transcribed with the symbol [:] signalling vowel length.

R's intonational development will be considered in two stages: first stage from age 1;2 to 1;5 (one-word utterances) and second stage from age 1;5 to 1;8 (beginnings of multi-word utterances).

2.1. R's intonational development from 1;2 to 1;5

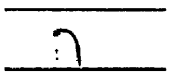
Around 1;2, R. already has a well-established prosodic system used meaningfully. It is a primitive set of 8 tones, namely, 4 falling tones (1R, 2R, 3R and 4R), 2 level tones (5R and 6R) and 2 rising

tones (7R and 8R). There is also evidence of the beginnings of a high fall, which will be discussed on pp.125 ff. of this thesis.

Their phonetic characteristics are given below, together with typical examples with pitch measurements calculated from spectrograms.

2.1.1. Falling tones (1R, 2R, 3R and 4R)

Tone 1R



Fall from relatively high to relatively low, nuclear syllable long, generally increased loudness. Example:

ála: 'here it is'

(R5 1;3.19)

A continuous falling movement from the onset at 645 Hz ('high') to terminal pitch at 346 Hz. The first and the second syllable have the same pitch.

There can be a short rising movement at the onset, as can be seen in the next example.

a: (vocalization)

(R4 1;3.19)

Onset: a rising movement from 521 to 650 Hz, then continuous glide downwards to 280 Hz ('low').

Tone 2R

Low drop, usually from mid-low to low. The pitch-range from the onset to the terminal point tends to be small, though there may be the possibility of a slightly rising or high head. The examples which follow show both possibilities.

kala 'face'

(R28 1;6.22)

Low drop from 219 Hz to 175 Hz (≠ 44 Hz)

nə́na 'sleep'

(R6 1;3.19)

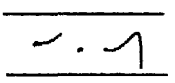
Narrow drop in the mid-pitch frequencies of this child's pitch range: from 450 to 377 Hz. Notice, though, that the difference in pitch range is just about 73 Hz.

bá̀ba 'drink'

(R1 1;3.19)

Slightly rising onset from 478 Hz to 500 Hz, ('mid-high'), then falling nuclear movement from 456 Hz to 284 Hz.

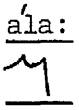
Since all three pitch contours have similar functions, they are classified as belonging to the same tone.

Tone 3R 

A complex contour, formed by two rising-falling movements, or the first rising and the second rising-falling. The terminal tendency of the contour is a long gliding movement from top to bottom. The last syllable or the last two syllables are lengthened. There is generally increased loudness throughout the utterance.

Tone 3R always spreads over two-, three- or four-syllable utterances, for the child does not use it with monosyllables but tends to make the utterance longer, by means of the repetition of syllables or by adding a before the noun-like form to which it is assigned. Example:

á̰la: 'There it is!' or 'look!'

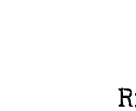


(3R 1;3.19)

Rising from 650 to 737 Hz, then a rising-falling movement from 607 Hz to 693 Hz to 370 Hz.

By 1;6.22, this tone still has the same configuration, as can be seen from the example below:

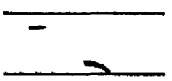
akɔ́kɔ: 'look hen'



(R31 1;6.22)

Fall from 354 Hz to 250 Hz. Then a rising-falling movement from 522 Hz to the peak at 656 Hz to the bottom at 181 Hz.

Tone 4R

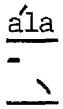


Basically, a switch from high to low or from slightly rising in the high-range of the pitch spectrum and slightly falling in the low-range.

ɪ́de 'where?'

(R15 1;5.4)

á̰la 'there (it is)'



R15 1;4.24)

The pitch switch in [ɪ́de] 'where' is from 541 to 375 Hz (≠ 166 Hz) and from 613 Hz to 295 Hz in the second of the above examples (≠ 318 Hz).

2.1.2. Level tones (5R and 6R)

Tone 5R

Level terminal (relatively mid), the pre-nuclear pitch direction being either slightly rising or level, higher than the nucleus. The nuclear syllable is generally long. The same two-step level movement, or at least part of it (a mid-high level pitch combined with a long syllable) also occurs in single syllable utterances. Generally, a 'begging' quality of the voice. Examples:

ate 'a(?) want'

(R9 1;3.19)

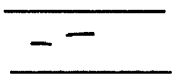
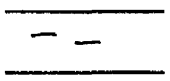
Slight rise in the onset from 403 Hz to 491 Hz. Very short drop from 491 Hz to 447 Hz. This is sustained until the end of the utterance (level terminal).

ɔt 'other (?)'

(R8 1;3.19)

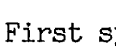
Onset at 517 Hz. Level terminal at 465 Hz (longer than the onset).

The difference in pitch between the highest and the lowest parts is not great. Possible variations of this tone are (– –) or (– ¯). In fact, this tone gives the auditory impression of a monotonous plaintive whining and it appears to be a development from moaning vocalizations to words. However, it continues to be used until the end of the period covered by this study.

Tone 6R  or 

This is the vocative tone, whose phonic configuration is quite similar to T's tone 4T: two degrees of level pitch, the first one either of lower or higher pitch than the second. If the second level pitch is higher than the first, there is a tendency to an abrupt terminal fall. The example below illustrates this:

kɔ́kɔ: 'chicken!'



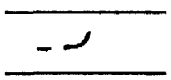
(R33 1;5.4)

First syllable: level pitch at 583 Hz.

Second syllable: level for some milliseconds at 687 Hz then a slight rise to 708 Hz before a fall to 375 Hz.

2.1.3. Rising tones (7R and 8R)

From the beginning of the period studied, R's speech already displays the distinction between Rise and Fall. Crystal (1979) and Menn (1976) have claimed that this is a very common intonational distinction in early language. This child produces two different rising contours, one mid-to-high (mid onset) and one low-to-mid or high (low onset), which are labelled as 7R and 8R respectively.

7R 

Rising mid to high, either gliding or stepping up. Some examples are given below:

ʔɜ̃ɾ̃ '?' (vocalization)

(R12 1;3.6)

Rising glide from 456 to 521 Hz. The terminal is a sustained high level pitch.

ˈala 'there it is?'

(R13 1;3.19)

Two levels of pitch: 324 Hz and 412 Hz.

ˈpɔtʃi 'can I?'

(R32 around 1;6)

Continuous rise from 386 Hz to 586 Hz.

8R

Wide-range upward glide on the nuclear syllable, which is lengthened. Last unstressed syllables high.

tðe: (?) (used as an offering formula)

(R11 1;3.19)

Continuous rising movement from quite a low pitch: 262 Hz to a very high one: 704 Hz.

pøe: 'put'

(R14 1;3.19)

Continuous glide from 318 Hz to 593 Hz.

dðˈda:bu '?'

(R16 1;5.4)

Onset at 354 Hz; nuclear movement from there sliding up to 416 Hz; terminal pitch on the last unstressed syllable at 458 Hz.

Table 3 below represents the initial intonational system in R's speech from 1;2 to 1;5.

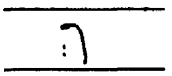
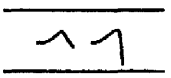
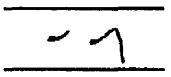
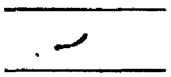
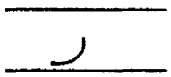
Tone	Graphic representation	Phonetic characteristics
1R		Falling gliding movement: mid-high or high to low. Last stressed syllable long. Increased loudness.
2R		Falling movement: mid or mid-low to low. Usually 'piano'.
3R	 or 	Two rising-falling movements or the first rising and the second rising-falling. Terminal tendency: a long gliding movement from mid-high to low. Last or two last syllables are lengthened.
4R		Two level pitches: the first high, the second low. Abrupt switch from high to low.
5R		Two level pitches: high switching to mid-high. Last syllable stressed and long. "Begging" quality of voice.
6R		Two degrees of level pitch: step down from high to mid level. Sometimes (– – ˈ) or (– ¬).
7R		Rise mid-low or mid to high, either gliding or stepping movement.
8R		Continuous gliding movement from low to mid (or high) on the last stressed syllable. Low long rise.

TABLE 3. R's Initial Intonational System (1;2 to 1;5).

2.1.4. Contexts of use of R's early intonation system

Tone 1R

This is primarily a completion marker, always uttered in the final phase of an event whether performed by the child or by others. It signals both an apparently intentional and goal-oriented action (i.e. an accomplishment) of the child or her interlocutor, and the change of place or state observed by the child or the mother, with no intentional or goal-oriented participation by any of the partners (i.e. an achievement). Sometimes it signals the progressive phase of a goal-oriented action, as an anticipation of its ending point. In this case, what seems to be retained is the ultimate goal of an intentional action. Example:

1R bə: 'ball' - uttered either while the child is throwing the ball or having just completed the action. (1;2.21)

"Hide-and-seek" games provide a series of data concerning the signalling of several phases of the same event, which are, in this case, the action scheme hide/look for/find the object. This type of format is set up by the adult interlocutor in an early period of the child's vocalization, while she is still babbling: the adult gets out of the child's immediate perceptual field then shows up again, uttering a sound sequence characteristic of accomplishment. Soon the child, from being patient, starts to act as agent of the game. Bruner (1975) has explored this phenomenon and has pointed out the pre-requisites of shared action and attention for linguistic communication. Bruner also observes that, in these formats, the phase of the action which is the first to be marked both by the adult and by the child is the completive one.

In the mother's speech addressed to R., this tone is mainly used to signal the completive phase of events, whether they are accomplishments or achievements. It originates during the non-verbal pre-linguistic period, in ritualized games and communicative formats, of the type described by Bruner, in which the mother and this child take part, such as build-and-bash and peekaboo. In those games, the mother (or other possible adult partner) always marks the end of the action with this tone which is later incorporated by the child. It must be noted that this contour is a sort of baby-talk feature in Brazilian Portuguese (at least in the dialect to which this child is exposed). When adult-directed, it sounds childish, ironic or joking.

As well as marking the ending phase of events, tone 1R also signals location of objects and persons in the perceptual field of the child. There is no formal distinction, in R's data, between spatial location of objects and completion of actions and achievements, for the prosodic configuration and the proto-words involved are identical in the instances of both categories. Observe, for example, the two tokens of the utterance [1R a:] below, both of them recorded in the same session.

R. is looking at the tape-recorder, searching for something:

4R ade 'where?'

M. Cadê o que? 'Where's what?'

1R a: -pointing to a red knob in the tape-recorder

M. Achou o botãozinho vermelho! 'You found the little red knob!'

(1;3.9)

8R a: - trying to open the tape box

1R a: - succeeding in opening the tape box.

(1;3.9)

Thus, both localization of objects (which implies ± searching + finding) and accomplishments/achievements seem to be part of the same category in this stage of development.

Tone 2R

This tone seems to be used in dialogue contexts which do not necessarily trigger any complementation or any verbal response by the interlocutor. Except for offering/retrieving contexts, the child hardly ever establishes any eye-contact with the interlocutor, and almost always has her attention turned to objects or to solitary play when using this tone. In this sense, R. seems to make the same use of non-joint-attention as T. does with the mid-low to low contour (labelled as 1T), which, as has been seen, is typical of neutral assertion in adult Portuguese. The asserting character of tone 2R can be noticed in its contexts of use in R's speech in this stage.

1. Request or proto-imperative forms (demands), which fulfil a 'regulatory' function (cf. Halliday, 1975). At the beginning, the requests or demands are restricted to the items ta (offering formula, translatable as 'here you are') and da (requesting formula, equivalent to adult 'give'), which are both frequently applied to the same set of contexts, with no meaning difference between them. They originate in give-and-take routines between the child and the adult, set up in earlier periods. One would expect that the child would in time learn how to use those forms out of their originally rigid contexts and extend them to other proto-imperative forms.

But R. sets a particular strategy for the distinction between demands (restricted to da and ta) and requests, by means of differences in intonation (see tone 5R, page 105).

2. Preparatory phase of the action that the child herself is about to perform. Examples:

2R pa pa 'woodpecker' - reaching out for the toy-woodpecker, before starting to play with it (1;3.19)

2R pu a 'push' - walking towards the drawer which she is about to open (1;4.12)

This use emerges a little later than the demanding one. It is a sort of proto-modality that can be paraphrased as "I am going to do x", somewhat like the personal function noted by Halliday (1975).

3. Primitive forms of statements, such as negation (which is in fact a negative statement), greeting formulae and the first occurrences of answers to yes/no questions. R's primitive negation ([nõ] 'no' or 'don't') has a discursive and pragmatic character: it is a refusal to join in or to continue with a game or to share the topic that her interlocutor has established. Compared to the pragmatic function of negation, the acquisition of both the negative option to polar yes/no questions and the grammatical or syntactic function of negatives are a rather later acquisition. The first occurrences of answers to yes/no questions appear at about R's 16th month of life and will be discussed in Chapter 5 of this thesis (segmental specularity and suprasegmental complementarity).

Tone 3R

Tone 3R seems to be a gestaltic discrimination of a part of the adult's discourse addressed to this child. It seems that

R. has captured the tone which spreads over a long utterance in the adult speech and resorts to devices (for instance, repetitions of syllables) aimed to fit the word she is capable of producing into the contour she is now acquiring. Here are some examples of this contour in M's utterances addressed to R. Both the examples are taken from the session corresponding to age 1;2.21.

3R abə: 'The ball' (pointing to the ball)

M. A bola, onde é que tá!

a bɔ:la // ðdi´ɛ kíta:

'Look, where the ball is!' (Literally: 'the ball, where it is!')

R. shows M. the picture of an animal

M. Ah, que bonitinho! 'Oh, how cute!'

´a: ki buníti:ɲu:

In the adult's utterance addressed to R., the double rising-falling movement (∼∧) spreads over a multisyllable word. The child is not yet capable of producing a long utterance, but she has clearly incorporated the pitch-direction of this contour and uses it in two-, three- and four-syllable single-word utterances.

In adult speech, this tone is typical of exaggerated intonation for exclamation and agreeable surprise. In the speech of R's mother, it is used mainly as a device to call the child's attention to a shared topic or to distract the child's attention from one topic to another. R. seems to have grasped the function of this tone as a mixture of agreeable surprise and attention-drawing device, for she resorts to it to signal localization of familiar objects in her perceptual field and as an invitation for shared attention.

Tone 4R

Recorded as from age 1;3.6, it is restricted, in the beginning, to the utterances [ála] from the familiar contracted adult form [a'la] or [ɔ'la] 'here it is' (literally "look there"), and áde ("where is?"). Gradually this contour extends to a + noun-like forms to convey a deictic function of ostention.

This tone, in adult speech, is an emphatic variant of the asserting intonation with high onset and nuclear prominence given to the first stressed syllable, which coincides, in most of the cases, with the item [a] 'look'. The child's utterances with this contour start always with high onset (level or slightly rising) on a, the other syllables being low level or falling. Examples:

ála 'there it is' - pointing to a person who has just entered the room where the VT session takes place.

anéne 'there is baby' - showing mother the doll.

(1;3.6)

This tone is also used with the form ade, from the informal and contracted adult form cadê [ka´de] 'where is it?'. In hide-and-seek games and searching routines, the formula cadê x? has as the normal answer the form ála 'there it is'. Thus áde 'where is...' is the first occurrence of wh-question in R's speech, but closely linked with interactional routines and hide-and-seek formats. Gradually the child extends this stereotyped formula out of the rigid format of the games to wider contexts involving questions about location of objects and persons i.e. to routines of non-predictable ending points. Example:

From a question like [4R ade], uttered by herself or Cadê a Lela? 'Where's Lela?', uttered by her mother, R. extends to [4R læla] 'where's Lela?', after her sister had left the room (around 1;4.20). An interesting aspect of this tone noted through instrumental analysis is that the pitch-range of this tone when applied to ostention or attention-drawing devices is wider than when relating to location-devices. The addressee-oriented utterance has a wider pitch-range than solitary speech.

Tone 5R

This is a request tone. R., from this stage, establishes the difference between request for help and signalling the preparatory phase of her own action through differences in intonation. The former category is expressed by tone 5R; the latter by tone 2R. Differences are also established in the system of mands: demand is tone 2R; request, tone 5R. Consider, for example, the following extract of a dialogue between M. and R.:

2R bə 'open' (trying to 'open' the microphone, pulling its
2R abə lid-like top)

M. Cê quer que eu abra o microfone? 'Do you want me to open the microphone?'

M. takes the microphone and pretends to open it.

(whisper) abə (while M. holds the microphone)
abə

M. Aonde? 'Where?'

5R abə : 'open' (asking insistently, in increasingly pleading
5R abə: 'open' and anxious voice)
5R abə: 'open'

R's request ends in bitter crying, while M. tries to explain that it is impossible to open the microphone.

(1;3.19)

There is a gradation that ranges from request to pleading, expressed linguistically by the repetition of the utterance with accelerated rhythm added to a pleading quality of voice. This gradation involves, obviously, the consideration of some behavioural features, such as the child's mood and emotional state, the sort of social relationship established with the partner (such as to whom the child is entitled to address his/her request, etc.), which are beyond the scope of the present work. Anyway, it can be presumed that such behavioural features can possibly explain, for example, the fact that tone 5R, from ¯ — changes to ¯¯ and to — ¯ , depending on the degree of anxiety and urgency of the child's request.

Tone 6R

In R's speech, there is a peculiarity concerning the use of vocatives. They are both person-directed (and here I include animals) and object-directed, as though R. was personifying things. There is a point in the session at age 1;4, at which she was looking for the glue (Portuguese [ˈkɔla]).

4R ákoa 'Where is glue?' (bending down to look for the glue bottle under the bed)

M. A cola ali embaixo da cama. '(Look) the glue there under the bed'.

6R ˈkoa: 'Glue!' (Calling)

6R ˈkoa: 'Glue!'

6R ˈkoa: 'Glue!'

M. Cola 'Glue!' (imitating R.)

(1;4.12)

Tone 7R

In this stage, there are only two recorded types of tone 7R, illustrated in the tokens below.

1. Proto yes/no confirmation questions.

7R nene 'Baby' - looking at the doll, after having picked it up from the floor. No eye-contact with the interlocutors.

- showing the picture of a child to the persons around her
- offering a doll to M.

(1;2.21)

2. Proto wh-questions for localization of persons and objects. There is just one token of this type of function in the period considered.

4R ala 'there it is'

M. Ala aonde?' '"There it is" where?'

7R ala 'There it is?'

M. Cadê? 'Where is it?'

1R ala: 'There it is'

M. Achou! '(You) found it!'

(1;4.19)

One would expect that this child would use ade, which is the wh-question model for a 'searching' situation. What she did, however, was to take the answer-counterpart of the pair cadê - alá (where is - there it is) for hide-and-seek games and say it with a 'yes/no question' intonation.

It would be tricky, nevertheless, to interpret those forms and contours of questioning attitude as questions themselves.

Firstly, they are produced over a very short time and then disappear for several months. Secondly, they have certain discursive peculiarities which distinguish them from 'questions' (= requests for information) in Searle's (1969) sense. Similar to T's over-generalized rising tone, they are, rather topic-maintaining or attention-drawing devices. This contour presupposes a previous turn from herself or from the interlocutor, hence the child follows the model:

It is a baby!	Is it a baby?
3R nene	7R nene,

when addressing herself to the doll, with a questioning attitude. (This example is actually a token which appears in the session at age 1;2.21. The two utterances are said in sequence by the child).

As an attention-drawing device this tone is later replaced by tone 4R; as a dialogue-sustention device, which reflects the process of turn and role reversal in conversation, it will come into use again at around age 1;6.

Tone 8R

This tone is found quite early in R's intonational system. At the beginning, it is used mainly in vocalizations to signal the initial or progressive phase of a goal-oriented and intentional action or accomplishment in rigid game-formats and routines. Its counterpart is tone 1R, which corresponds to the final phase of an accomplishment or achievement. Example:

8R ɛ: (taking a toy out of the box)

1R pɯ (tossing up the toy)

(1;2.21)

(These proto-words are unintelligible; hence they are untranslatable).

Later on, she extends this tone to wider, non-ritualized situations: R. tried to fit a ring on M's finger.

2R pa 'put' (preparing herself to put the ring on)

M. Põe 'Put'

8R apõ:ĩ: 'put' (while fitting on the ring)

M. Põe... 'Put...'

1R apɛ: (having fitted the ring on)

M. Põe! 'Put!'

(1;3.29)

As has been seen, this tone, in adult Portuguese, is typical of 'incomplete statements' (for example, enumerations and subordinate clauses). This child (as well as T.) seems to have grasped the features 'inconclusiveness' and 'incompleteness' of this rising contour, as opposed to conclusiveness and completeness of the low falls 1R and 2R.

The example below shows the gestaltic discrimination of this tone, by repeating the supra-segmental configuration of the mother's utterance in the previous turn, albeit producing segmental sequences non-existent in Portuguese (because she cannot yet produce them).

M. describes the context, while R. keeps taking some objects out of a tin-cup. M. enumerates things.

M. Tirou do copinho de lapis régua...,

caneta... 'She took out of the little cup a ruler,

a pen...'

8R duda:da '?'

M... mais caneta... 'more pen...'

8R duda:bu '?'

M.... mais caneta... compasso... 'more pen...

a compass...'

8R dada:dis '?'

(1;5.4)

It is worth noting that the child is producing the prosodic features of the last word of M's utterance: number of syllables (3), the structure of syllables (CV) and the length of the nuclear syllable.

To sum up the general characteristics of what is here called the first stage in R's intonational development, it may be noted that:

1. Discrimination between rises and falls seems to be present from the beginning of the period considered.

2. This child's speech displays a great inclination towards the exhaustive use of intonation and other prosodic features as a very rich means of expression in the early stages of single-word utterance.

3. The discrimination and processing of the intonational features of the input seems to follow three connected strategies in this child's speech: a) the tones, in the adult speech, which spread over stretches of utterance longer than those produced by the child are grasped by her and assigned to one-, two- and three-syllable words; b) some of the tones in R's system seem to be the incorporation of prosodically prominent parts of the maternal speech addressed

to her; c) some of the tones in the child's system are the incorporation of tones used by the mother in short utterances. Her mother seems to adjust her language to the child's, by using single-word utterances with exaggerated intonation and by repeating the verbal signal produced by the child using the same intonation as the child used.

2.2. Other prosodic and paralinguistic features in R's early speech

Apart from intonation (namely pitch-range and pitch-direction), other prosodic and paralinguistic features seem to play an important communicative role in this child's speech. At this stage of development, the verbal signal does not seem to be enough to account for the complex task of verbal exchange and engagement in dialogue. As has been seen, non-verbal elements - such as gestures - combine with verbal sequences to make up the unit which is here called word. The one-word child seems to resort to every signal available to him/her to reflect his/her knowledge of the world and to integrate him/herself into the linguistic exchange. In the particular case of R., for example, delicate discriminations seem to have been made in the prosodic and paralinguistic systems - namely loudness and voice quality in this early stage, at a time when the child cannot count on lexico-grammatical levels of language to expound certain meanings.

Firstly, however, it would be useful to briefly outline how prosodic and paralinguistic features have been treated in the literature. The approach given by Crystal (1969) - based on a phonetic as well as a functional standpoint - seems to be widely accepted. From a phonetic point of view, prosodic features are "vocal effects constituted by variation along the parameters of

pitch, loudness, duration and silence", whereas paralinguistic features are "vocal effects which are primarily the result of physiological mechanisms other than the vocal cords, such as the direct result of the workings of the pharyngeal, oral or nasal cavities". Furthermore, paralinguistic features are "phonetically less discrete and allow more idiosyncratic variation", besides being "phonetically discontinuous in connected speech, whereas exponents of pitch, loudness and duration are always present". From a functional point of view, there would be a sort of polarity between the two categories, from the "most linguistic extreme" to the "least linguistic" one. Paralinguistic features would be placed at the "least linguistic" end of such a polarity, for they seem to "have little potential for entering into systemic relationships". Prosodic features would occupy the "most linguistic" end of the pole, because they are "relatively easily integrated with other aspects of linguistic structure, particularly grammar" - for example, the variations in intonation and stress.

Without further discussion concerning the view of language put forward by Crystal, his distinction will be assumed for the sake of the exposition of R's use of prosodic and paralinguistic features and of my argument concerning the uses this child makes of them in her early language.

The spectrum of the (prosodic) parameter <u>loudness</u> from 'fortissimo' to 'pianissimo' combined with the paralinguistic feature 'whisper' seem to account for the kind of relationship set up between the speaker and the interlocutor(s) or between the participants of the dialogue. Furthermore, and as expected, they reflect the emotional state of the speaker. The range that goes

from the greatest to the least loudness of voice, including 'whisper', may be observed in Figure 1 below, where the vertical axis represents the abstract category labelled "eye-contact with the interlocutor". I take eye-contact as potentially the most canonical form of shared attention. The symbols (+) and (-) stand for the greatest increase in loudness (accompanied by maximum eye-contact) and the greatest decrease in loudness (i.e. 'whisper', which comes after 'pianissimo' in the scale of decreasing loudness), accompanied by no eye-contact respectively. They are the two extremes of a gradation rather than a category to be taken as such.

+ ↑	'fortissimo'	- anger, happiness, crucial points of joint-attention (completion is the most usually marked point). There is normally eye-contact with the interlocutor.
	'forte'	
	'neutral'	- non-marked term for eye-contact
	'piano'	- preparing for or programming an action. Individual, personal or solitary activity. Generally no eye-contact with the interlocutor.
	'pianissimo'	
	'whisper'	- observing ongoing action performed by another person on her behalf. Verbalizing when engaged in or distracted by the action she is performing by herself. Solitary speech. No eye-contact with the interlocutor whatsoever.
- eye-contact with the interlocutor		

FIGURE 1. Gradation of loudness in R's early speech

Other paralinguistic features, like voice quality, combined with intonation, account for differences in the system of mands, in a range that goes from begging to commanding.

Pleading or begging: tone 5R combined with 'crying', 'moaning' or 'muttering' voice.

Request (neutral)	: tone 5R
Demanding	: tone 2R
Commanding	: tone 2R combined with 'bossy' voice.

Thus, paralinguistic features may have the same status as prosodic ones in this early period of language acquisition. 'Whisper', for instance, is equal to loudness in function to the extent that it contributes to express different kinds of relationship between the participants of the dialogue - namely the difference between shared and egocentric speech.[1]

The next section deals with the signalling of the various phases of an event through prosodic and paralinguistic features. It seeks to demonstrate a particular strategy developed by this child - the use of prosodic elements which precede later lexical and grammatical elements for a proto-grammatical subset. Secondly, it will hopefully provide further evidence for the hypothesis that some paralinguistic features - such as whisper - are actually being used with a prosodic function in the proto-language stage of this child's linguistic development.

2.3. Prosodic and paralinguistic elements related to the signalling of phases of an action

As can be seen from the distribution of the initial set of tones in R's speech, this child signals the various phases of action - whether performed by herself or others - by means of intonation combined with other prosodic and paralinguistic features. Thus, to convey what has been called proto-aspectual meaning[2] (cf. De Lemos, 1975; Gebara, 1976, 1982) in such an early period of language development, differences in the supra-segmental component of the utterance seem to be quite systematic, whilst the segmental component is mainly constituted by unstable and irregular elements.

The term 'action' is used here as a cover-term (and it will be used in this way throughout the thesis for convenience of exposition) to express events, changes of state, accomplishments, achievements and actions themselves. (For further details, see Lyons, 1977 and Vendler, 1967).

In this period, the child signals linguistically not only the localization/absence of objects in his or her perceptual field either as an agent or as an observer, but also the localization of events in his or her perceptual field (which is the common space shared with the partners), in which the phases of an action or activity are followed by the child, either as a participant or as an observer. Furthermore, the child is able to discriminate permanence or change of state. R. seems to have mastered these categories by the end of the period being studied. In her language, much of the contrast used to convey the expression of types and phases of events is expounded through an early use of prosodic and paralinguistic features.

The prospective or preparatory phase of the action - in which the child prepares or plans to do something is mostly marked by tone 2R, typical of assertives perhaps originating in directives given by the mother for the child's action on objects. As far as the preparations for her own actions are concerned, there is a gradation from 'piano' and 'pianissimo' in tone 2R to whisper, depending on the contact established with the interlocutor, as has been shown. Examples:

R. walks towards a drawer and tries to open it.

2R pú́a 'push' (piano)

(1;4.12)

R. holds the microphone and reaches out for its support (sort of tripod).

whisper pa 'put'

pa

pa

M. Cê quer o que? 'You want what?'

(1;3.16)

The completive phase of goal-oriented accomplishments or non-goal-oriented achievements is expressed by tone 1R. There is a sort of migration of this feature to the progressive phase of the action as an anticipation of the ending-point of an accomplishment. The progressive phase includes the development of an activity and the pursuit of a goal (accomplishment). One of the ways whereby R. expresses this is by using semi-iconic verbalization accompanying the movements of the body or gesture involved in the ongoing activity. The example below illustrates another sort of marking of the progressive phase of both accomplishments and activities.

R. looks at a toy woodpecker which slides down a stick.

M. Olha o pica-pau. 'Look, the woodpecker'.

R. reaches out to take the toy.

2R pápa 'woodpecker'

Then she keeps whispering [pa′pa] 'woodpecker' while manipulating the toy.

(1;3.19)

The first pápa, uttered in tone 2R, refers to the preparatory phase of the action, whereas the whispering of the same utterance is related to the action in progress.

This is very frequent in this stage: whispered utterances accompanying the action in progress, in which there is no joint-action and the child does not establish anybody as her interlocutor. The child's gaze remains directed towards the object being manipulated or to the event which involves it. However, the trajectory of the action to be performed or the development of the ongoing activity are indeed signalled linguistically, through the whispering of the proto-words and vocalizations available in R's vocabulary. Therefore, whisper is used linguistically (in Crystal's terms, it is the 'most linguistic' pole) and has the same status as intonation as a prosodic parameter, in so far as it signals the progressive phase of an event (accomplishment or activity). Furthermore, as has been seen, R. establishes the discursive distinction - with interlocutor/without interlocutor or social speech/solitary speech - by means of the opposition between a normal loudness feature and a gradation from the quietest features in the 'loudness' parameter to whisper, respectively. Those two facts allow for the conclusion that this child uses as a prosodic feature what functions as a paralinguistic feature in the adult speech addressed to her. Such a 'prosodic'

strategy lasts until the end of what is labelled as the 'first stage' of R's speech development. Around 1;6, the whispering of the proto-word during action will gradually start to be replaced by lexical and grammatical means. The differences between solitary and social speech will have other formal characteristics and whisper will have a 'conspiratory' function, taking the form of an invitation rather than a cut-off from the interlocutor.

Another conclusion about the use of intonation in R's first stage is that this child seems to display an 'intonational' or 'prosodic' strategy in the acquisition of language. The linguistic expression concerning situations of relationship with the interlocutor as well as with actions and objects have a prosodic characteristic. The child seems to have grasped the intonational contour - or better, the nuclear tones - of the utterances addressed to her in dyadic discursive situations.

2.4. R's second stage: 1;5 to 1;8

Four major changes take place in R's intonational system in this stage:

1. The use of the original set of tones begins to extend to larger contexts, and then gradually to inter-format situations, thus being more and more independent from the original situation which gave rise to the tones.
2. New intonational contrasts are acquired and level terminals and fall-rise complex contours appear. Furthermore, discrimination in the pre-nuclear syllables of the tone start to be established by this child, which means that the tone unit becomes a phonological reality, as multi-syllable and multi-word utterances come into use.

The tone unit is established through contrasts between nucleus and non-nucleus i.e. intonational contrasts set up in pre- and post-nuclear positions.

3. As multi-word utterances begin to be used by the end of this period, special prosodic strategies are developed in order to cope with the difficulty of producing longer utterances.

4. The beginnings of intonational cohesion across successive utterances. This results in the emergence of intonational units bigger than the tone unit.

2.4.1. R's intonational system from 1;5 to 1;8. Phonetic characteristics and functions

From 1;5 to 1;8, R. establishes contrasts among falling, rising, level and falling-rising tones. Their phonetic characteristics and functions are described next.

2.4.1.1. Falling tones (1R, 2R, 3R and 4R)

Table 4 below is a graphic representation of the falling tones (and their variations) produced by R. during this stage.

Tone 1R

For some two more months, tone 1R continues to be used to convey accomplishments or achievements as well as location of objects and persons. Nevertheless, from this stage on, a high fall with extra length is used rather by the mother than by the child to signal both accomplishments and achievements. In fact, R. no longer signals so frequently the final phase of an event as she did before, whereas

1R	
2R low fall	
2R h.h. (low fall, high head)	
2R r.h. (low fall, rising head)	
$2R_1$ high fall	
$2R_1$ h.h. (high fall, high head)	
$2R_1$ r.h. (high fall, rising head)	
3R	
4R	

TABLE 4. R's falling tones (1;5 to 1;8)

her mother always does. The typical intonation mark of completion of earlier stages is no longer the only linguistic resource to convey such meaning and 'segmental' signalling begins to replace intonational ones. The burden of completion starts to be (intonationally) shared with other assertive tones (2R and one of the level terminal tones, for instance), and (non-intonationally) with other means of expression (words in a past-tense-like inflection, for example). On the other hand, location of objects or persons is more and more prone to be expressed by an exclamatory tone, such as 3R. Tone 1R becomes restricted to signalling only completion in routine games jointly performed by the child and another person and, in general, it starts to be limited to playful situations. The progress of this tone so far seems to have been:

first step - limited to intra-format completive use;

second step - extended to all completive meanings;

third step - restricted to signalling completion or action in progress in playful situations.

The following examples illustrate the evolution from generic signalling of completion to a more restricted one.

(1) R. asks M. to open the tape box. After opening the tape box, M. hands the box back to R.

1R a´bə:´a: 'opened a(?)'

M. Abriu, viu? 'Opened, did you see?'

(1;5.4)

(2) M. pulls a small tin out of a larger one.

1R te´lo: 'took off'

M. (imitating R.) Tirou. 'Took off'.

Some minutes later, R. involuntarily sits on a pile of wooden cubes, crashing it down.

M. Caiu! 'Fell off!'

1R kɤ́lo: 'Fell off'

kɤ́lo: 'Fell off'

(1;6.6)

(3) R. puts the dummy on the tape to see it go round.

2R h.h. pa´sa 'stroll'

She keeps observing the dummy spinning round.

1R pa´sa: 'stroll'

M. Tá passeando, tá vendo? 'It's strolling round, see?'

1R po´po: 'dummy'

1R pa´sa: 'stroll'

(1;7.13)

The data (1) above show that completion is being signalled in a highly predictable and ritualized way, in a game (or format) in which the adult is the agent and the child remains as patient and observer. This order is likely to be reversed in other similar 'games' during this stage, but the ending point of the action will always be predictable. Tone 1R, therefore, has an intra-format nature in its origin. Example (2), recorded some months later, shows that a de-contextualization of tone 1R is taking place in this child's speech. The first occurrence of tone 1R in the example referred to ('took off'!) is ambiguous as to be considered as part of a game (i.e. to be restricted to a format) or as a more generic completion mark. But the second occurrence of the same tone ('fell off') shows clearly that a generalized or inter-format use is being

carried on, since it does not refer to a predictable goal-oriented action, and the child was not engaged in a (ritualized) routine.

The playful situation of making the dummy 'stroll' on the tape provides evidence for the hypothesis that tone 1R begins to be restricted again to more predictable situations, on a par with the gradual acquisition of sentential, lexical and morphological means of expounding accomplishment (see Gebara, 1982).

Other completive notions, such as the resulting state of an action, and achievements (i.e., non-goal-oriented actions) start to be expressed by a level terminal tone (see next pages, for clarification). Example:

R. points to a doll with a missing head.

6R mə′mõj̃ 'mummy'

3R te′lo: 'took off' (looking surprised)

M. Olha, no armário! 'Look, in the cupboard!'

9R telə′ne 'took off baby(?)'

9R te′lo 'took off'

(1;7.8)

Tone 2R

So far, what has been labelled as tone 2R has occurred with low onset - the pitch of the pre-nuclear part of the tone is approximately at the same level as the starting point of the nuclear movement. This tone, with this phonetic characteristic, continues throughout the period studied, fulfilling approximately the same function of 'introspectiveness' or 'solitary speech' as noted before. Furthermore, it continues to be used in negative or positive answers to invitations and stereotyped yes/no questions, or in vacuous

answers to M's vocatives in routines of everyday interaction. The examples which follow illustrate the latter cases, respectively.

M. invites R. to sweep the floor.

M. Vamos varrer? 'Shall we sweep?'

2R võw 'yes' (literally 'Let's')

M. Vamos varrer o meu quarto? 'Shall we sweep my bedroom?'

2R võw 'yes' ('let's')

M. Vamos? 'Shall we?'

2R võw 'yes' ('let's')

M. Então, vamos. 'Then, let's'.

(1;5.4)

M. O, Raquel! 'Hey, Raquel!'

2R m 'Hm'

(1;6 and onwards)

However, some modifications concerning the contexts of use of tone 2R added to new contrasts in pitch-range and pre-nuclear syllables disclose a reorganization of R's whole tone system.

Firstly, tone 2R is no longer exclusively limited to signal the preparatory phase of R's or her interlocutors' actions - on the contrary, it is even used to mark the completion of an action. As an example, compare the two renditions of tone 2R uttered during an AT session recorded at age 1;6.22, with a difference of some minutes between them. In the first situation, tone 2R is used to convey a prospective meaning; in the second one, a completive meaning.

R. takes the musical box and prepares to close it.

2R ˊfɛsa 'close'

M. Fecha. 'Close' (repeating R's intonation).

2R ˈfɛsa 'close'

M. Fecha. 'Close' (id.)

R. closes the box

2R ʃo 'closed'

M. Fechou? 'Is it?' (literally: 'closed?')

This leads to the assumption that intonation and other prosodic and paralinguistic features gradually cease to carry systematically the burden of signalling the various phases of action. Further evidence for this claim is the 'playful' character that tone 1R starts to take on at the same time as 2R is no longer characterized solely as a prospective marker. Secondly, demands and proto-imperative forms, apart from giving and retrieving routines, start to be used with more emphatic tones, as shall be seen next. Thus, tone 2R has now the more specialized function of distinguishing between solitary and social speech, between emphatic and non-emphatic statements and between neutral and definite assertion.

2.4.1.2. Contrasts in tone 2R

Intonational contrasts which are phonetically and functionally related to tone 2R begin from around 1;5 onwards. Such contrasts are found both in the nuclear and in the pre-nuclear syllables of the tone. They are respectively the high fall and the rising or high head of both a low and a high falling nucleus.

1. The high fall (hereafter labelled as $2R_1$). A sharp falling contour, whose pitch-range is wider than the low drop of 2R. Compare, for example, the difference in pitch-range between the figures taken

from the spectrographic evidence below, illustrative of low fall (ˈpõtu 'ready') and of high fall (kɛlúñõw 'I don't want' and ta 'O.K.'), respectively.

2R ˈpõtu 'ready'

(R29 1;6.22)

Fall from 370 Hz to 327 Hz. Pitch-range difference: 43 Hz.

$2R_1$ kɛlúñõw 'I don't want'

(R23 1;8)

Rising head from 437 Hz to 479 Hz (one level pitch for each syllable), then a steep falling nuclear movement from 458 Hz to 150 Hz. Pitch-range difference: 308 Hz.

$2R_1$ ta 'O.K.'

(R30 1;6.22)

Slight rise at the onset from 460 to 500 Hz, then a sharp steep continuous fall in the same syllable from 500 to 241 Hz. Pitch-range difference: 259 Hz.

A high fall tone was mainly registered in the contexts described below.

1. Demands

R. wants to sit down on a chair, but M. has put her hands on it.

$2R_1$ mõw 'hand'

M. takes her hands off the chair.

M. Ahn? Pronto. 'Heim? Here you are'.

(1;5.18)

Sometimes the high fall in demands accounts for polite insistence (or, at least, that the child has taken up the tone which is employed by M. to convey polite insistence) or persuasiveness:

$2R_1$ ˈkɔtu 'bedroom' - while walking out of M's bedroom towards hers.

$2R_1$ fẽj̆ fẽj̆ 'Come. Come'. (calling M.)

M. Jaˈvou. Vou indo. 'I'm coming now. Coming'.

(1;7.21)

2. Firm, stern or bossy statements (negative or positive). Contrastive, selective (choice of one among several). Example:

M. has been playing with a toy. R. asks for a turn.

$2R_1$ ɔw ɔw 'I, I'

M. Você agora? 'You now?'

2R (low fall) aw aw (confirming)

(1;7.8)

3. Emphatic announcements

$2R_1$ afɔ́so: 'a(?) closed' - after having made sure that the little case was closed.

(1;6.22)

OBS. The phonetic difference between the high fall and tone 1R just to convey accomplishments in playful situations is that tone 1R would be a stepping fall from relatively high pitch to low:

1R afɔ́so: 'a(?) closed'

R. is putting toys back in their boxes, but M. is in her way.

$2R_1$ akáka 'a(?) put back'

(1;6.22)

4. Airy or light agreement or acknowledgement, 'conveying a sense of involvement' (cf. O'Connor & Arnold, 1961) towards M's requests.

M. Raquel, vai até lá embaixo e tira aquela cadeira de lá pra você escorregar direito. 'Raquel, go down there and move that chair so that you can slide down properly'.

$2R_1$ ta 'O.K.'

M. T á bom 'All right'.

(1;5.18)

5. In general, whenever the child wants to emphasize some point, or to call her interlocutor's attention.

R. stretches out her foot to show M. that she has succeeded in fitting a pen between her toes.

$2R_1$ ápa 'a(?) foot'

(1;5.27)

$2R_1$ ɔ 'Look!'

(1;7.8)

In brief, the main differences between R's use of a low and a high fall are the contrasts between solitary/social and between reserved/involved and neutral/emphatic speech.

2. <u>Contrasts in pre-nuclear syllables</u>. As multi-syllable words and multi-word utterances emerge, contrasts are established in the pre-nuclear syllables both of low and high fall nucleus movement. The following combinations were registered:

- Low head, low fall

ɔpúkulu 'I(?) look for (it)

(1;8.25)

- Rising head, low fall

ekɛdúñõw 'Toy, no'

esékedunɔ́ñõw 'This toy [na] no'

(1;7.21)

- High head, low fall

foṇ́na 'telephone'

(1;7.21)

- High head, high fall

esénõw 'This, no'

(1;7.21)

- Rising head, high fall

kɛlúñõw 'I don't want'

(1;8)

The combination of low head plus high fall is generally interpreted as a question (or a questioning attitude) on the part of the child. This point will be considered under tone 7R.

When there is just one syllable preceding the nuclear tone, it can equally be either a rising glide or a level relatively high.

As far as notation of the pre-nuclear contrasts is concerned, h.h. and r.h. stand for high head and rising head, respectively. For convenience, 2R without further marking will be maintained for low fall nucleus with low head and $2R_1$ for 2R with high fall nucleus. The term head, is deliberately used for pre-nuclear pitch movements, borrowed from O'Connor & Arnold (1961). As well as being an accepted term in the literature about intonation, it serves the aim of simplicity of notation. The distinction between pre-head and head, is not considered because it is not applicable to this stage of language development. In order to be theoretically possible, a distinction between head and pre-head would call for the presence of stressed syllables between the onset and the nucleus of a tone unit. This would call for a larger number of syllables in longer utterances, which this child does not produce until around 1;9 or 1;10 . Moreover, the distribution of rhythmic and stress units, which seems to be different from the adult's, would not allow for a clear distinction between head and pre-head even in the longer utterances produced in this period.

Contexts of use of the rising or high head

Diary notes of age 1;2.12 and 1;2.23 show evidence of embryos of a rise-fall or high-low switch assigned to situations which could be labelled as 'emphatic announcements' as opposed to a continuous falling or low movement throughout the utterance, which accounts for 'egocentric speech' situations. These notes refer to two instances of naming objects and persons in the immediate context. Here is one of them.

M. is walking about in the house with R. in her arms.

R. keeps pointing at and naming familiar objects.

In the kitchen, a nursing bottle: mama 'nursing bottle'

In the bedroom, a doll: nene 'baby'

In the corridor, a dummy: apepe 'a(? dummy')

(1;2.12)

In the session recorded at 1;3.19, there is a further example of the occurrence of a rising head with low fall; measurements obtained from spectrograms are given below.

baba 'drink'

(R1 1;3.19)

First syllable rising from 478 Hz to 500 Hz. Second syllable, falling from 456 to 284 Hz.

So, from the earliest data analysed here, a contrast seems to be made between social and solitary talk mainly by means of different uses of prosodic features - pitch movement and loudness. The rising/falling movement seems to account for a 'speech with interlocutor' both in R's and in T's early stages of language development.

Now, from 1;7, other functions seem to be fulfilled by the contrast between low and high/rising head of a nuclear low fall. The difference between committed and non-committed, emphatic and non-emphatic, and the beginning of the distinction between topic and comment.

Consider, for example, the following piece of dialogue:

M. O, Quel! Quer uma banana? Vamos lá pegar

[pe'ga] 'Hey, Quel! Do you want a banana?

Let's go there and get (it)?'

2R ga 'get'

M. Ahn? 'What?'

2R r.h. mənámənа 'banana'

M. Quer uma 'manamana'? 'Do you want a "manamana"?'

2R məmánəna 'banana' (nodding)

(1;6.3)

This example illustrates the successive repairs the child makes in her utterances following elicitative turns from the interlocutor (cf. Maia, 1981). It also shows that there is an intonational difference between the three replies uttered by the child - a move from 2R to 2R r.h. and then back to 2R. The first turn of the child is an attempt at answering a yes/no 'invitation' question. Her second turn follows a question from M. aimed at eliciting repetition: it is an unusual way of the child to answer an invitation (by then, the most frequent way of doing so is by using [2R võw] 'let's' or [2R tɛ] 'want'). The child makes a sort of self-correction, focusing on the word banana contained in the M's starting turn, and using 2R r.h. This time it does not deal with just answering an invitation, but putting another item into focus - in other words, with topicalizing a word with an emphatic and more definite assertion. For that, a rising head is more suitable than a low, less definite, one. Her third turn is a confirmative

answer - uttered with neutral tone 2R - to M's yes/no confirmation question.

Further evidence for the argument that rising and high heads serve as topicalization devices is provided by the first cases of multi-word utterances where the first element is a repetition of the previous utterance of the interlocutor, or of part of it, and the second word is [nə̃w] 'no' or 'don't'. The rising part of the tone corresponds to the word taken from the previous turns of the interlocutor or of the child herself, or related to something present in the immediate context; the falling part to the negative word 'no'. The rising/high part is related to something which is already given or topicalized in the course of the conversation, whereas the falling movement corresponds to the child's comment about the topic. Some illustration of what is claimed is given below.

(1) R. tries hard to press a button.

M. Tá duro de apertar? 'Is it hard to press?'

2R r.h. ta′nə̃w 'is no'

(1;6.3)

(2) M. hands over some toys to R.

M. Mais brinquedo? Toma 'More toy? Here you are'.

M. gives R. a little wooden lorry.

2R r.h. esénə̃w 'this no'

M. Esse não? Mas qual você quer então?

'This no? But which one do you want, then?'

2R r.h. ekɛdúnə̃w 'Toy no'

M. Que? 'What?'

2R r.h. esékedunə́nə̃w 'This toy [nə] (?) no'

(1;6.29)

Although there does not seem to be much difference between a rising and a high head, the latter seems to convey a bossier attitude to demands than the former.

Tone 3R

There is not much difference in use and in phonetic realization of this tone compared to the previous months. It becomes less frequent, though, as R. now resorts to a wider spectrum of alternatives to express admiration, agreeable surprise and to draw the hearer's attention. A variation of this tone must be pointed out, however, which corresponds roughly to the final pitch movement of 3R, i.e. [˥˩]. This realization is restricted to the expression:

ɔ:la: 'look!',

taken from the similar expression olha [ɔ:ʎa], which her senior interlocutors have repeated ad nauseam in situations of shared attention and when they want to switch her attention from one topic to another.

Tone 4R

Three points must be emphasized about the characteristics of tone 4R in R's speech development between ages 1;5 to 1;8.

1. As the high/rising pre-nuclear syllables with nuclear low fall (2R) appear in this child's speech, phonetic ambiguity is likely to occur between high head + low fall and tone 4R, when they are found in a two-syllable word. There is no intonational difference, for example, between:

2R h.h. ábi 'open'

and

4R áde 'Where?'

For both, there is an abrupt contrast between a high and a low pitch. Nevertheless, there are phonetic differences in addition to functional ones between these tones. When produced with multi-syllable utterances, 4R takes the shape of downward stepping movements, from a high onset to a low terminal. This was found through instrumental analysis, as the figures below show:

ʔə ba ka:kuki: 'look monkey here'

(R21 1;8.25)

A downward stepping movement, from a very high onset (nearly a falsetto) at 729 Hz [ʔə]; second syllable a little lower, but still high: 708 Hz [ba]; [ka:] - a long and falling syllable from 458 Hz to 375 Hz; third syllable [ku]: short, level, at 363 Hz; last syllable relatively low: 312 Hz.

(OBS. This utterance was said with increased loudness, which accounts partially for the high pitches throughout).

ʔəbalĩna 'look (the) little sweet'

(R27 1;8.25)

Four downward steps: 511-469-363-283 Hz, respectively.

2R h.h., as has already been shown (page 129) is characterized by a high head followed by a low fall without a gradual stepping movement from the highest to the lowest pitches of the tone.

2. The first occurrences of multi-word utterances come about in the low or falling part of tone 4R, and they follow the model:

a/ála/áti or áde + noun-like sentences

('look/look there/here or where').

A piece of dialogue between M. and R. at 1;5.18 shows that the first

recorded multiword utterance originates from the deployment of specularity and complementarity (see page 219 , Chapter 5) within the format:

ade x - áti/ála x,

said with tone 4R. Example:

R. finds the dummy.

4R apópo 4R apópo 'Look(?) dummy'

M. Cadê o popo? 'Where's the dummy?'

4R átiupópo 'Here the dummy'.

(1;4.19)

M. repeats part of the child's utterance in her turn and expands it, by placing cadê ('Where is') before it, which was quite a routine in those days. R., in her subsequent turn, does the same, replacing part of the mother's utterance (which was an expansion of the child's own previous utterance) by áti 'here' and adding the constant part of the previous utterances (pópo 'dummy').

3. This tone continues to be an intonational model for the first attempts at wh-questions, although the wh-word is not present (apart from áde):

4R ´asi 'This?' - pointing to objects or pictures on the book, so that M. can provide information about them.

(1;6 to 1;7)

2.4.1.3. Level tones (5R and 9R)

Tone 5R

For some time, this tone has the same shape and function as stated for the first stage (see page 105). Its main characteristic

was that the prominent syllable was always the last one, and was lengthened and stressed. There are now two main modifications in this tone:

1. Whenever expressing an 'urgent' request, with pleading voice, this tone is subject to successive renditions of the same word or of different words, in accelerated rhythm. It is a noticeable effort by the child to make clear what her request is about, by changing the 'words' and maintaining the prosodic and intonational configuration of the successive utterances. See, for example, the instance below, when the child is trying to ask her mother to bring out the spare mattress so that she can play on it.

5R ?aj 'oh'

5R ?aj 'oh'

5R ?aj 'oh'

M. Ai, ai, ai. (imitating R.). Que que dói, seu Elói? 'Oh, oh, oh, what's wrong, Mr. Eloi? (a sort of nursery rhyme)'

5R na: '?'

5R ev/ '?'

5R e'sa: 'shut'

5R ?aj 'oh'

5R ?aj 'oh'

5R ?aj 'oh'

M. O que? Ah, fechar? 'What? Oh, to shut?'

(1;6.29)

Or when R. badly wants to put the dummy on the reel tape, so that it can 'stroll' (adult Portuguese passear [pasi'ar]) on the tape.

5R apópo 'a(?) dummy'

4R álapópo 'look there dummy'

M., who had just entered the room where R. was alone, cannot understand the child's request.

M. Cê quer a/ 'You want the/'

5R ˊfota 'tape'

5R tɛ ˊfota 'Want tape'

M. Cê quer o que? 'You want want?'

Passear? 'Stroll?'

5R paˊsa 'Stroll'

5R paˊsa 'Stroll'

5R paˊsa 'Stroll'

5R aˊti 'Here'

M. Aqui? 'Here?'

(1;7.13)

The requests become more and more explicit in successive utterances in which R. maintains the requesting intonation and varies the words related to the situation. The child seems to take into account the interlocutor's viewpoint and begins to supply him/her with information about the context (in this case, not known by the mother, as she was absent at the start), so that the adult can supply her wishes and needs. Another cue taken from the above example is the evidence that tone 4R, used in conjunction with tone 5R, aims at drawing the interlocutor's attention to certain presuppositions which are very important to provide information (see Halliday, 1975, about characteristics of the acquisition of the informative function).

2. As the vocabulary of the child increases, she starts to use words stressed on the penultimate syllable (generally verb-like words, although noun-like ones are also possible) to expound requests. This brings about a variation in the shape of tone 5R. It starts

to be a high-to-mid fall, with a tendency to level terminal, giving the acoustic impression of a fall which ends on a level pitch: ˥˨ . For example:

M. O´o popô que tá lá dentro do berço.

'Look the dummy that is there in the cot'.

5R ´tɛla ´tɛla 'Take, take'

˥˨ ˥˨

(1;6.29)

Thus, the intonational difference between demands and requests begins to be a matter of pitch-range as well as of pitch-pattern, as can be seen below in the two renditions of the word [´tila] 'take', produced in a row in the session at age 1;7.8. The first one is a request uttered with tone 5R; the second one is a demand with a $2R_1$.

5R ´tila 'take' (please)

˥˨

$2R_1$ ´tila 'take' (I order you to take)

˥˩.

The first multi-word utterances with tone 5R are made up in the format tɛ + a noun-like form. The sequence tɛ 'want' from adult Portuguese quer [kɛr] or [kɛ] is in fact the 3rd person singular of the present tense of querer [ke´rer] 'to want'. It is clearly taken up from the offering formula 'quer x?' ('do you want x?'), through the repetition of the segmental part and the adaptation of the intonational part of her senior interlocutor's speech addressed to her. (See Chapter 5, for details).

A further modification in the shape of tone 5R when spread over utterances with a larger number of syllables than used so far is the rising head, so that the configuration of this tone for multi-word utterances becomes:

rising head + level nucleus ± mid level terminal.

Here are some examples:

R. hits the figure of a girl.

5R atɛso'lo 'I (?) want cried'

(1;7.8)

I. shows R. a little rag rabbit.

I. Ai, que beleza de coelhinho! 'Oh, what a lovely little rabbit!'

tɛgo'da 'want throw'

M. Ahn? 'What?'

R. throws the rabbit down; this action clarifies the meaning of the utterance.

(1;7.8)

Tone 9R

From 1;5 onwards, a relatively mid (or sometimes high) level terminal contour starts to become established in the tone system of this child's speech. It starts with the word bo 'all gone', which is always uttered with high level tone, accompanied by a characteristic gesture: half-folded arms and the hands turned upwards.

Gradually this tone extends to other one-syllable words, such as da, ta, tẽj, meaning deprivation or negative state or absence or displacement of objects or persons from the speaker's perceptual field. Examples:

(1) M. Ah, minha filha, mas na parede não pode escorregar. Não dá pra escorregar nessa tábua, na parede. Só lá na sala, no sofá, mesmo. Noutro lugar é perigoso. 'Oh, my dear, but you can't slide on the wall. No way of sliding down this board on the wall. Only in the sitting-room, on the sofa. Elsewhere it's dangerous'.

9R da 'no way' (approximate translation)

(1;5.18)

(2) M. Cadê a Lela? 'Where's Lela?'

9R ta '(She) is (not here)

M. Não tá, mesmo. 'No, she is not'.

(1;6.3)

The data above show that this is a contour which has, in adult speech, a high or rising pre-nuclear movement, as can be seen from the M's turn in example (2), which follows immediately the child's [9R ta]. In fact, some time later, the occurrences of this level tone with multi-syllable utterances take the following shape:

high or rising head + mid level terminal nucleus.

Below is an illustration with measurements taken from spectrographic analysis:

anaupo´po: 'take(?) the dummy'

(R18 1;7.21)

Rising head from 477 Hz to 545 Hz then up to 586 Hz. Nuclear syllable mid level at 431 Hz.

Before continuing with the account of the level tone in this child's early intonational system, some considerations about level terminals in general would be useful to clarify some points stated here.

Caution in considering level as a tone has been frequent in the literature about the intonation of English (see, for example, O'Connor & Arnold, 1961), since tone is currently understood as pitch movement, and, as Brazil et al., (1980) state, this would be a 'theoretical embarrassment'. Nevertheless, what is st stake in the present thesis is that the tones are being viewed according to their discursive (or other) functions and their specificity in the early stages of a child's language. The alleged 'level tone' in R's speech, for instance, is probably the way a pre-nuclear movement in the adult's tone unit is processed (and eventually incorporated) by this child. As an example one may take two utterances in the M's initial turn in example (1) above:

Não dá praescorregar nessa tábua 'No way of sliding down this board'

... mas na parede// não podeescorregar '... but on the wall you can't slide down'

The sequences não pode [nõw ˈpɔdi] and não dá [nõw ˈ da] are made prominent by rhythm, by stress and by pitch. The child repeats (não) dá with the same pitch level as the one in the M's speech, assigning to it the generic meaning of deprivation that is common to a handful of short negative utterances which M. addresses to her, and to the out-worn expression bo 'all gone'. That is the main reason why the level tone is being considered here as a prosodic category. And, as such, it is being taken up by M., as can be seen in her second turn in the example (2), the expansion made by M. meaning agreement:

Não tá, mesmo 'No, (she) is not.

Considerations about the intrinsic meaning of the level tones have pointed them out as 'unfinished' or 'incomplete' tones. Here is what Couper-Kuhlen (1982) says about 'incomplete falls' (including rises or falls which do not descend to near-bottom) and level tones:

> "If the speaker uses an 'incomplete fall', then the listener will interpret this as meaning that he or she wishes to continue' (page 7).
>
> "Level tones(...) are cohesive in that they sustain or suspend attention, but they do not have the compelling nature that the rises have" (page 12).

This interpretation, however accurate it may be for level tones in general and valid for level tones in Portuguese, seems only partially applicable for R's mother's usage (and also for T's mother). Besides being intrinsically cohesive, there is a discursive feature present in the level tones (or in the incomplete fall, once they are actualized as than just) in the dialect to which both R. and T. are exposed - an assertion with level terminals

implies that the topic in question has already been referred to somewhere in the conversation between the two partners. In other words, that both partners share some of the information being discussed.

Coming back to M's utterances in examples (1) and (2) above, it is not a sense of deprivation which is present there, and it is not only a hint that the speaker wants to go on with her argument. It is rather an emphasis on the impossibility of sliding down the board, calling the interlocutor's agreement to what is supposedly an obvious, shared and well-known point.

In R's speech, some contiguous utterances provide evidence that there is a hint that the child is learning how to distinguish topicalization through intonation. In other words, utterances said with level terminals seem to indicate that the topic has somehow been present in the conversation and that the interlocutor should be aware of that. Compare the successive use of tones 2R rising head and level in example (3) and of tones 1R and level in example (4), both taken from the session corresponding to age 1;7.13.

(3) R. asks for something.

2R r.h. ɔpɔ′sa 'a(?) close' (demand)

M. Que? 'What?'

9R pɔ′sa 'Close' ('and you should know what I mean')

M. Ah, fechar? Vamos fechar 'Oh, to close? Let's close'.

(4)

1R ko'do: 'Woke up' - She refers to the doll whose eyes open when in upright position.

M. Que? 'What?'

9R ko´do 'Woke up'

M. Acordou? 'Did (she) wake up?'

2R m 'yes'

The second turns of the child in both instances imply that the speaker knows that the listener should know what it is all about. They imply that it is given, not new information.

The meanings of the contour, however, are not so clear-cut as one would expect to find in the adult system. For some time, around 1;6 to 1;7, Lela [´lɛla] (the nickname of R's elder sister) was a standby answer to every who-question addressed to this child. It preceded and, for some time, overlapped with answers with [əw] 'I', or with the name of other people to supply information about the identity required by the question. There is an instance of level terminal used in one of those stereotyped answers that does not indicate, however, that the answer was 'obvious' (as should be expected of a level terminal).

R. has just done a drawing.

I. Você que fez o quadro? 'Was it you who drew the picture?'

M. Quem fez isso aqui? 'Who drew this here?'

9R ase´lɛla 'did (drew) Lela'

M. A Lela que fez? 'Was it Lela who did?'

9R ´fəti 'did' (yes)

M. Foi mesmo a Lela que fez? 'Was it really Lela who did (it)'?

R. changes the topic.

(1;7.8)

In this case, it looks much more as if this child is repeating the general configuration of a tone exhaustively used by the mother, in answers to wh-questions (to which obviously the mother provides an adequate answer) aiming to show commitment rather than that R. is aware of the same meaning that the tone has for the adult. It is not until some time later that the meaning of 'referring to something expected to be already acknowledged by both partners' will be clearly depicted in R's data.

Anyway, there seems to be a common feature present in both tones 5R and 9R - the call for involvement of the interlocutor.

Table 5 below represents the level tones in R's intonational system from 1;5 to 1;8.

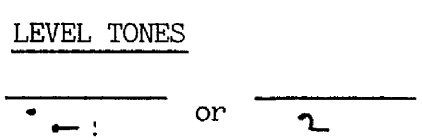
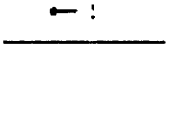
Tone	Graphic representation	Phonetic characteristics
	LEVEL TONES	
5R		Level mid-terminal, pre-nuclear pitch direction slightly rising or level, higher than the nucleus. 'Begging' or 'moaning' voice quality.
9R		Relatively mid level terminal contour. Pre-nuclear syllable(s) higher than the nucleus. Possibility of rising head.

TABLE 5. R's level tones (from 1;5 to 1;8)

2.4.1.4. Rising tones (7R and 8R)

By around 1;6, this child is producing three different rising terminal contours:

- a mid onset rise : tone 7R
- a low onset rise : tone 8R
- two fall-rise tones : 10R and 11R

Tone 7R

Phonetically, a variation begins in the terminal part of this tone - sometimes, there is an abrupt falling movement in the last unstressed (post-nuclear) syllable or in the nuclear syllable itself. As has been stated before (see page 79), there is a facultative falling movement in the last stressed or unstressed syllables the yes/no question intonation in adult Portuguese, especially in the dialect to which both T. and R. are exposed.

Examples:

- From the adult (taken from the corpora of R's mother)

M. Vamos abrir? 'Shall we open?'

M. Vamos fechar a porta pra gente ouvir a caixinha de música?

'Shall we close the door so that we can listen to the musical box?'

- From the child:

R. 7R abi 'open'

R. kɛ́ve // a ́bola 'want (to) see // the ball?'

R. ́pɔdi 'May (I)?'

Contexts of use and discursive characteristics of tone 7R

1. Dialogue maintaining or elicitation device.

As has already been pointed out, the rises have a strong intersubjective character in the child's early language. Moreover, rises are thought to have an intrinsic cross-language pragmatic value - it is highly cohesive as it is an unfinished tone *par excellence*.

R's rises are not an exception to this general principle, though her rises are not so compelling as T's in what was labelled as his third stage.

As a topic maintainer or elicitation device (i.e. topic introducer), R's rises are carried by the following forms at around 1;6.

(i) A nasal central vowel [ə] or a bilabial nasal stop [m] corresponding to the same adult form. Example (1):

R. points to a picture on the wall.

M. O ́o quadro aqui. 'Look the picture here' (interpreting R's gesture)

R. 7R ə

M. Alá 'Look there'

R. 7R ə

M. Quem pintou? 'Who painted (it)?'

R. (very happy) $2R_1$ aw 'I'

M. Você? 'You?'

(1;6.22)

(ii) An item taken from the interlocutor's previous turn, which is salient either because the child has a special interest in it, or because it is a new, unfamiliar item related to the immediate context, or (but less important as far as R's speech is concerned) because it is acoustically more audible. Example (2):

R. shows M. an object.

2R ˊasi 'this'

M. Esse éˊa paˊ 'This is the shovel'.

7R æˊpa 'is shovel?'

M. Eˊ, pra brincar na areia. 'Yes, to play with in the sand'.

7R aˊlega 'sand?'

M. Isso mesmo. 'That's right'

7R aleˊlega 'sand?'

(1;6.29)

Example (1) above shows that R. was evidently very keen on keeping M. talking about a picture she had drawn herself. By using a dialogue sustention device, she makes M. fill a conversational slot and keep on talking, as if R. was saying "tell me more about x", x being either the whole discourse of M's previous turn, or the item to which tone 7R refers.

As for example (2), by repeating an item of the interlocutor's previous turn, R. is making use of intonational complementarity (for her tone is different from the tone used by M. in the particular

word which is being repeated) and reversing the roles in the dialogue. She is now starting to play her interlocutor's role. So far, her mother used the rises as a dialogue sustention device ad nauseam. In fact, the amount of rises in the speech of R's mother addressed to her is really high. This matter, however, is fully discussed further on in the thesis. (See Chapter 5).

2. Stereotyped questions and asking for permission. It would be inadequate to assess the interrogative attitude conveyed by tone 7R as questions in their own right. There are several 'interrogative routines' in R's speech at this period which would be a better explanation for the questioning attitude provided by tone 7R. The 'asking for permission' routine is one of the most frequent in this stage. It originates in the rather rigid formula:

Pode? [ˈpɔdi] 'May I?' Pode. [ˈpɔdi] 'Yes, you) may'.

R. has a habit of asking [7R ˈpɔdi] whenever she is about to act upon an object, after having established eye-contact with her senior interlocutor. Her mother generally answers [ˈpɔdi] as part of the ritual, and vice-versa: as soon as R. starts to produce this formula, M. starts - specularly - to ask [ˈpɔdi] and R. answers [2R ˈpɔdi]. The term "ritual" is used deliberately, because it does not deal with the category "permission" as such. When the asking for permission is supplied by the alternative option opened by the question (which is of a yes/no type) with a negative answer , the child will take no notice of the negative alternative and will eventually carry on with what she was about to do. This shows that the modality meaning of "permission" is vacuous and what is really

at stake is a sort of linguistic routine taken from the discourse of the child's interlocutor to be inserted in crucial parts of a shared activity. The questioning attitude of (presumably) asking for permission is, thus, better interpretable as cohesive, in the sense that the interlocutor is expected to take part in the conversation and in the ongoing activity (at least as an observer).

Another ritualized question is a courtesy formula again referring to permission: [7R ésẽsa], from da' licença "excuse me". R. extends this formula to everything which is in her way: persons, her favourite toys and even the wire of a tape-recorder.

3. As part of a general questioning attitude, it could be said that tone 7R serves to express the proto yes/no confirmation questions. See, for instance, the two examples below:

R. takes a shoe.

7R lǽl 'Lela?'

7R lǽl 'Lela?'

M. Que que é da Lela? O sapato. É da Lela mesmo. 'What is Lela's? The shoe. It's really Lela's!

R. laughs and turns to her father.

7R lǽl 'Lela?'

F. É da Daniela? 'Is it Daniela's?'

M. Da Lela, e, e da Lela. 'Lela's, yes it's Lela's'.

(1;6.22)

R. has just drunk up her juice.

7R ábo 'allgone?'

M. Que? Acabou. 'What? Allgone'.

7R ábo 'allgone?'

M. Acabou a groselha. 'Allgone, the juice'.

(1;7.13)

As the data above shows, this child now seems to be adopting the role so far reserved for her senior interlocutor - that of keeping interest going with a yes/no confirmation question. As further evidence, note the example below, in which R. asks the question and supplies the answer herself, thus assuming both the role of her interlocutor and her own.

R. takes smaller cans out of bigger ones. When she has finished, she looks inside the biggest one:

7R tẽj 'is there?'

9R tẽj (negative gesture with her head) 'there is (none)'.

(1;7.13)

4. Invitations for shared actions.

They generally take the form of <u>võw ('let's') + an infinitive-like form</u>. However, the origin of some of these rises used by R. can be traced through the use of invitations in M's speech. They are normally comments on their ongoing joint action and are a way of bringing the child to shared attention. They are even used as directives, in an attempt to soften the roughness of commands, demands and orders - 'Shall we (let's) have a bath? Shall we (let's) get dressed? Shall we (let's) comb the hair?', etc. In fact, M. marks the starting point of an action which is meant to be performed by one of the partners or by both of them. Example:

M. <u>Vamos fechar a porta pra gente ouvir a caixinha de música?</u>

'Let's close the door so that we listen to the musical box?' (M. says so while walking towards the door to close it, thus signalling the starting point of her own action). Intonationally it is a fall-rise tone.

R. used this invitation formula before performing an action. The example below is a typical use of this rise, which seems to be the taking up of the rising (or nuclear) part of M's fall-rise invitation formulae (or exhortation).

R. takes the powder puff.

2R ˊkala 'face' (looking at the powder puf)

7R pɑ̃ˊgala 'put face?' (looking at M.)

M. interprets it as a question and provides the answer to it.

M. Na cara, eˊ, esponja. 'On the face, yes, powder puff'.

(1;6.22)

From 1;7 on, tone 7R with this function spreads over multi-word utterances. Example:

7R vɑ̃w pukuˊla 'let's look for?' - said before turning over the page of a story-book to look for the picture of a girl.

(1;7.8)

Another kind of invitation for shared attention, used with tone 7R, is <u>kɛˊve</u> 'want to see' + noun-like word. Example:

7R <u>kɛve / aˊbɔla</u> 'want to see the ball?' (taking the ball then throwing it into the drawer)

(1;6.29)

This usage seems to have the same invitation formulae origin as discussed above - the call for shared attention before performing an action.

Tone 8R

Gliding movement low to mid, sometimes (for extra emphasis) to high, restricted to the nuclear syllable. The post-nuclear syllables continue on the same pitch as the end of the rising movement.

This tone, which is inherently "continuative" and "unconclusive" in character and was already found in this child's speech at stage one, is used in two main situations:

1. Enumeration of objects, when picking out an item among several, thus suggesting a succession in a series. Example:

R. focuses on a saucer among several toy-kitchen utensils scattered about the floor.

8R kɔ̃́fɛ: 'coffee...'

M. Café? O pires de café? (Pointing to the other objects of the same type). O pires... a panelinha... a xicrinha. 'Coffee? The saucer of (a) coffee (cup)? The saucer... the little pan... the little cup...

(1;6.22)

2. Succession of actions, in utterances said either before, during or after an action, in this latter case suggesting that the action will have a continuity or that it is part of a larger task. Example:

R. takes a powder puff with which she has been pretending to make-up.

8R ´ka:la 'face...'

8R ´ka:la 'face...

M. Cara... esponja na cara... 'Face... on the face...'

8R tí̀la: 'take' (while taking the powder puff from the powder box)

(1;6.22)

This tone will be considered further in relation to the building-up of paratones (Chapter 4).

Table 6 below is a representation of R's rising tones from 1;5 to 1;8.

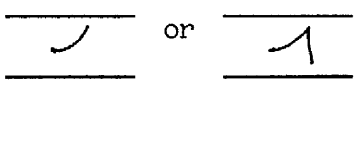
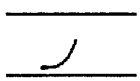
Tone	Graphic representation	Phonetic characteristics
7R		Mid-to-high rising movement. Possibility of an abrupt terminal fall.
8R		Low-onset, rising to mid or high movement.

TABLE 6. R's rising tones (from 1;5 to 1;8)

2.4.1.5. Falling-rising tones (10R and 11R)

The beginning of a fall-rise contour comes into use from around 1;5. It takes two different phonetic configurations, assigned to distinct functions, thus giving rise to two tones: 10R and 11R.

Tone 10R

A falling-rising continuous gliding movement on the last stressed syllable of the utterance. The last unstressed syllable, if there is one, keeps the rising tendency. See the example below, with measurements based on spectrograms.

akɔka´nõ:w 'pop-corn no'

(R22 1;7.21)

Rising head 354-412-522 Hz then a fall-rise movement from 412 Hz down to 227 Hz and up to 333 Hz.

This contour has two related uses:

1. 'Warning'. In the speech of the adult addressed to R., such a tone represents warnings, denials, threats, censures that can be paraphrased as 'don't or else...', concerning forbidden actions and behaviour (generally touching breakable or electrical items). What is interesting, though, is that the child incorporates not only the word and tone applicable to that particular situation, but also the whole speech situation, for in her speech the fall-rise thus described refers to her own actions, but not with the regular meaning of the adult utterance. This fact supports the claim made here that the first usages of the tones are not context-free, in the sense that they are closely linked to the situations which give rise to them.

Examples:

R. is scared because she is sitting on the table with no support.

10R kaj 'fall down' ('Watch out, you'll fall down')

10R kaj 'fall down'

M. Não cai, não. Cê tá segura. Eu seguro você. 'You won't fall down. You are safe. I hold you'.

(1;5.4)

R. points to a knob on the tape-recorder.

10R nõw 'don't'

M. Não! (imitating R.) É isso mesmo. 'That's it'.

But R. turns down the volume of the recording, just the same.

(1;6.3)

2. Firm agreement and definiteness. In the adult language, the tone conveys a sense of obviousness and firmness in a positive statement. R. seems to grasp the general situation in which this tone is used with this sense, but it is not clear whether this tone is used with the exact meaning as the adult's:

R. does some painting.

M. Vai pintar? Pintou? 'Are you going to paint? (Have) you painted?'

10R pĩto: '(have) painted'

(1;7.8)

Tone 11R

Another type of fall-rise is the contour typical of wh-questions in adult Brazilian Portuguese, which is best represented thus: ↘..↗. It spreads over the whole utterance (which is always multi-syllable), whereas the ∨ fall-rise of 10R is restricted to the nuclear syllable (and its tail, if there is one). The 11R fall-rise, on the contrary, seems to have two prominent points: one corresponding to the falling movement and the other to the rising one. In marked who-question types in adult Brazilian Portuguese, two intonational prominences imply two focuses (or two 'tonics'), one in the first stressed syllable (which corresponds to the wh-word) and the other in the last one. (See Gebara, 1976).

Interrogative locative expressions start to be produced with a fall-rise. Example:

M. Vamos procurar um carneirinho? 'Shall we look for a little sheep?'

2R võw 'Let's'

M. Cade? 'Where is (it)?'

11R ade´eli 'Where is it?'

↘ ↗

(1; .13)

Later on, the fall-rise spreads over invitation and request for permission formulae in longer utterances. (See example on page 176, Chapter 4).

Table 7 below is a representation of the falling-rising tones in R's intonational system from 1;5 to 1;8.

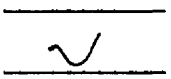
Tone	Graphic representation	Phonetic characteristics
10R		A falling-rising movement restricted to a syllable.
11R		A falling-rising movement spread over a multi-syllable utterance.

TABLE 7. R's falling-rising tones (from 1;5 to 1;8)

NOTES OF CHAPTER 2

1. It is assumed here that the acquisition of language is linked with shared knowledge and that social speech (dialogue) is the instance where knowledge can be shared. Thus, 'egocentric speech' is in principle derived from 'social speech', the former being a transference of the latter to another speech situation. What is at stake is that they can be differentiated through linguistic (especially prosodic) means and that is what this child is learning to do in this stage.

2. De Lemos (1975) considers certain early linguistic behaviours which appear in the child's vocabulary previous to verbal inflection (like ɔ 'look', bo 'allgone' and bɔ 'went away') as proto-aspectual manifestations rather than ostention forms or reference operators. The author argues that they are proto-aspectual markers in so far as they will evolve into progressive and completive aspects respectively (the aspectual opposition gerundive/past tense in Portuguese) in further stages of development of her subject's speech.

CHAPTER 3

COMPARISON BETWEEN T'S AND R'S INTONATIONAL DEVELOPMENT

T's data start at around 1;0, when his speech may be classified as late babbling. R's data start at a later period: a few days before she is 1;3. The differences between them, however, are not attributable to their respective age-range. Their communicative behaviour displays many distinctions in the use of language. R. is a much more talkative child than T., whose interaction is rather object-directed, whereas the girl tends to be person-directed. Perhaps this fact has something to do with the precociousness of R's speech as far as the production of multi-word utterances is concerned, but the evidence in support of such a hypothesis is insufficient to lead to any generalization whatsoever. Anyway, the girl-subject starts producing multi-word constructions at around 1;6, whereas T. has no systematic production of longer utterances until the end of the period covered by this work, i.e. around 2;0.

Another discrepant point between the two subjects concerns their absolute pitch-range. The following figures, backed by instrumental evidence, illustrate the differences in pitch-range between T's and R's early intonational systems. They represent a comparison between the lowest and the highest pitches taken from a random sample of 66 spectrograms of recorded utterances covering both subjects' age range analysed in the present work.

R

Low - 150 Hz (terminal point of the high fall)

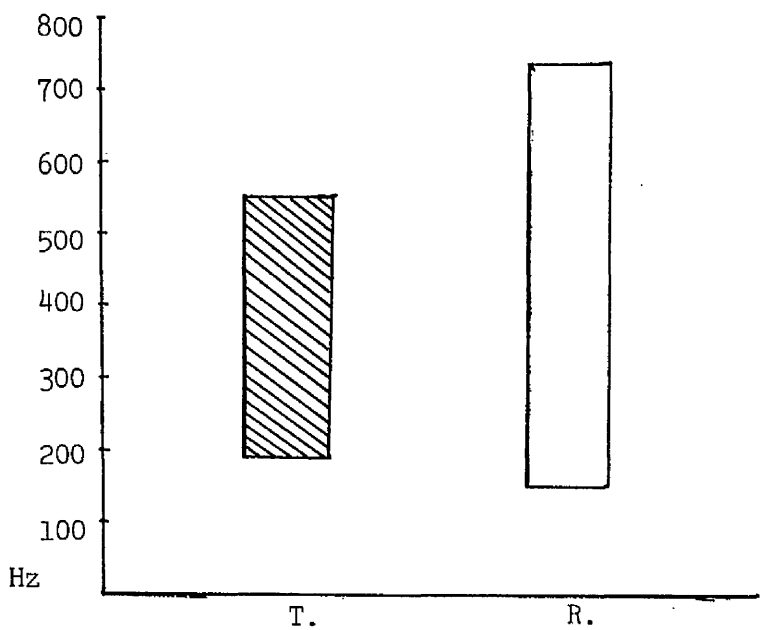
High - 737 Hz (prominent peak of tone 3R)

T

Low - 187.5 Hz (terminal point of tone 1T, first stage)

High - 555 Hz (prominent peak of tone 6T)

Fig. 2 illustrates T's and R's respective absolute pitch-ranges.




T's pitch range


R's pitch range

FIG. 2. T'S AND R'S ABSOLUTE PITCH RANGE THROUGHOUT THE PERIOD STUDIED.

The whispered final syllable (theoretically frequency 0Hz, because no voice is present) is not taken into account for low pitch; only actual voiced productions are considered, so that a better idea of pitch range can be obtained.

Amongst the selected utterances which make up the corpus of spectrographic analysis, R's registered highest pitches occur during the so-called first stage (1;4 to 1;7), mainly in proto-words and vocalizations. This fact is in accordance with Menn's (1976) observation that high-peak utterances are related rather to babble-carriers, whereas moderate peaks are linked with the first adult-like words produced by the subject she studied.

T., on the other hand, tends to make a growing use of the highest pitches in his pitch-range towards the end of the period studied, i.e., during what is here labelled his third stage (from 1;7 to 2;0). His use of the lowest pitches tends to be concentrated at the beginning of his one-word stage (1;4 to 1;7), whereas his lowest pitch threshold comes up to relatively higher pitches towards the end of his one-word period. R., inversely, tends to have her lowest frequencies gradually decreased over time.

Thus, it seems that an opposite pitch-range developmental trend takes place in the speech of the two subjects in the course of time: R. starts to switch to relatively lower pitches as time goes by, whereas T. does the contrary, although both pitch-ranges remain relatively constant as far as the spectrum of frequency is concerned (the differences in fundamental frequency are negligible: $R \neq 475 > 439$; $T \neq 237 > 252$).

R's trend is the expected one, if the physiological factor concerning the thickening of the vocal cords with age is taken into account, namely that in general younger children have a higher timbre of voice than older ones. And, from the point of view of the development of language itself, one would expect that the child would gradually adjust his pitch-range to the one of the adult linguistic environment around him. But, surprisingly enough, T's absolute pitch range displays a general rising in frequency in time. Contrary to the expected, T's highest pitches do not occur with vocalizations nor with babble-carriers, not even with the first word-like utterances he ever produces, but they are found in the high or rising part of the over-generalized tone 6T (at around 1;10) i.e. a reasonable time after he had been producing and practising one-word utterances. The rise in his pitch-range coincides with the over-extended use of tone 6T, which serves a peculiar discursive strategy, as will be seen in Chapter 5, pp. 224ff. of this thesis. Perhaps this strategy explains the extra pitch height reached by this tone as a means of enhancing linguistically the contact with the interlocutor.

Figures 3 and 4 below illustrate the development of the highest and lowest thresholds of pitch observed in R's and T's speech respectively. They show the reverse trend taken by the pitch ranges of both subjects along the age-range considered.

R., more than T., relies heavily upon intonational differences, both from the phonetic and functional points of view, during the early stages of language development. This child expounds more meanings through intonation than does T. R's intonational strategy for processing and constructing utterances is clearly seen

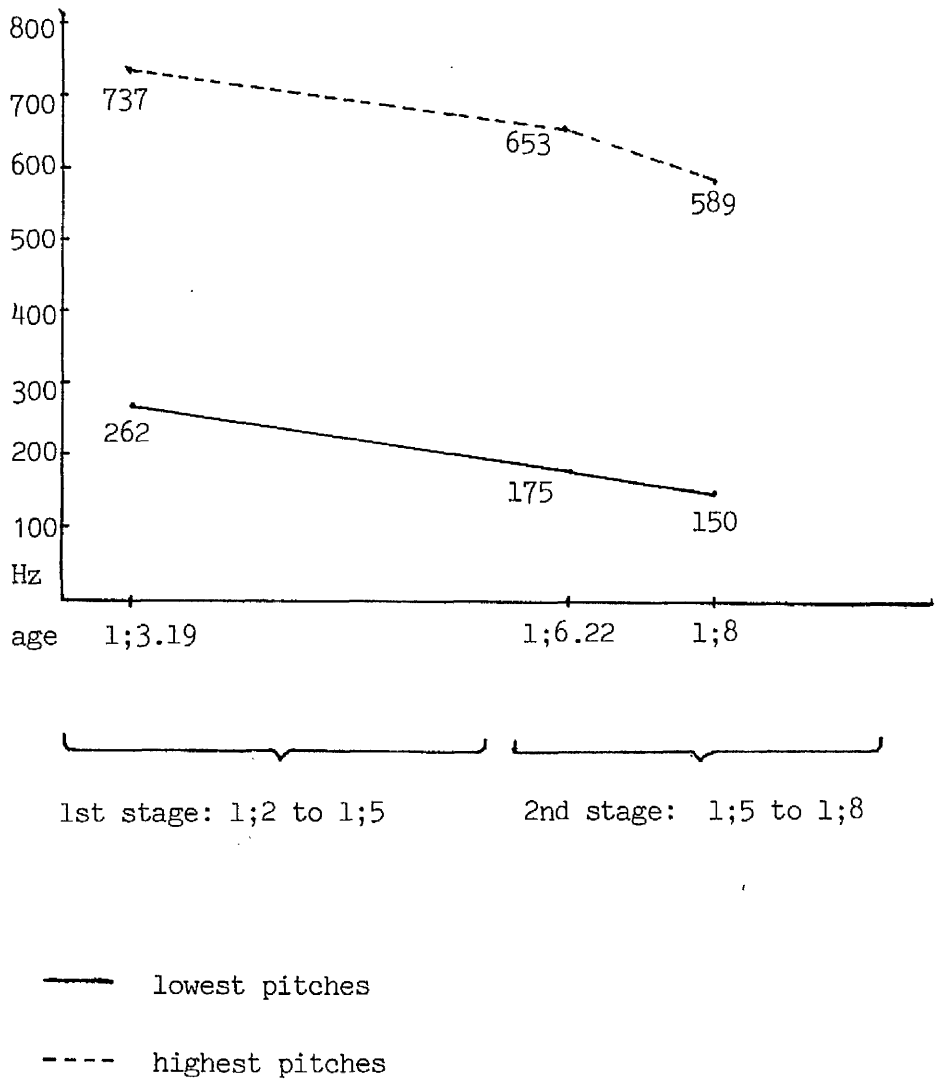


FIG. 3. DEVELOPMENT OF R'S LOWEST AND HIGHEST PITCHES

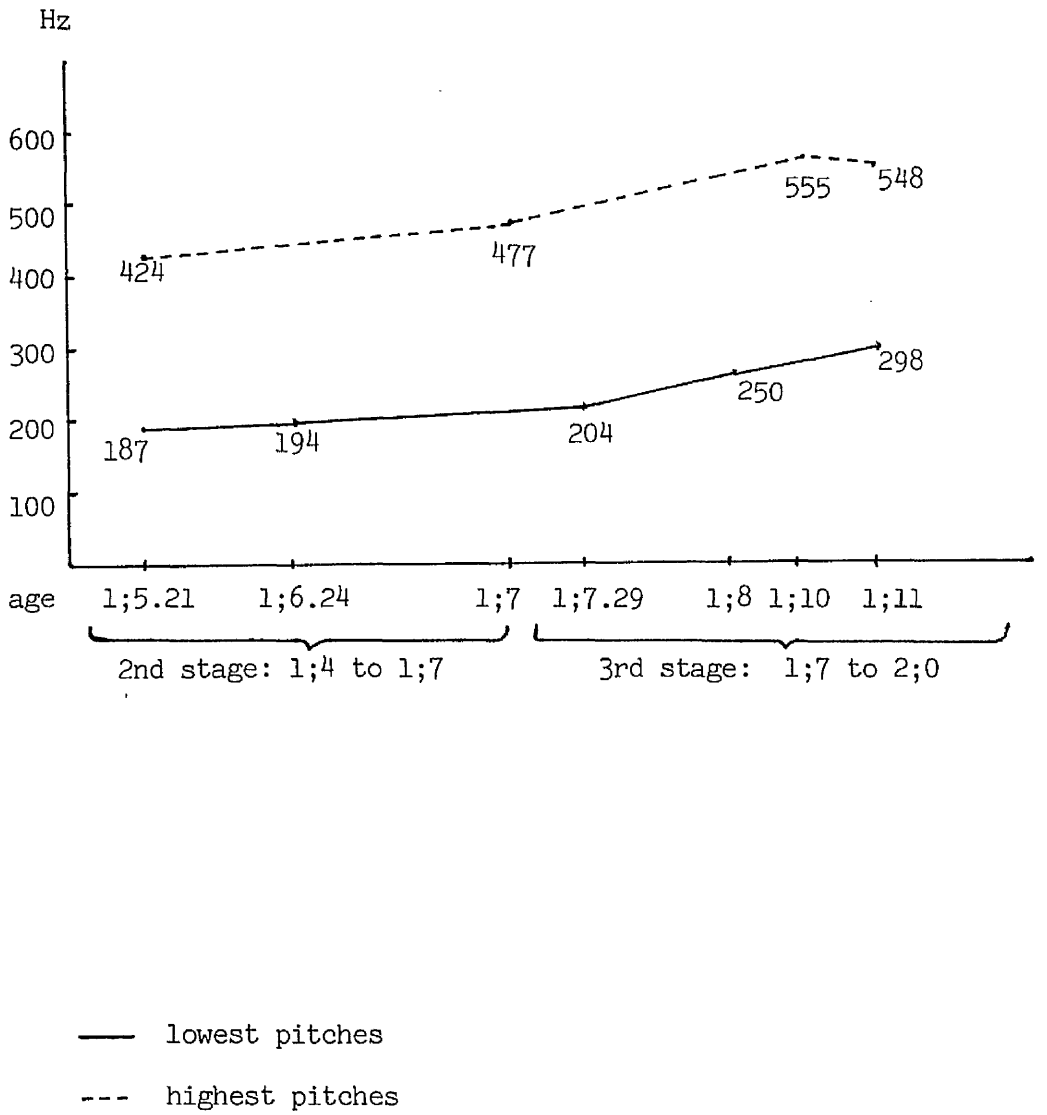


FIG. 4. DEVELOPMENT OF T'S LOWEST AND HIGHEST PITCHES

in the systematic signalling of the phases of the event (which probably precedes later semantic and grammatical constructions related to tense and aspect) through different uses of intonation in both the vocalizations and the first word-like utterances registered in her speech.

T. resorts less to intonation than R., as well as displaying a smaller pitch range. The fact that he is a boy, from whom lower frequencies may be expected than from girls, cannot explain his narrower pitch range. His registered lower pitch is higher than the registered lowest pitch in R's speech.

A tentative hypothesis can be put forward concerning at least some of the factors which explain the difference between T's narrower pitch range and lesser dependence on intonation as opposed to R's greater pitch range and use of intonation as a very rich means of expression. It is possible that the intonational differences in the maternal speech addressed to the subjects account at least partially for these differences in the children's output. Greater pitch range, greater resort to intonation, greater use of baby-talk, of intonational and other prosodic features to establish joint-attention (exaggerated intonation, falsetto, loudness) have been observed in the speech of R's mother addressed to her than in the speech of T's mother addressed to him, although a detailed analysis has not been made.

Although this hypothesis may appear too mechanistic to be generalized, it serves the purpose of drawing attention to the fact that the input needs to be taken into account as one of the basis for the child's organization of his linguistic system.

In spite of the differences found in the use of intonation by the subjects, if one compares R's system of tones in her first stage (1;2 to 1;5) with T's second and third stages (1;4 to 2;0) i.e. during the period which corresponds roughly to single-word utterances, it becomes clear that the basic intonational contrasts are present equally in both children. In order to make the reader's task easier, a graphic representation of T's and R's early intonational systems is given below in Table 8.

Tones	T	R
Falling	1T 2T 5T	1R 2R $2R_1$ 3R 4R
Level	4T	5R 9R 6R
Rising	3T 6T	7R 8R

TABLE 8. Graphic representation of T's and R's early intonational systems.

Both children establish contrasts in range and direction from a very early stage. From the very beginning, the children produce different sorts of falls, which can be defined as a difference in range - a wide versus a narrow fall (T's contrast between 1T and 2T; R's contrast between 2R - narrow fall - and 1R, 4R and $2R_1$ - wide falls). T. produces falls first, his level and rising tones emerging a little later. Such an order of emergence is in accordance with what Crystal (1979) and Menn (1976) claim as regards the order of acquisition of tones in English. R. already produces both rises and falls at the start of the data (around 1;2). Moreover, both falls and rises are used in vocalizations and word-like forms. However, since data on earlier periods are not available, a definite claim cannot be made about the order of emergence of rises and falls in this child's speech.

Another contrast in range is the one relating to a requestive level with a higher head (which makes it actually a high-to-mid range) and an assertion-type fall, in R's system. The contrast between level and fall conveying obviousness and topicalization versus new and definite statements is acquired later.

For both children, egocentric and social speech is also a contrast established in range, to which loudness is added: the former is conveyed by a narrow fall; the latter by a wider fall.

Low versus high rise is also found in the early stages, though T's data show that they are a later distinction than range contrasts in falling tone.

The basic contrasts in pitch direction are rise versus fall and a double rising-falling movement typical of exclamations

(R's 3R and T's 5T). The latter is present earlier in R's speech than in T's. It is a tone very characteristic of baby-talk. As far as the rises are concerned, they seem to serve primarily as a means of engagement in conversation, a dialogue-maintaining device and call for joint-attention in both children. The rise as a questioning device seems to be processed and produced much later.

Finally, it should be noted that it is not so much in the intonational categories themselves that the greatest similarities are to be found between the two subjects. There is far more in common in the way they acquire their intonational systems integrated in the processes of dialogue with their senior interlocutors. This will be discussed in Chapter 5.

CHAPTER 4

MULTI-WORD UTTERANCES AND INTONATION ACROSS SUCCESSIVE UTTERANCES IN R'S SPEECH

Selected data from age 1;8 to 2;0 will be used to illustrate some points made here. Only R's data are considered because her speech is well ahead. T. had no multi-word utterances at the time of data collection.

4.1. Types of multi-word utterances in R's speech

From around 1;6 on, the first recorded multi-word utterances appear in R's speech, always in the context of interactional processes. They fall into two (formal) types at the beginning (from around 1;6 to 1;8):

1. Stereotyped sequences, incorporated from the discourse of the adult interlocutor and given up soon afterwards - they are normally uttered in one dialogue situation and then disappear. Rather than being processed as multi-word utterances by the child (let alone as sentences), they seem to be understood (and produced) as an unanalysed chunk at the time of their emergence. The elements constituting these sentential chunks are non-analysable into separate items. The list below shows recorded instances of stereotyped sequences produced in this period.

Child's forms	Translation	Adult Portuguese
9R fojnə́na	'Went to bed'	foi nanar [foj nə́na]
7R sajpápaj	'Leave (with) daddy'	saiu com o papai [saíw kõw̃ pápaj]
2R r.h. paiśkɔla	'To school'	pra escola [pra iśkɔla]
9R-9R pikə́dew pikókɔ	'Lost chicken'	perdeu o cocó [perdew u kókɔ]
2R r.h. elifõmbɔ́la	'He went away'	ele foi embora [eli foĩmbɔ́ra]

As an illustration, the 'sentential' form [fojnə́na] 'went to bed' is examined in detail. It occurs for the first time in the context of an adult's attempt at eliciting a report of experience (concerning a past event in which the mother was also present) not linked to the immediate context, to a third person participating in the dialogue. It is produced in the course of a conversation between the child, the mother and an interviewer, in the AT session at age 1;7.8.

M. Conta pra Ivânia que nós vimos lá perto da casa do André, o cabritinho. 'Tell Ivania that we saw near Andre's house, the little kid'

I. O que você viu lá, bem?' 'What did you see there, love?'

9R nə́na

M. Áhn? 'What?'

9R nə́na

M. Nenê? Como é que o cabritinho fazia? 'Baby? How did the little kid go?'

2R mɛ(with little conviction) 'ma'

M. and I. Mé...

M. ... né? 'Ma... wasn't it?'

9R nənə́na

M. Ahn? 'Hm?'

9R mənə́ne

M. Que? 'What?'

9R fojnə́na 'went to bed'

M. Quem é que foi nanã? O cabritinho? 'Who went to bed? The little kid?'

2. Sequences constituted by words previously acquired, but that start now to be linked together, giving the impression that a rudimentary syntax is coming into use. Their constitutive elements are used independently, though not like the adult usage. They are the following:

4R áde 'where' / ála - áti - a 'there - here' + noun-like form;

2R or 5R tɛ 'want' } + verb- or noun-like form;
2R or 5R da 'give' }

2R vo/óvo 'I'm going to' + verb-like form;

7R võw 'let's' + verb-like form.

4.2. Prosodic strategies for multi-word utterances

A particular strategy is developed by R. from this stage onwards, as more complex multi-word constructions start to be established, whose mastery depends not only on mastering a segmental syntagmatic sequence, but also on rhythmic and intonational units typical of adult Portuguese sentences. This strategy is based upon

the preservation of the rhythmic and intonational unity of the utterance, at the expense of the segmental stability and/or regularity. It is manifested by false starts, insertions and repetitions of syllables as well as by reductions of syllables and pauses outside the usual place (obviously from the point of view of adult speech). In other words, the child preserves the prosodic by means of the sacrifice of the segmental component of the utterance. The data which follow provide evidence for this claim.

R. looks for a toy.

5R kɔ'kɔ: 5R kɔ́kɔ: 'baby-talk for 'chicken'

M. Não tá mais aqui. O que você mais gostava não tá mais aqui. 'It isn't here anymore. What you liked best isn't here anymore'.

I. Ih! Perdeu o coco perdew u ko'kɔ:

'Oh! The chicken is lost!'

9R pə'dew ('It's)lost'

M. Perdeu '(It's) lost'

9R pɨkə'de:w pɨko'kɔ: 'The chicken is lost'

I. E, perdeu. 'Yes, it's lost'.

(1;7.8)

In her horizontal construction (the chicken is lost), which is a tentative repetition of one of the adult's previous utterances, the child starts her utterance with a mid pitch on the first syllable, whereas the adult model has high pitch in the same onset

position. The next syllable [kə], uttered by the child with high pitch, seems to have been inserted so that she could reach the pitch of the onset of the adult tone unit and achieve a corresponding rhythmic unit. It seems thus to have the function of supporting a prosodic unity. If one compares this utterance with the word said by the child in the turn immediately before namely, [9R pə́dew], for perdeu, one sees that the extra syllable does not appear in the one-word utterance i.e. when the word considered is uttered separately, and when there is not the great difficulty of elaborating a multi-word construction.

It is worthy of note that whenever the child interrupts the utterance with a pause (no matter how long or short), the tone is taken up at the same pitch level as the one at which the voice stopped. See, for example, the instance below, in which there is a false start [mpu] and the utterance seems to be divided into three rhythmic chunks separated by pauses.

7R mpu / pukúla // manéne 'look for my baby'

(1;9.8)

(OBS. The sign '/' stands for a short pause; the sign '//' stands for a long pause, usually accompanied by breath).

Such a procedure at the phonological-prosodic level, in the specific case of this subject, has its origin in the beginning of what is here labelled as 'second stage' and goes on, with characteristics particular to each developmental stage, up to approximately the age of three years. The example below was recorded during the VT session corresponding to age 1;11.25. The tone used by the child in both utterances is a falling-rising one, typical, here, of a polite request.

M. Vai nanar na casa do boi? Será que ele deixa? Pede pra ele. 'Are you going to sleep in the bull's house? Will he let you? Ask him'.

11R de? / desəéw / sønəna / akazadúboj

'Let me sleep (baby-talk) in the bull's house' (corresponding to adult Port. [dejʃaéw nána na ˈkaza du ˈboj]).

Soon afterwards, and because she gets no reply from the wooden bull, R. leans forward looking at the wooden toy-stable to insist on her request:

11R desaø / m // dúmidu / akazadúboj

'Let me sleep in the bull's house?'

(corresponding to adult Portuguese: [dej ʃaéw durˈmi na ˈkaza duˈboj])

In the above example, the speech situation is doubly difficult for the child: she has to process a rule of inversion from her mother's indirect speech to direct speech (a request addressed to the bull), in addition to having to produce a longer construction than she has so far used (and, of course, some other difficulties, like memory limitation of a child of this age, may also be involved). The construction involves a complexity which is revealed at two levels: a syntactic-semantic and a phonetic-prosodic one. As a result of this double difficulty - and probably to make the task easier - R. makes use of expedients which guarantee the segmentation of the long utterance into short and easier-to-elaborate rhythmic chunks; stuttering, pauses outside the normal place, false starts and insertion or repetition of syllables. In the particular case

of the two utterances in the example given above, there are: a false start [de?], a construction of a syllable, [sø] (based on M's sə́ew) in the first utterance, and the insertion of a syllabic [m̩] as well as the insertion of the second [du], in the second utterance.

The example given below illustrates utterance variability by means of re-organization and segmentation of the utterance in rhythmic chunks by means of pauses.

8R badá̋oj 'tape-recorder'

8R ɛ́sə̃̋w '? floor'

2R r.h. pŏj̆ badá̋oj s / ə̃ w

'put tape-recorder (on the) floor'

(1;9.8)

The third utterance is an integration of the first and second utterances (8R badá̋oj 'tape recorder' and 8R ɛ́sə̃̋w '? floor', respectively) into a longer one. The utterance rhythm has been split up into two rhythmic chunks in a way unusual for the adult speaker: segmentation within a syllable, namely, s/ə̃w. It is worth noting that the rising-falling tone progresses throughout the utterance in spite of the interruption.

This phenomenon of prosodic strategies for multi-word utterances contributes to attesting the importance of the prosodic component as a way of access to the interpretation and building-up of segmental sequences acquired later on. In fact, Branigan & Stokes (1981) have noted that, from as early as the one-word stage up through more advanced periods, children alter and reorganize the form and composition of their utterances. This is

due both to 'input' factors (perception, cognition and experience) and to 'output' factors of organization and production constraints. And it is very frequent that this 'reorganization of the output' involves prosodic re-adaptation.

4.3. Intonational characteristics of multi-word utterances

Two types of utterance may be observed in the speech of this child as far as intonation assigned to multi-word expressions is concerned.

1. One phonologic-prosodic whole, with one tone unit assigned to the whole utterance. Example:

M. and R. looking at a story book.

2R r.h. pu´kula 'Look for!'

M. Procura o que? 'Look for what?'

2R r.h. pukúlawbalaháõw 'Look for the horse'

(1;9.8)

The main aspect of the utterance thus characterized is that the several components of the adult tone unit begin to appear. Head (sometimes even pre-head) nucleus and tail start to be produced:

2R r.h. ovoti´la´tĩta 'I am going to take the paint away'

pre-head head nuc- tail
leus

(1;9.8)

2. Two utterances (or more) separated by pause, but with cohesive continuity between them with regard to the contours involved - one is the continuation of or has cohesive relationship with the previous one. Note, for instance, the data below.

2R ábo 2R ábo pakɔka 'All gone. All gone. Popcorn'

(1;7.21)

[abo] is uttered twice with the nuclear movement corresponding to tone 2R and [pakɔka] 'pop-corn' forms the tail, spoken on a relatively low pitch throughout.

The utterances are considered as separate units on the basis of two criteria. Firstly, they are separated by perceptable pause and constitute a separate rhythmic unit. The pauses are longer, though, than the strategic pauses outside their usual places discussed above, which aim to cope with the building-up of longer utterances. Secondly, since each utterance is the propositional continuation of the previous one, each of them is clearly an unconcluded statement.

Common to both (1) and (2) types of intonational configuration of the utterances is the frequency with which tones 2R and 9R with high or rising head spread over the multi-word constructions at least at the beginning (from 1;6 to 1;9, approximately). It even seems that they serve as an intonational frame of support for the first horizontal constructions which constitute an extra cognitive and processing burden for the one-year-old child.

Evidence for this may be found in the child's utterance which is underlined in the example that follows.

M. Onde você vai, Raquel? 'Where are you going, Raquel?'

2R r.h. anaupópo '...(?) the dummy'

M. Olhar o popô? 'Look at the dummy?'

2R o'la 'Look'

(1;7.21)

R. announces her intention, emphatically, with a rising head assigned to a sequence non-existent in her vocabulary nor in the adult Portuguese, namely [ana], which is interpreted by the mother as olhar [oʎa], because of its phonetic similarity with the sequence which R. produced and because it might be predicted to appear in that point of the utterance. The hypothesis proposed here is that this sequence is a segmental support (to which a rising head is assigned) to fill an intonational and rhythmic gap. As further support for this hypothesis, note the instance below. The child can, by this age, produce [ti'la] 'take out' or 'take off' but, when repeating M's utterance from the previous turn, she does not repeate the item corresponding to [ti'la], but produces an unintelligible sequence, which corresponds to nothing that could be said to belong to her speech in this stage:

M. announces her own action.

M. Por o microfone aqui, tirar a calcinha...
'Put the microphone here, take off the knickers...'

8R ásiɲa 'Knickers' (repeating the last word of M's utterance and its intonation)

2R r.h. nənəkásiɲa '...(?) knickers' (while M. takes off her knickers)

(1;7.21)

An example of 9R rising or high head serving the same purpose is given in Chapter 5, p. 221 .

This strategy is, in a way, similar to the disturbance of the segmental component discussed earlier and it attests to the importance of reference points and rhythmic and intonational chunks for the flow of discourse and the building-up and processing of longer utterances.

4.4. Intonation across successive utterances and the emergence of paratones

A continuity has been pointed out between the succession of one-word utterances. Its role as a pre-requisitive factor to the emergence of syntactic constructions and propositions has also been emphasized. Bloom (1973) refers to holistic and chained single-word utterances. In holistic utterances, a single proposition is encoded over two or more successive utterances, each of them expressing one component of the proposition: argument, predicate, modifier, etc. Chained utterances, on the other hand, express a series of discrete propositions. Typically each utterance encodes a separate event or action. Scollon (1979) shows that syntax emergence is a move away from vertical (i.e. a series of one-word utterances) to horizontal constructions (i.e. multi-word utterances). Ochs, Schieffelin & Platt (1979) studied the sequential expression of propositions across successive utterances, which is said to be heavily relied upon by caretakers interacting with young children. They argue therefore that propositions should be a workable unit in the study of language development.

The focus of interest here is in what Bloom called holistic utterances and in the way whereby intonation transcends the limits of an utterance even in a period when there is no grammar in its own right in the speech of the subject considered.

In R's speech, from around age 1;6 to 1;8 there are instances of successive utterances which seem to be linked by intonation, giving as a result an impression of textual cohesion and wholeness. The sequence of tones used in a row are either intonationally continuous (see page 178) or various tones combine to form units

larger than the tone unit. Consider, for example, the instances below, taken from sessions ranging from age 1;6.6 to 1;7.8.

(1) R. wants to put M's hand into a tin.

8R mṍmõ̃j 'mummy'

2R mõ̃w 'hand'

8R mṍm ãj 'mummy'

2R mõ̃w 'hand'

M. Mão da mamãe? 'Mummy's hand?'

2R mṍm ãj 'mummy'

(1;6.6)

8R is an unconclusive and incomplete tone. Here it is combined with the conclusive tone 2R. It is ambiguous whether the sequence formed by 8R + 2R is to be considered as a rising pre-nucleus tone 2R split up in two parts (with a reasonable period of silence between them) or two separate tones uttered one after the other. The first interpretation could perhaps lead one to consider the items mṍm ãj and mõ̃w as two constituents of a sentence, either expressing a relationship of possession ('mummy's hand') or subject-predicate ('mummy is going to put her hand here'). But taking into account that: 1) what the child says in this period is semantically and syntactically unclear and 2) her utterances seem to refer to a whole situation, being thus pragmatically undetermined, the example above is better considered under the head of successive utterances rather than of a single utterance split up by pause.

(2) R. picks up a plastic bag full of stationery items. She shows it to I., looking very proud.

7R áve 'a(?) see?' ('do you want to see?')

2R h.h. áve 'a(?) see' ('let's see?')

4R ála 'here (it) is' - opening the bag.

Some minutes later, R. addresses I., inviting her to join in a shared action.

7R ve 'see?'

7R võw 'let's?'

(1;7.8)

The first lot of 3 utterances in the example above is constituted respectively by:

- a question-like tone 7R corresponding to an invitation formula;
- a (definite) statement-like tone 2R corresponding to a reply to the child's own previous invitation;
- an ostention-like tone 4R related to the carrying out of the action to which the invitation refers.

The procedure of inviting and subsequently giving a reply without waiting for an expected answer from the interlocutor is common in the speech of both T's and R's mothers when addressing their children. They do so whenever a request (or even an order) is meant to be polite (or milder). The sequence of utterances above would correspond to M's: "(Quer / vamos) ver?" [kɛr /ˈvõmuzˈver] '(do you want/ shall we/let's) see?'. "(Vamos) ver. [võmuzˈver]. '(Let's) see'. This is tantamount to saying that not only was a whole sequence of utterances taken up by the child (who repeats the nuclear part of the adult's utterance) but also that a meaningful cohesion linking the utterances is guaranteed by the use of intonation. The same sort of cohesion, by the way, is present in the adult's speech.

In the case of the second group of 2 successive utterances in (2) it could be argued that the child displays a technique of splitting the sentence into two (prosodic) chunks, giving to each part the

same intonation. Such a hypothesis would imply that the child knows already an underlying sentence structure and processes a word-order reversal rule, followed by a prosodic rule, cutting the sentence up into two prosodic blocks, separated by pause. But if one looks carefully at the history of the interaction between R. and her mother, it will be noticed that R's mother resorts to expressions of the kind [võmuz ´ver võmuz] (literally 'let's see? let's?') where the last võmuz is a tag sentence added to the first part of the utterance to draw the child's attention and to make polite and/or intensify a demand or request. Thus, it seems that the child has assimilated a sequence of tone-units which makes up a bigger discursive unit. And that the intonational continuity is sensed by this child from as early as about 1;6.

Couper-Kuhlen's (1982) theory on intonational macrostructures has represented a major motivation towards the recognition of the emergence of successions of tone-units, cohesive to a certain extent, in the speech of this child. The author referred to puts forward the hypothesis that tone-groups combine one level up to form larger phonological units - which have been called tone sequences, pitch sequences and paratones in the literature. She prefers to retain the term paratone, which gives a more precise idea of hierarchization in a cohesive unit. The key assumption underlying her proposal is that 'intonation is responsible for creating phonological gestalts', and the result of that is a speech unit experienced as a whole, bounded at its beginning and end, internally cohesive. The tone unit is said to be a phonological gestalt en miniature. Major and minor paratones have been singled out, the former being phonologically equivalent to the orthographic paragraph, and the latter constituting subordinate parts of major paratones.

Following Couper-Kuhlen's rationale, then, it could be said that the child is exposed rather to paratones - much more bound to the idea of discourse adopted here - than to isolated tone units - which, in turn, are closer to the notion of separate clauses, although not necessarily corresponding to syntactic units. It is not surprising, therefore, to find the beginnings of 'intonational chunks' naturally linked by cohesive principles, corresponding to the expounding of successive one-word utterances in the language of children as young as the two subjects whose speech is being considered here. In fact, as far as R's speech is concerned, at around 1;6, there are no texts, and it is questionable whether there are sentences at all, but some clues show that sequences of tone units start to bind together in a cohesive way.

As evidence, let me refer back to the two examples presented earlier in this section, (1) and (2). According to Couper-Kuhlen's classification for minor paratones, the cohesive principle labelled as 'unfinished tones' is applicable to the sequence of tones (8R + 2R) + (8R + 2R) + 2R of the example (1) and 'tonal reduplication accounts for the second lot of utterances in (2): (7R + 7R).

Closer to the paratones pointed out by Couper-Kuhlen are what I here labelled as intonational frames for narratives. Their emergence will be explained in three steps, corresponding to 3 successive stages of development.

First step

The intonational frames for narratives are set up in routines of story-telling, reports of experience, descriptions of persons and objects told by the mother to the child. When R. is around

1;6, she starts to produce a bilabial nasal obstruent with high- (or sometimes mid-) to-low fall, to signal both acknowledgement and that attention is being paid to the interlocutor's speech: [↰m]. In usual and informal adult conversation, [↰m] is a phatic device, a sort of feedback used by the hearer to give the speaker the signal to continue. Eventually the attention-paying device evolves to signalling the crucial parts of reports and narratives (i.e. fictional or actually experienced accounts by the narrator) told to her by the adult. The sound [↰m] is inserted at the ends of information units of the interlocutor's speech, whenever the child senses that the topic or story will continue, until a falling (conclusive) tone will indicate that the speaker's turn is over or a rising tone will call for the child's reply. The crucial parts which are prone to trigger the child's phatic reply are mainly characterized by an inconclusive tone, generally a rise to high (characteristic of a request for confirmation and not for information) or a low-to-mid continuous rise (similar to what has been labelled tone 8R), or a level tone. They are usually followed by pause, probably because of the mother's deliberate tactic of calling for a response from the child in such dialogues. The instances below are illustrations of the use of [↰m] matching inconclusive tones throughout the mother's discourse.

M. tells R. about something that happened to D., her older sister.

M. Sabe por que a Lela tá chorando? 'Do you know why Lela is crying?'

$2R_1$ m

M. Ela foi sozinha viajar sem você...

'She took a trip alone without you...'

$2R_1$ m

M. Ela sentiu falta. 'She missed you'.

(1;5.27)

M. invites R. to join her in play.

M. Vamos pegar aquela revistinha...

'Let's take that little magazine...'

$2R_1$ m

M. ... que tem o gatinho... 'which has a kitten...'

$2R_1$ m

M. ... e o babalo? 'and a horse?'

1R vɑ̃w vɑ̃w: (excited) 'let's, let's'

(1;9.20)

The end of M's paratone is marked either by a fall to bottom or near-bottom of the voice range or by a rise (corresponding to an invitation formula) which calls for an answer on the part of the child: [vɑ̃w vɑ̃w] 'let's let's'. It is also worthy of note that [↖m] is inserted in the middle of M's discourse and never at the end of it. From the point of view of the adult language, it is a correct insertion. Such a predictability seems to show that the child is starting to be aware of a macrostructure or a text and, prosodically, she is starting to be able to perceive

(although not necessarily to understand) a unit larger than the tone-unit.

Second step

Another indicator of narrative-formats is the word [ĩ́tõ̃w] ∿ [ntõ̃w] ∿ [ṍtõ̃w] ∿ [tõ̃w] from adult Portuguese então [ĩ̃ɲ́tõ̃w] 'then', pronounced with continuous rising glide (8R in R's system) with an optional fall at the end. In adult speech, it fulfills, among others, the function of cohesive particle which links parts of a text, and logical or temporal enchainment of events in a story. In story-telling formats between adult and child it usually calls for the attention-paying device [↰m] as a phatic reply, thus creating the pair: ⤾ ẽtõ̃w ↰ m.

There are two characteristics in the use of this particle in the data analysed:

1. Both in R's and in M's speech, it is also used as a device for setting up a story-telling game. In this sense, [ẽ́tõ̃w] migrates from the function of linking different narrative blocks to the initial part of the story.

2. Prosodically, it is pronounced in a rather exaggerated way and its pitch peak is higher than usual, with an abrupt fall following the high pitch.

The example below shows how the use of the pair [⤾ ẽ́tõ̃w ↰m] contributes to the building-up of the (proto-) paratones for narratives.

R. focuses on a story-book and reaches out to take it.

8R ĩ́tõ̃w 'then'

9R ɔ 'look'

8R tõ̃w 'then'

M. O que? 'What?'

9R ´katu 'cat(?)'

$2R_1$ tõw 'then' (demand)

M. O que é? 'What is it?'

$2R_1$ tõw 'then' (id)

$2R_1$ h.h. tõwkutõw 'then [ku](?) then'

M. Ahn?

R. opens the book

2R tõw 'then'

She then puts the book on the floor and begins to turn over the pages.

2R tõw 'then'

M. "Então"? '"Then"?' (trying to interpret R's previous utterances)

Ah! 'Oh!'

Então ... 'Then...'

$2R_1$ m

R. then keeps quiet while M. starts to tell her a story, following the pictures in the book.

M. Então ... 'Then...'

$2R_1$ m

M. ... o cachorrinho... 'The little dog'

$2R_1$ m

M. ... o Snoopy... 'Snoopy...'

7R m

M. Está dormindo. '(He) is sleeping'

Some minutes later, R. pretends to read a story to M.

8R ntõw 'then'

M. Então... (imitating R.)

8R tõw (turning over the page)

M. Hm

8R tõw (id)

M. Hm

2R m (imitating M.)

8R tõw (turning over the page)

M. Hm

8R tõw (turning over the page)

M. Hm

She soon gets tired of this game and hands the book over to M.

2R ta 'here you are'

(1;8.0)

It should be noticed that, in the first part of the piece of dialogue above, R. uses the word [ẽ́tõw̃] to label the book, the whole situation of the story-telling and employs it in her request to M., with tones 8R (pointing to the book), $2R_1$ (requesting or even demanding that M. plays at 'story-telling') and 2R (reference to the reading situation), respectively. Then, the mother, as soon as she succeeds in understanding the child's intention, starts to tell - or pretend to tell - a story, following the intonational scheme:

M. ⌣ ⌣

Ch. ⌝m ⌝m

This is eventually interrupted by R's shift of attention.

In the second part of the dialogue, the situation gets reversed - R. takes up the same intonational scheme as the one M. was using.

Thus, from the point of view of the conversational exchange between M. and R., as far as story-telling formats are concerned, there seems to be a starting frame:

M. ⌣ então [ẽ́tõw̃] 'then'

Ch. ⌝ m.

This dialogue situation is reversed, with the resulting pair getting established:

Ch. 8R itõw̃ ⌣ or ⌣

M. ⌝m

Furthermore, it is worthy of note that a cohesive succession of tones is established:

interlocutor 1: ⌣ ⌣ ⌣ ... ⌝

interlocutor 2: ⌝ ⌝ ⌝

each incomplete rise  being ascribed to the 'cohesive' word [ĩ́tõw] 'then'. This intonational frame is practised by both interlocutors in the example seen.

Notice also that, as soon as the child establishes the 'end' of her story by a falling tone (2R), handing the book over to M., her story-telling format (or, intonationally, paratone) is over. Indeed, she proceeds immediately to another topic.

Third step

The third step of the building-up of a proto-paratone is illustrated in the following piece of dialogue taken from the session corresponding to age 1;9.8.

R. has a story-book in her hands.

M. Que que tem aí? 'What have you got there?'

8R tõw 'then'

M. Ahn.

8R nene 'baby'

M. Ahn.

8R asej 'I found'

M. Hm.

2R r.h. balalõw 'big horse'

M. Cavalão? 'Big horse'

2R r.h. balalõw 'big horse'

M. Ahn.

2R ˈpõtu 2R pósa 'That's it. Close'.

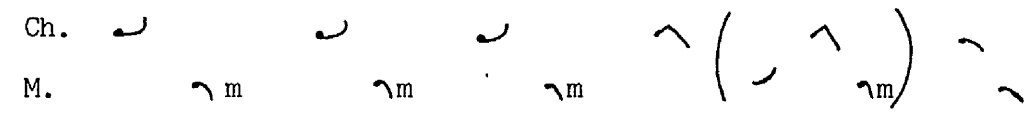
M. Pronto. Tá bom. Fechou. 'That's it. O.K. Closed'

This is the child's first recorded attempt at narrating something more substantive to her interlocutor: 'Then, baby, I found, big horse'. It is worth noting that the tone sequence she uses is exactly the basic intonational framework that has been worked out both by the adult and by herself, in story-telling games:

8R - 8R - 8R - 2R,

i.e., a series of unfinished 'enumerative' tones (followed by pause) plus an ending-like fall-to-low. The contribution of the interlocutor is to keep on inserting what can be represented by [↖m] in the gaps left by the pauses in between the rising tones, as a paying-attention device.

So, the intonational scheme of this piece of dialogue is better represented by the following diagram:



where the parenthesis represents the facultative adult's turn filled by a confirmation question followed by an adequate answer by the child plus a paying-attention device uttered by the adult, and M's final comment confirming the end of the narrative. This intonational framework is closer to the <u>reduplicative succession</u> type of paratone cohesion described by Couper-Kuhlen (1982), that is, "when identical nuclear pitch movements or identical patterns of nuclear pitch movement occur, forming a patterned succession." (p.13)

Intonationally (and even lexically) there is a sense of wholeness in the 'narrative' speech of this child. The various parts of a report are present, i.e., an <u>introduction</u>: [8R tõw] 'then' (it is here used as the introductory device of story-telling formats

as already explained); the unfolding of the story, manifested by the sequence of 8R tones on words naming the entities present in the pictures she sees in the book; two ending points: one of the story itself (manifested by 2R r.h.) and one of the story-telling format (2R ˈpõtu // 2R pə́sa 'That's it. Close').

Nevertheless, the intonational framework for narratives does not correspond to a narrative in its own right. For example, there is no time succession of connected events being reported, nor is there any 'grammar' of the story (Bower, 1976). There are rather scattered references to pictures as they appear in the book, as well as a verb-like form [ásej] 'I found' which has no relationship to the pretence story. In other words, this is no narrative or story stricto sensu, although a story-telling situation is clearly seen, and the contribution of both participants has a pragmatic function (a shared action) as well as a linguistic character (through the joint use of an intonational frame).

In fact, as has been pointed out in the literature, (Perroni, 1980), the child takes part in story-telling games long before he/she is able to process the intricacy of the structure of a narrative. Likewise, the concept of frame or story schemata has been considered as fundamental for the understanding and recall of stories (cf. Bower, 1976; Mandler, 1978). It has also been claimed that the child, by the age of around 3;0 has a linguistic framework of a previously known narrative, in which he/she can either insert experienced events, collage-like or freely combine different events/actions ascribing to them a status of past reality (cf. Perroni, 1980).

What seems to be happening in the first attempts at story-telling on the part of R. then, is that there is no understanding nor production of stories, but there are hints of a frame or schema at the intonational level, related to intonation of story schemata which indicates that the child has clues for processing intonational macrostructures. It is a succession of naming games, but put in a frame of a paratone typical of narratives.

Furthermore, it is also suggested here that paratones emerge in interactional formats in the course of dialogue between child and adult. As suggested by Ochs et al., (1979), both interlocutors contribute their language experience to the building-up of longer linguistic units. Perroni (1980) states the same for proto-narratives.

As evidence that some interactional formats are favoured instances of linguistic exchange and development, are syntactic constructions far too mature vis-a-vis this child's stage of linguistic development and which are employed only within narrative formats (and paratones). An illustration of this is given in the instance below: it is taken from the same session as the previous example discussed above, i.e, 1;9.8. The mature expression is underlined.

R. takes a book.

2R ´kõtu 'I tell'.

2R h.h. ó´kõtu '<u>I</u> tell'

M. Cê conta? Tá bom. 'You tell? O.K.'

8R ĩ´tõw 'then'

M. Ahn.

8R mininu foj'la 'boy went there'

M. Sei. 'Hm' (literally 'I know')

8R abalalõw 'The big horse...'

Etc. This is a very long piece of dialogue in which the 'narrative' - which is in fact the successive naming of the pictures of a book - is always interrupted by references to details of the immediate context, like turning over the page, or asking M. for help, etc. It eventually ends up with M's suggestion for changing to another game.

The expression mininu foj'la 'boy went there' is recorded twice in this session, always uttered in the context of a story-telling format. There is no indication that it is produced outside this situation. Not surprisingly it is an unanalysed chunk, for the child does not make a productive use of the past tense of the verb go, except in the ready-made expressions restricted to certain dialogue situations (cf. foj naha 'went to sleep', example on p. 172). It is therefore doubtful that such an expression would reveal an underlying knowledge of syntactic rules.

Conclusion

In brief, this child seems to make use of a gestaltic perception as far as paratones are concerned. This interpretation is compatible with Couper-Kuhlen's view about intonation as phonological gestalts. One may hypothesize that the existence of intonational macrostructures in the child's speech shows that intonation functions as a perception strategy as well as a production strategy. It seems that the child is able to recognize phonological

macrostructures in the speech addressed to her. Not unexpectedly, however, there are also examples of just a part of the adult's tone unit being repeated, as discussed in the following chapter.

CHAPTER 5

INTONATION AND DIALOGUE PROCESSES IN R'S AND T'S EARLY SPEECH

5.1. Specularity, complementarity, reversal

It has been reported that the child is able to match his partner's gestures and movements from the time he is some months old. Kaye (1979), for instance, has studied imitation of mouth movements, open-close movements of the hands, tongue movements and rhythmic bursts of limb movement. To explain the infant's ability to imitate mouth movements without feedback from the investigator, he hypothesizes that the child has already been engaged in mouthing games with his mother and father, who have been imitating his behaviour before. Thus, the adjustment between the infant behaviour and his partner's starts very early, in gestural and pre-verbal ways. Apart from Kaye's behaviouristic view, gesture, eye-contact, gaze tuning and other interactional processes which precede linguistic communication are widely reported in much work on the subject (cf., among others, Bullowa, 1979; Camaioni et al., 1976). And, of course, these speaker-listener dialogue adjustments continue through the child's babbling phase and through the 'linguistic' phases of language development. Moreover, as soon as the child starts to utter babbling sounds, his interlocutor tends to repeat and imitate what the child says, thus extending what was previously gestural to what is now vocal.

Tuaycharoen (1977) presents very good examples of 'matching' in the 'dialogue' between the infant she studies and his senior interlocutors. She observed that the baby imitates certain phonetic and prosodic features of the adult's speech and vice-versa so much

so that she refers to 'shared features' in both partners in the dialogue. The one adapts his speech (or vocalization) to match the other's. "Such interaction could be seen from the imitation of pitch and pitch contour, the prolonging of pitch and vowel length, and the lowering of pitch register as if whispering to each other" (p.45). Since the imitation was bilateral, it is clear that formats like these are at least a preparation for further dyadic linguistic interaction. Lins-Eyre (forthcoming) refers to partial matching in the speech of a child as young as 26 weeks.

Much work has been done on imitation and repetition. It has been of central concern in language acquisition studies as well as a topic for discussion in theories of learning processes and theories of knowledge. Considerations about imitation have ranged from its mere ruling-out as an acceptable explanation for rule-discovering and language acquisition (on the basis mainly that the children create language by means of innate mechanisms rather than by extracting rules out of the linguistic input) to the acknowledgement that it is one of the central strategies of language development. Clark (1977) states that 'the effects of imitation on children's speech are too pervasive (...) to be dismissed as irrelevant' (p. 341). She shows how utterances arise through imitation combined with other simple mechanisms, like coupling and amalgama. Imitation does not presuppose comprehension and is not mechanical, since a great deal of interpretation is involved in what the child acquires through imitative procedures. Bloom, Hood & Lightbown (1974), denying both nativist and behaviourist views about imitation, adopt a cognitivist approach according to which imitation is on a par with processing linguistic and non-linguistic input from the environment for information about language. McTear (1978) prefers to give the

issue a discursive dimension, establishing a difference between imitation (copy of the adult model by the child) and repetitions, which can function as speech acts and have a central importance in the development of conversational skills.

For the purposes of this study, however, the term 'imitation' is somehow inadequate, for it implies a certain degree of mechanical repetition and copying from the model. Moreover, since it tends to be regarded as an autonomous process in learning, the child is restricted to the role of a passive learner. As it is here related to more general principles of discourse and social interaction, the concept 'specularity' has been chosen which has been used in the work of Camaioni et al., (1978) and De Lemos (1981), as functioning in conjunction with two other dialogue processes, namely complementarity and reversal or reciprocity. 'Specularity' has a wider reach than imitation. It is linked with the idea of 'mirror' (Latin speculus, hence 'specularity') and, in this sense, has been studied in the field of psychoanalysis. Winicott (1971) states that the mother's face as a mirror is very important for the emotional development of a child, in the sense that the specular interaction is the beginning of the separation of the not-me from the me, which is a long and gradual process.

Among the various approaches to non-verbal prerequisites for language acquisition and communicative competence, a great deal of attention has been paid to conversation between the adult and the child and to role and turn-taking. In this work, the three dialogue processes referred to above are considered as working categories. They are discourse roles played by the child and the adult from the very start of verbal and non-verbal communication.

The definition of those three interactional processes is the following:

- Specular interaction is characterized by the identity of roles assumed by the participants of the dialogue. For example: "mother utters x - child utters x".
- Complementary interaction is characterized by the complementary alternation of the roles assumed by the participants of the dialogue. For example: "mother asks x - child answers y".
- Reciprocal or reverse interaction is characterized by the role complementarity of the participants of the dialogue plus a subsequent turn reversal, in which each of them assumes a complementary role in relation to the previous turn. For example: "mother asks x - child answers (or responds) y - mother asks (or expands) z about y".

There is a distinction made between deferred and immediate specularity. The latter refers to the identity of roles assumed in an intra-round dialogue situation, whereas the former deals with either delayed or inter-turn situation, i.e. when there are intervening turns, rounds or utterances said by the interlocutor or the speaker himself. The terms 'turn' and 'round' are employed here as defined by Blount and Padgug (1977):

> "Interaction consists of jointly produced turns and rounds. In structural terms, a turn is a slot for which an actor has conversational claim. Turns are dyadic: an initial turn by one actor defines the second actor's turn. Together they constitute a round." (p.70)

Intonation plays an important role in these dialogue processes as well as in early communicative competence. It is the basic aim of this chapter to investigate the relationships holding between R's and T's initial intonation systems and the development of their conversational skills.

5.2. Specularity in T's and R's early stages

Specularity is the first of the three interactional roles to be manifested linguistically in the recorded speech of the two subjects.

Data are not available on periods earlier than those covered in the thesis (i.e. before around 1;2 and 1;0 respectively for R. and T.), but the evidence already referred to entitles one to speculate that the manifestations of linguistic specularity in the speech of both subjects are in fact a continuation of what was previously non-linguistic.

The first kind of linguistic specularity observed is the repetition of the whole or part of the prominent item of the adult's utterance in the immediately preceding turn, i.e., 'intra-round' specularity. The typical case of specular linguistic interaction in this stage is based on repetition in a sequence of two turns and is an attempt to match both the segmental and the supra-segmental components of the repeated item of the interlocutor's discourse.

The set of data which follows is helpful to illustrate the ways in which specularity is manifested in the two subjects' early stages of development. The first set of data refers to T's interaction with his mother; the second is a representative sample of R's interaction with her mother.

Data from T.

T. inserts wooden dolls into a toy-lorry.

M. ... agora o amarelo lá no cantinho...

vem logo atrás do verde; o trrceiro... E agora?

iágɔra

'... now the yellow one up there in the corner...

it comes just after the green one: the third one...

and now?'

ĩəɣɔra 'and now?'

(T. 1;2.21)

M. and T. are looking for a clown-doll.

M. Quedê lo palhaço, Tiago, heim? Quedelo?

kɪ́de:lo:

'Where is the clown, Tiago, hm? Where is it?'

e:lo: '... is it?'

(T. 1;2.21)

M. holds a ring in front of her eyes and looks at T.

through it.

M. Tiago! Uu! Mamãe vai fazer como você. Uu!

u u

'Tiago! Yoohoo! Mummy will do like you. Look.

Yoohoo'

ɣ ɣ 'Yoohoo!'

(T. 1;3.17)

M. takes off T's sandals.

M. Tirou a sandalia, ó. Saiu saiw

'Took off the sandal, look. (it) Got off'.

aiw 'got off' (?)

(T. 1;3.7)

(M. uses a higher pitch than normal on the word saiu. T. matches this high pitch using a 'falsetto' quality of voice.)

The utterances produced by T. in the above set of data are not productive in his vocabulary. 'E agora?' ('and now?') is a sentence formed by copula + adverb, whose segmentation T. obviously is not able to abstract. It could be said, thus, that this syntactic structure is not part of his early competence. Likewise, the item -elo (-is it?'), the final part from his mother's quedelo ('where is it?') shows that he has made a very odd segmentation of the stretch of utterance. The same happens with -aiw, the final part of his mother's saiu. The third example, in spite of being a popular and even baby-talk greeting formula (used in peekaboo games) was not registered in later sessions. Instead, he will have the greeting formula oi ('hi'). Thus, those items appear as intra-round specularity and they soon disappear. They are not likely to reappear at least until the end of his third year of life.

Data from R.

M. opens a picture book for R.

M. Abriu! abri:w . Viu? 'It's open. See?'

1R abu:

M. Abriu o livro! [ábriw u ˈlivru:]

'It's open, the book'.

(R 1;4.24)

M. takes a pen that was under the tape-recorder.

M. Peguei! [peˈge:j] 'I got it'

e:j '?'

(R 1;4.24)

R. reaches out to pick up a bottle.

M. Não é mamadeira, minha querida. Isso aqui é suco. Eˈágua. ɛˈagwa

'This is not a nursing bottle, my darling. This here is juice. It's water'.

ˈawa 'water'

(R 1;3.6)

R. repeats both familiar and unfamiliar expressions. [ej], however, is just the most auditorily prominent part of the adult's immediately preceding utterance. It corresponds, roughly, to the suffix of past tense, first person singular, of a category of verbs in Portuguese.

It could be argued that the repeated items are methodologically not worth consideration because they are short-term and short-life repetitions. The literature on language acquisition has given such cases marginal treatment on the basis of their poor frequency and because they are not spontaneous creations in the child's speech.

In this stage, most of the intra-round specularity instances appear just once, or are repeated for several successive or non-successive turns, but last only as long as the duration of one session. Yet, far from being marginal, they reveal a process that has perhaps started some time before (through non-verbal specularity) which now adopts different characteristics: linguistic specularity. The child is thus trying to take the role so far reserved for his adult partner, through the repetition of utterances.

The specularity process is carried on by the senior interlocutor as well. The responses of the adults to the children's communicative manifestations can have several characteristics, which are presented below.

(i) Repetition by the interlocutor of the word or proto-word which the child uttered in the previous turn, trying to imitate the child's intonation.

R. is fitting a ring on M's finger.

M. Põe. 'Put'.

8R apõ:ĩ: 'Put' (while inserting the ring)

M. Põe. põ:ĩ

1R ápɛ: 'Put!' (after having fitted the ring)

M. Põe! põ:ĩ: 'Put!'

(R. 1;3.6)

T. points to a doll

1T <u>néne</u> 'baby'

M. <u>Néne</u>, é. Bastante. 'Baby, yes. Plenty'.

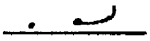
(T. 1;4.29)

Repetition by the mother may aim at offering the child the mature phonological configuration of the word, taking advantage of the common point of reference. Example:

R. is getting dressed.

8R kɔl 'bag' (taking off a blouse and putting it into a bag).

M. Sacola... <u>[saˈkɔla]</u>



2R ˈpõtu 'ready'

M. Pronto. <u>[ˈprõtu]</u>

(R. 1;5.4)

This is a subtle way of controlling the child's pronunciation (cf. Maia, 1981).

(ii) Repetition by the interlocutor of the intonation the child produces in the previous turn, but changing the segmental counterpart of the child's utterance and/or expanding it. It is as though the adult offers the child a sort of 'glossary' of the available expressions in the adult system used with an expansion of the particular tone produced by the child. This can be seen in the examples below:

M. opens a box so that R. can put pencils in it.

9R po 'put'

M. Põe lá 'Put there'

(R. 1;5.4)

R. scans the tape recorder, looking for the red button.

1R a: '?' (pointing to the little red button)

M. Achou o botaozinho vermelho!

aʃo: u botõwzinu verme:ʎo:

'(You) found the little red button!'

(R. 1;4.12)

T. points to the picture of an animal.

1T kakaku 'monkey'

M. Macaco é esse aqui, ó.

[makakw ɛ esyaki]

'Monkey is this one here, look'

(T. 1;7.1)

(i) and (ii) above may be combined: the adult repeats the child's utterance, matching his intonation, and adds an expansion or extension to it.

M. Cadê a Lela? 'Where is Lela?'

9R ta: '(She) is (not)'

M. Não ta'mesmo. [nõw 'ta 'mezmu]

'Yes. (She) is not (here)'.

(R. 1;6.3)

(iii) Different intonation, but repeating the word the child used. Most of the time an expansion is tied to the repeated item. See, for example, the excerpts of conversation between the subjects and their mother below.

T. looks at I's lighter.

1T sẽdew 'switched on'

M. Acendeu? [asẽndew]. Deixa eu ver se acendeu.

'(Has it been) switched on? Let me see if it (has been) switched on.

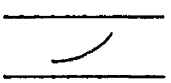
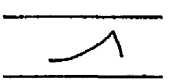
(T. 1;7.1)

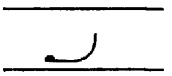
From a formal point of view, the expansions are mainly characterized by:

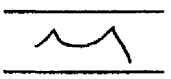
- a segmental (syntactic/morphological/lexical) equivalent to the child's prosodic signal;
- a yes/no (confirmation) or a wh-question, to which the child will answer in later developmental stages, thus introducing the possibility for a new dialogue turn. The use of such questions based on the child's utterance in the previous turn suggests that,

in the mother's speech, there is segmental specularity and intonational complementarity. This is, in fact, a preparation for the child to introduce complementarity in further stages.

Another point to be noted, as far as the acquisition and development of intonation are concerned, is that the tones first acquired by the children are precisely those contained in the specularity/complementarity processes, as well as in the simplified sentences addressed by the senior interlocutor as responses to their verbal (or gestural) behaviour. The initial set of 8 tones in R's early intonation systems are similar to the commonest ones used by the mother in the interactional formats between herself and her child. As regards T's late babbling and first proto-words, the commonest contours used by his mother responding to his verbalizations are:

- a rising or a rising-falling contour typical of yes/no or tag questions:  or  ;

- a low-onset rising tone typical of unfinished or incomplete statements or which denotes approval or acknowledgement:  ;

- a gliding rising-falling contour typical of exclamations or emphatic/approving confirmation:  .

Their shapes are, not surprisingly, similar to T's tones 6T, 3T and 5T, respectively, produced some months later.

Thus, the role of the adult as interlocutor is very active in the preparation of the child to engage in conversation. In fact, it is reported in the literature on interaction between the pre-verbal child and his mother that a sort of proto-dialogue is established between the two partners from the very beginning of

their interaction. (cf. Bullowa, 1979 among others). The child contributes his motor and vocal skills to it, whereas the mother (or any close familiar interlocutor), her gestural and linguistic skills. It is also widely demonstrated that the mother creates for herself an image of the child as a potential partner and a learner. She makes tacit hypotheses about what the child is likely to respond to, in the hope that he will supply answers to the questions she poses and to which she herself provides the answers. There is evidence of this in the communicative behaviour displayed by T's mother during his protolanguage period. Although a comprehensive study of parental speech addressed to the children is not the specific scope of this work, a brief look at the data gives a hint of some aspects related to the process of fine tuning developed between the mother and the pre-verbal child during the period studied. T's mother's speech addressed to him has slight qualitative differences according to the increasing possibilities of verbalization and degree of sophistication displayed by her son's speech. For example, her speech is constituted of a large number of questions, which may be classified, from the adult system point of view, either as information or confirmation questions. The former are questions the answers to which the speaker is not supposed to know. The latter imply a previous knowledge or, at least, a doubt about the informative content of the answer on the part of the one who poses them. Their aim is rather to check the correct (or intended) answer or to keep or sustain the contact with the interlocutor. Both yes/no polar and wh-questions may be either information or confirmation types. A minimal formal distinction between confirmation and information wh-questions in Brazilian Portuguese is made through the use of different contours - a rising one for the confirmation type and

a falling or falling-rising for the information type. As for the yes/no questions, both are uttered with rising tone (for details, see Gebara, 1976). If the formal criteria are taken into account, T's mother addresses both types of questions to him. But, from the point of view of mother-infant interaction, and their proto-dialogue, they are really information types, because the mother obviously knows the content of the possible answers (according to Austin, this would be a breakdown in the sincerity condition of the information questions). Their function is not a request for information. They are rather phatic devices to call T's attention to a shared topic, to maintain contact with the child, and moreover, to prepare a conversational slot it is felt the child will be able to fill linguistically as a partner later on.

The qualitative difference related to the questions T's mother addresses him is that, at the beginning, her questions have a rather generic character, since she tends all the time to ask questions about T's activities and interests and to provide the respective answers herself. Here is a typical situation of this kind of procedure:

T. looks at a ball. His mother says: 'The little ball... Is it the little ball? Where is the little ball?' In doing so, rather than to check the location of the ball, she is making sure that the ball will be a common point of interest for a linguistic exchange. Other examples of generic questions related to T's activities are of the kind: "What are you doing? What's there outside?" The mother knows the answer to these questions, but her interest is not in the answer itself, but in that these ritualized performances will prepare a two-way path in the conversation. However, as T. is gradually able to produce more and more adult-like verbal responses, she tends to concentrate her inquiries on

questions that (she supposes) are compatible with T's ability to answer. Questions like: "What's your name? What's that?" start to be frequent after T. is able to give them an adequate verbal answer (i.e., from about age 1;6, onwards).

It is also worth stressing that, during the early stages and throughout the age range studied, both mothers have a tendency to verbalize about any point of interest in the child's activities. Even if the child does not say anything, the mother will act as if he has done so. She reacts verbally or comments about the child's gestures, the direction of his gaze, his facial expressions in the same way as (though perhaps not with the same frequency as) she will respond to his vocal or verbal reactions.

Another point to be noted, one that will be important for understanding both T's and R's further acquisition of intonation, is that, as the child becomes better and better able to produce words, there will be a tendency in the mother's speech towards the formulation of yes/no questions upon the vocal signal the child produces, as well as a 'didactic' attitude toward the 'correct' pronunciation of sequences uttered by him. She will tend to utter one-word sentences and to simplify her utterances in order to adjust to a new communicative potentiality of her child and to a new dialogical situation that such communicative potentiality will create.

This kind of linguistic behaviour by the mother seems to be similar to what has been labelled in the literature on language acquisition as 'the adult implicit pedagogy', according to which the adult has implicitly in mind some hypothesis that he makes about his own language. The adult 'facilitates' the dialogue, by reducing the difficulties, by using 'baby talk', by setting limits to his

own speech addressed to the child, by giving clues for the learning and mastering of the mother tongue, by controlling the child's understanding of the world and of the language, by adapting his language to that of the child's. However, the interactional relationship posed in such terms is rather mechanical and therefore does not account for the dynamism of the adult/child relationship as far as the acquisition of communicative competence is concerned. It is only centred upon the linguistic input of the mother and leaves aside the two person structure which forms a new discourse reality. In other words, it only considers the child as a passive apprentice; it does not take into consideration the child as an active participant and creator of the language or as a speaker who is built as an interlocutor in his interaction with others. The adaptation is bidirectional, the adjustments between the partners are mutual (c.f. Stefani et al., 1978, among others). Evidence for this argument may be found firstly, in the bidirectional character whereby the specularity process is carried out between the two dyads in this study, as has just been seen. Intonation functions as reference points for the flow of dialogue. Secondly, the way the first attempts at complementarity take place in the speech of both subjects, as will be seen next.

5.3. Complementarity and role-reversal in R's and T's speech

Up to this time, the mother has set up a process of linguistic complementarity at the intonational level, adding questions of the above-mentioned types. This period is characterized by the first occurrences of intonational complementarity by the child, which will contribute to prepare, in a certain way, for the longer dialogues and longer utterances in later stages.

Specularity manifested by segmental and supra-segmental matching continues during the course of language development, though not with the same frequency as at the start of the linguistic period. Some variation and unfolding of specularity begin to appear in the subjects' speech together with segmental and supra-segmental matching - repetition of the segmental part of the utterance but with a different contour than the one in the input. In other words, segmental specularity and intonational complementarity. This process occurs at around the same stage of development in both subjects. But, since its overt manifestation has different characteristics in the speech of the two subjects, each case is described separately.

Development of complementarity in T's speech

T's first attempts at intonational complementarity take place through the repetition of the segmental and the adaptation of the supra-segmental component of the utterance into what is labelled as tone 1T. In the time from around 1;4 to 1;7, this is the most frequent form of intra-round specularity in this child's speech. By means of adaptation to his current intonational system, he integrates the repetition into his phonic possibilities. It is a creative repetition - a recreation from the input. Such recreation is dialogically significant because now he can integrate his ability to 'repeat' into his communicative needs. This dialogue strategy permits the child to give continuity to the dialogue, by repeating an item, but complementing it with a different intonation. He is thus mastering a device of keeping dialogue going and preparing more accurate complementarity and reversal for further stages. Furthermore, the adaptation of new items into his 'favourite' contour shows that this tone functions as a template, where new or repeated items will be fitted in.

Examples of intra-round specularity in this stage:

I. Vamos subir o carrinho aqui? aki

'Let's put the little car up here?'

aki 'here'

M. Aqui, é. 'Here, yes'.

(T. 1;5.21)

A peekaboo game, between M. and T.

M. Acho [aʃo] Quedê lo Tiago?

'Found (you). Where is Tiago?

ayʃo 'Found' (in spite of the terminal pitch of this word being mid in the M's utterance, T. adapts it to his own tone, turning it into low)

(T. 1;6)

M. tells T. off.

M. Que é isso? Chutou a xícara [ʃikra], Tiago?

'What is it? Did you known down the cup, Tiago?'

1T sike 'cup'

(T. 1;7.29)

It should be noted that not all the repeated items are productive in T's vocabulary. He repeats both sequences which are familiar to him and those which are not. Once again it should be stressed that these latter kinds of repetition, however, are not to be portrayed as marginal data. They are significant in so far as they indicate the development of a dialogical process which will

evolve from intra- or inter-round specularity to complementarity and reversal which will make possible the production of more complex utterances in later stages.

The first instances of both segmental and intonational complementarity are answers to wh-questions. They are stereotyped answers to stereotyped questions, which have been previously set up by the mother in ritualized verbal games and routines. In those games, the mother asked the questions and provided the answers herself. T. answers with gestures at the beginning (pointing to the parts of his body or face, for example, in response to a question like 'Where's your ear, your nose, your leg, etc.). Around 1;7, he is already aware of his role as a filler of a turn, and starts providing the answers to the first part of the game - i.e., the questions. They have the form:

What's your name? - Tiago.

Evidence for the argument that these answers to wh-questions are, in fact, ritualized and highly predictable, is that T's mother always precedes the question 'what's your name?' with flattering expressions such as 'what a lovely boy!', which are meant to encourage the child to give the expected answer. Expressions of this kind seem to function as devices to increase the probability of an answer by the child. But for T. it appears to be part of the question itself, as if the attention-drawing device and the question were a whole, and as soon as the mother utters the first part of her turn, T. immediately answers: 'Tiago', without even waiting for the question. So this fact reinforces the interpretation that it is not the semantic content of the question that was grasped, but its discursive meaning, for the child is aware of his role to complete

the round and to fill the slot left by his mother for him to perform his turn. Blount & Padgug (1977) point out that the same process is observable with respect to tag questions addressed to children as old as 1;6. They are rather "devices that function to maximize the likelihood that a child will respond to the utterance" (p.74) than a request for confirmation or for information.

Another kind of complementarity also has its origin in communicative routines. By this period, as has been seen, T. starts to produce a discursive phatic device, used to establish contact with his mother - the vocative [mõj] 'mother'. From the format repeated ad nauseam:

T.: mõj Mother: Ahn [õ] 'hm'

(T. from around 1;5 to 1;7)

he will reverse this situation and assume his interlocutor's role, thus producing one of the earliest manifestations of turn-complementarity in his speech, in the format:

B. Tiago! T. [õ] 'hm'

(T. 1;6.10)

Although he still cannot answer questions, these instances indicate that he is now on the way to mastering another dialogical process. He is learning how to fill linguistically a dialogue slot, which was previously filled only by his senior interlocutors. Furthermore, those instances show that the process of complementarity in T. originates in games and routines of mutual exchange, communicative formats of adult-child interaction.

Development of complementarity in R's speech

A stereotyped question-answer pair originating in a joint-activity format (peekaboo games and routine interaction) is also found in R's speech, from the beginning of the period studied. It is ade x / ala x, 'where x / there x' spoken on tone 4R, as has been seen earlier in this thesis (see page 135). It can be described as segmental complementarity with the same contour as the one in the input.

Similarly to T., R's first attempts at intonational complementarity also takes place through segmental specularity. See, for example, the excerpts of dialogue between R. and M. below:

M. Tá brava, é? 'Are you angry, are you?'

2R avava 'a(?) angry'.

(R. 1;7.21)

M. Pra ir lá no berco, tem que tirar o vestido e o sapato. Tá bom?

'To get into the cradle, you have to take off your dress and shoes. O.K.?'

2R bau 'K'.

(R. 1;6.6)

These answers to yes/no questions are not, obviously, adequate from the point of view of the adult system. The child cannot process the necessary syntactic rules for that. What she seems to know is how to answer intonationally, by repeating a prominent item from the input and adapting the assertion intonation to it. Evidence for that is the large number of pragmatically inadequate answers

provided by the child, as well as vacuous answers to M's questions through segmental specularity and intonational complementarity which precede adequate answers in later stages. It is as if the child knows how to answer intonationally, although she still cannot cope with the difficulty of an extensive or syntactically complex answer. The piece of dialogue below illustrates this.

M. Ce pegou a garrafa? (...) E que que aconteceu com a garrafa? [akõtesew kwa ga'γafa]
'Did you pick up the bottle? And what happened to the bottle?'

2R h.h. kõtikafafa 'happened-to-the-bottle'

(R. 1;6.6)

And, in the same session:

M. and R. look through the window.

M. Quem tá la fora?[la'fɔra]
'Who is there outside?'

2R fɔ'fɔla 'outside' (with the reduplication of the first syllable)

(R. 1;6.6)

The above example shows that the assertion-type tone 2R h.h. is being used with a vacuous sequence of filler or carrier sounds, repeated from M's previous utterance and not productive in the child's speech.

The interplay between specularity and complementarity accounts - at least partially - for the construction of the first multi-word utterances in R's speech. Rising or high heads and falling or level terminals are the most common intonation for this process. These tones, for some time, seem to be a template for one of the strategies of elaboration of the first multi-word utterances, as has been seen on page 133 of this thesis. The child seems to incorporate the

first part of the utterance (corresponding to the rising or high head) from the discourse of the interlocutor and to complement it with her own contribution (which can even be a stereotyped sequence or filler sounds), which corresponds to the falling or level terminal. So, the rising part will be the repetition of something already referred to in the discourse and the falling or level part is the new contribution of the child.

At the beginning, the segmental part seems to be vacuous, but used with the above-mentioned intonation (see example just presented). This evolves to the repetition of an item of the discourse of the interlocutor complemented by a stereotyped expression, taken from routine dialogues. The latter case can be seen in the first negative utterances R. produces (already discussed on page 133) and in utterances of the type discussed on page 145 , which for further clarification, are taken up again. A typical example is the excerpt of dialogue which follows:

R. has just drawn a painting.

I. Você que fez o quadro? 'Was it you who drew the picture?

M. Quem fez [fes] isso aqui? 'Who's drawn this here?'

9R r.h. aselæla 'drew Lela'

M. A Lela que fez? 'Was it Lela who drew?'

9R fəti 'drew'

Some minutes after that, R. draws another painting and shows it to the audience present (people in the room).

I. Esse foi a Raquel que fez? 'This one, was it Raquel who drew (did) it?'

2R r.h. fötí / læla 'drew (did) Lela'

(R. 1;7.8)

The three utterances produced by R., which are answers to either yes/no or wh-questions are the result of the use of the processes of specularity and complementarity: 'Lela', as seen before, is in this period one of the stand-by answers to whatever wh-question is addressed to her. [ase] and [fötí] are different repetitions of the adult's fez (did or drew). They seem to be vacuous answers based on segmental specularity and intonational complementarity.

The interplay between specularity and complementarity also accounts for the cases in which the child poses the question and provides the answer herself. The following is just one selected example of this process, where the child seems to assume the roles of both partners in the dialogue - her interlocutor's and her own.

R. looks for a toy.

7R tẽj 'is there?'

9R tẽj 'there isn't'

(R. 1;6.6)

Development of reversal in T's and R's speech

The use of intonation as a device to reverse the conversational turn, as well as a means of expounding the interplay between the three conversational processes can be illustrated with T's over-generalization of tone 6T in his third stage.

As has been seen, T. reduces his system of 6 tones to the vocative tone 4T and the over-extended tone 6T (page 87).

Such a strategy seems to indicate that something is happening before the multi-word stage starts. This child reaches a sort of plateau in which he is going to move in diverse directions. The over-generalization of tone 6T seems to be linked both with internal and external factors, in the speech development of this child. Internally it seems to be a strategy linked with the reorganization of his systems of tones which will take place in the following period and which will involve multi-word utterances (heads, preheads, distinctions in sentence stress, tone groups, etc.). Externally, it seems to be related to discursive exigences, which involve the frequent use of the rising tone.

As has been seen, the rises that T's mother addresses to him do not necessarily mean that she is asking him a question. Firstly, because, in Portuguese (as in English) wh-questions are not necessarily uttered with rising terminal contour. Secondly, as has been seen, even the yes/no questions addressed to T. on a rising tone are not really requests for confirmation or for information. As has been pointed out earlier, according to the sincerity conditions of speech acts, the speaker either knows the content of the answer (in the case of information yes/no questions) or knows in advance that the hearer (the child) is not capable of giving the expected confirmation. Thus, the alleged questions that the adult addresses to the one year-old child would violate the sincerity conditions of the speech acts. Ryan (1978), in an insightful study about the function of the rising intonation in the speech of the mother addressed to the one-year-old child, outlines the following conclusion. In the adult speech addressed to the child, there is discrepancy between rising intonation and syntactic form - the rising intonation does not necessarily mean that a question is being

uttered. The main function of the rises is to draw the child into the dyad. From the point of view of the speaker, the use of rises in talking to babies has an intersubjective, social function. They serve to direct the interchange by getting and holding the attention of the other partner, and letting her (the mother) know when a contribution that is interactive in character, vocal or otherwise, is expected. Furthermore, Ryan points out that the rises may be part of the emergent structure of the dyadic communication system and that what the 12 month-old child probably understands of rising intonation is the most general force - an undifferentiated signal for dyadic interaction.

It is likely, thus, following Ryan's rationale, that T. has already grasped the understanding of the rising tone in the speech addressed to him. What he does now is to produce and generalize this intersubjective feature now reversing the roles and himself drawing his mother into the dyad. A brief look at the contexts of use of tone 6 shows that at least for some of the categories listed, one would expect a falling tone. For example, answering yes/no questions or showing somebody an object would call for a falling and more 'definite' tone. A rise would be theoretically ruled out in such circumstances. By producing a rise, however, what T. seems to have in mind is to give back a turn to the interlocutor, forcing him to maintain the conversation. Therefore, it is not by chance that this child, when repeating an item of the interlocutor's immediately preceding turn on a rising tone, follows the strategy of specularity at the segmental level and complementarity at the same time at the supra-segmental level.

R. also has this process of transforming into a question-like utterance a prominent item said by the adult in the preceding turn, though not in such a compelling way as T.

It must be noted that the rises R's mother addresses to her have the same aim and characteristics as the ones T's mother directs to him. Multi-word utterances or longer horizontal constructions seem to appear when this child has mastered some basic dialogue processes, such as segmental specularity and complementarity (both segmental and supra-segmental) and the first attempts at turn-reversibility. The piece of conversation below is the first recorded longer dialogue between M. and R. and it shows that the horizontal constructions always occur as a total or partial incorporation of the interlocutor's or the child's own speech in previous turns.

R. gets up and walks towards the door.

M. Onde é que você vai agora? 'Where are you going now?'

2R nálæla '"in" Lela'

M. Na Lela? Cade a Lela? '"In" Lela? Where's Lela?'

1R ta (negative sign with her head) 'She isn't'

M. Não tá, mesmo. 'She isn't (home), true'.

4R ´læla '(Where is) Lela?)

M. Lela saiu com o papai 'Lela left with daddy'.

7R ´saj pápaj 'leave (with) daddy?'

M. É. Saiu com o papai. 'Yes. (She) left with daddy'.

7R ɛl´saj '(Does) she leave?'

M. É... Saiu. 'Yes, she did'.

(whisper) saj 'leave'

(R. 1;6.3)

The dialogue below, recorded some months later, shows the mastering of segmental specularity, segmental and intonational complementarity as well as devices of turn-reversibility, on the part of R. It also shows that the adult establishes the same processes as part of her strategy to adjust her speech to the child's and to keep the dialogue going.

R. and M. look at a story book together.

9R áki 'here' (trying to turn the page over)

M. Então vira a pagina, uai. Cade? 'Well, then you turn the page. Where is it?'

7R 'Hm?'

M. Cadê o cachorro? Ce virou o livro de pontacabeça e não achou o cachorro? 'Where's the dog? You turned the book upside down and didn't you find the dog?'

4R ´aeliáki 'There he is!'

M. O´ele aí! Que que ele tá fazendo?

'There he is! What's he doing?'

7R 'Hm?'

M. Que que ele tá fazendo?

'What's he doing?'

7R fazẽndu 'doing?'

M. E´ 'Yes'.

a: - - - (unintelligible)

M. Que que esta galinha tá fazendo?

'What is this hen doing?'

7R gáliŋa 'hen?'

2R bu´kõndu 'pecking'

M. Bicando? 'Pecking?'

2R ɛ 'yes'

M. Bicando o que? 'Pecking what?'

2R ta bu´kõndu '(She) is pecking'

M. Ta bicando o que? 'Is (she) pecking what?'

2R r.h. bokõndu áki 'Pecking here'

2R bokõndu 'Pecking'

2R bokõndu 'Pecking'

M. Ta bicando o que aqui?

'Is (she) pecking what here?'

7R áki 'Here?'

M. E´. Ta bicando o que?'

'Yes. (She) is pecking what?'

R. picks up the microphone, in an attempt to escape from M's insistence.

8R a: 8R álo 'Hello'

M. Alo! 'Hello!'

7R tudu´bej 'How are you?'

M. Agora, que que ta fazendo? ta bicando o que?

'Now, what's (she) doing? (She) is pecking what?'

7R bikəndu 'Pecking?'

M. E. Hm? 'Yes. Hm?'

- - - (unintelligible)

M. Tá bicando o homem, aí. Tá bicando a bunda do homem. O cachorro ta mordendo o pé do homem, a galinha tá bicando a bunda do homem. E o cavalo?

'(She) is pecking the man, look. (She) is pecking the man's bottom. The dog is biting the man's foot, the hen is pecking the man's bottom. And the horse?'

7R bábalu 'Horse?'

M. E. 'Yes'.

2R r.h.
bábalu ta papõndu 'Horse is eating'

M. Tá o que? '(He) is what?'

2R
papəndu 'Eating'

(R. 1;9.20)

In brief, there seems to be a constant and gradual process, evolving from matching during late babbling and proto-language (around 1;0) to turn- and role-reversal in the more advanced stages

when the child is already capable of constructing longer utterances. The speech of both children seems to display the following developmental order concerning the linguistic emergence of the dialogue processes in question:

1. Intonational and non-intonational specularity: attempts at matching both the segmental and the prosodic component of the interlocutor's utterance said in an immediately previous turn.
2. Segmental specularity and intonational complementarity: non-intonational matching and accommodation of the prosodic component to the child's own tone system.
3. Segmental specularity and intonational reversal: repetition of the non-intonational part of the adult's utterance and adaptation of the prosodic part to any cohesive tone, in order to keep the dialogue going.
4. Intonational and non-intonational complementarity.
5. Intonational and non-intonational reversal.

5.4. Elements incorporated from the discourse of the interlocutor in interactional formats

Intonational and segmental specularity and complementarity can also account for elements incorporated by the child from the flow of discourse of the interlocutor. This claim is linked with the idea that the dialogue processes take place within interactional formats - ritualized situations between child and adult, as described by Bruner (1975), which precede and prepare for further linguistic acquisitions. Although this point has been emphasized throughout this thesis, it is not felt to be redundant to pin-point here some facts observed in the linguistic development of the subjects being studied which can provide evidence for this hypothesis:

1. Intonation serves as a template (holistic processing) and support for newly acquired or repeated items or horizontal constructions.

2. Most of the initially acquired tones seem to be bound to the context which gives rise to them and only after some time generalize to other contexts.

3. The intonation of some newly acquired utterances is bound to its segmental part.

T's data will be used to demonstrate (2) and (3), although R's use of tone 1R in her 1st and 2nd stages can also provide illustration for the use of tones bound to the contexts which originate them and the subsequent gradual de-contextualization of the tones.

As has been seen (page 55) words [3T maj̇s] 'more' and [3T uj̇s] 'light' are matrices or moulds incorporated as such from the continuum of speech of the interlocutor, and, for some time at least, they do not vary intonationally. Instead, they keep the same intonation as the one found in prominent stretches of the interlocutor's utterances addressed to him. They are not, however, the only moulds found in T's speech. A few more examples are given below in further support for the claim made.

1) 1T a′sĩ 'like this' - from adult Portuguese <u>assim</u> [a′sĩ]

A typical situation of interaction between T. and B. will show how some items are incorporated by the child from his interlocutor's speech. The following is a piece of dialogue between T. and his sister B.

B. teaches T. how to put toy-animals into a toy stable so that the door can be shut. She uses baby-talk to T.:

[s] for [ʃ] and [ko´ɔka] (for [ko´lɔka] 'place') that she has copied from T's speech. She holds out the little toy-animal to T.

B. Cooca! Cooca! Cooca, bissinho, cooca!

'Place! Place the little animal, place (it)'

T. takes the toy-animal.

1T ko´ɔka 'Place'

B. starts to teach him how to put the animals into the stable.

B. Cooca! Cooca! Cê pega, cooca. Fessa. Assim. Abre, abre essa... pega... [´pɛga]

'Place! Place! You take (it) (and) place (it). Close (it). Like this. Open, open that one, take...

1T ?ɛg/ 'tak(e)

B. ... aqui. Essa, faz assim [´asĩɾ]

'... here. That one, you do like this'.

1T ´asĩ 'like this'

B. ... só que essa faz assim '... but (with) this one you do like this'.

(T. 1;6.24)

B's baby talk shows evidence that she tries to adjust her speech to what she imagines is T's most likely 'language' at this stage. In the above data, there are:

a) Certain phonetic realizations that T. does not have, but which she supposes he might have. She replaces the adult palatal fricative [ʃ] in bichinho [biʃiɲu] 'little animal' by the supposedly childish alveolar fricative [s′]. However, what T. has is a neutralization between [s] and [ʃ] producing [s′] instead. B. interpretes it as [s] and follows the possible rule 'where the child has [ʃ], change to [s′] . At least, this is her representation of what baby speech might be like.

b) Forms copied from T's own speech (who, in his turn, has copied from his interlocutor - perhaps from B. herself - and has accommodated it to his expressive possibilities). Example: Cooca.

In the same session, ten minutes later, T. has some difficulty in making the toy animals fit into the toy stable. He turns to his mother, asking for help:

1T asĩ 'like this'

M. Assim? 'Like this?'

1T asĩ 'like this'

(T. 1;6.24)

One month later, he will utter [asĩ] whenever he finds himself in difficulty and asks for help or refers to his own difficulty in performing an action.

As the set of data above shows, his sister (and, in other instances, his mother) tends to cut the intention-oriented action into little actions, through language. They keep supplying linguistic information at every stage of the goal-oriented task, thus segmenting through language T's own behaviour. He will learn how to insert

language before, during and after every little action, as though he were programming in his mind the various parts of a whole. Moreover, as those interactional formats are indeed shared knowledge between the partners, he will learn how to take his interlocutor's role of speaking in certain stages of the joint-action and joint-attention, reproducing this role in his speech. For details about the organization of actions and the structure of interactional formats, see Bruner (1979).

The above data also show how utterances incorporated through inter-round formats (immediate specularity) evolve to intra-round formats (deferred specularity).

2) [1T usa ∿ pusa ∿ fusa], from adult Portuguese puxa [ˈpuʃa] 'pull' and/or força [ˈforsa], expression of encouragement that means approximately 'go on' or 'come on' (literally 'strength'). Força is uttered by his interlocutor whenever he faces difficulty when performing a hard task. Puxa 'pull' is obviously a directive aimed to give directions for T's actions. T. utters [1T ˈusa] in 'difficulty' contexts, asking for help or as an extension of his own effort.

It is important to note that the majority of both subjects' utterances are produced in action-schemata, mediated by the presence, the action and the speech of the interlocutor. T. seems to cut up his own action with the same utterances as used by the adults in some crucial moments of the task, and which are always recurrent, although his meanings do not coincide with the adult meaning. From this stage on, there are several items similar to ˈusa and aˈsĩ, both verb-like and others that he will use in various part of the action-schemes performed by him in the presence of the

interlocutor, or performed by the interlocutor himself. [sẽdew] 'switched on' and [majs] 'more' are examples of this. Some noun-like forms are even commutable with verb-like forms in similar contexts. Example:

1T pipiw 'bird' - requesting the interlocutor's action to put in motion a toy woodpecker.

1T ˊliga 'turn on' - the same situation.

(T., around age 1;6)

Such 'moulds', as well as the subject's initial intonation systems, indicate that the child is making the most of his expressive possibilities, turning into primary source of information elements that in the speech of the interlocutor compete with many other sources. For a long period, the available prosodic or lexical signals the child has will be extended to other dialogues, until further expressions will gradually be incorporated to cope with more sophisticated needs of linguistic activity.

The creation of these moulds or matrices perhaps explains why it is inadequate to classify the first attempts towards putting together more than one 'word' as primitive sentences, like [us sẽdew] ('light switched off') or [tatẽte] ('it's hot'). Likewise, there is no evidence of a strict division between noun and verb, or even of the existence of entities like words, morphemes, and even phonemes (cf., for example, the phonic and semiotic instability and inconsistency of proto-words, as shown on page 29). And, for better reason, it is not justifiable to consider as manifestations of 'verbal inflection' sequences like [sẽdew], 'switched on', [kaiw] 'fell down' etc., from the subject's early vocabulary, although they superficially coincide with adult forms

inflected in the past tense. T's primitive inflection will provide an illustration for this claim. Although it does not deal with intonation, it is ad hoc evidence for the process whereby elements from the discourse of the interlocutor are incorporated by the child.

Variations in the verbal forms in the initial systems of language development have been referred to as 'inflectional variation'. Inflection would imply that morphemes should be considered, and that they should be assigned a morphological meaning. Tense inflection indicates rather aspect than time, as has been claimed in the literature (cf. Bronckart & Sinclair, 1973; De Lemos, 1975).

What is the function of T's 'verb-like forms' variations around 1;6? Do they actually reflect an inflectional system? Table 9 below is a list of verb-like forms found in T's vocabulary in this period.

Like adult Imperative or Present		Like adult Past		Like adult Future or Infinitive	
		sẽdew	switched on		
		pagow	switched off		
		kaiw	fell down		
		kabo	all-gone		
		oo	repaired		
		ayso	found		
		paru	stopped		
pɛka	take	pɤgow	took	piga	take (inf)
		fõsow/so	closed	fisa/sa	close (inf)
abi	open	abiw	opened		
kɒɔka	place				
φusa	pull				
liga	switch on put on				

TABLE 9. List of verb-like forms in T's vocabulary around 1;6

Among the forms listed above, [sẽdew], [pagow] and [kaiw] are the most frequent, whereas [paru], [ayso], [kabo], [fθsow] and [piga] are always produced as repetitions of the previous utterance of the interlocutor and, thus, do not occur when T. starts the dialogue. [oo] appears only once in a context that is not very clear, as it was not recorded on video-tape and the reason why it is in the list is that his mother interpreted it as a verbal form, 'repaired'. [fθsow], which always appears in a context of immediate specularity, soon disappears and is replaced by [abiw], with both meanings of 'opened' and 'closed'. So, the only pairs occurring with different forms for the distinction present/past are [pɛka/pɣgow] ('take/took') and [abi/abiw] ('open/opened'). Even so, [pɣgow] appears only once in the recorded data. Among the most frequent items used by T. in this period - [sẽdew], [pagow] and [kaiw] - only the latter is always applied to the completive phase of the event. The others are used to name the event as a whole, regardless of their reference to the phases involved in it. They do not have, however, a counterpart in the 'present' or in the 'future' form.

As for [koɔka], [liga] and [φusa], even if their corresponding adult form is imperative, they refer indiscriminately both to modalities and to requests.

Thus, most of these 'verb-like' forms do not have a one-to-one binary correspondence as far as tense inflection is concerned. Nor have they a unique reference related to aspectual meaning. Furthermore, their 'morphemes' are bound to the sequence itself, as additional evidence of a related process in this period can attest: the status or phonological template of [sẽdew], which functions as a model for some unintelligible sequences produced by this child at this stage. They are forms that each appear only once, when

it is T. who starts the conversation (that is, as spontaneous renditions and not as repetitions of the adult's utterance). Many of them have a word or syllabic configuration similar to [sẽdew] and [us'sedew], all of them ending on a diphthong. Their production coincides with the period when [sẽdew] and [ussẽdew] are frequent in T's vocabulary (around 1;6). So, the ending -ew, far from having any link with morpheme meaning, indicates rather a phonological clue and a processing strategy for the production of new items.

Evidence has therefore been provided for the non-consideration of such verbal variation as 'inflection'. It rather seems to point to the existence of blocks or chunks, taken from a situation of dialogue and carried to other situations of dialogue, not necessarily with the original adult meaning, but certainly with the original (discursive) meaning grasped by the child in that particular original situation. Those chunks may also have an intonational character - for example, tone 1T as a support for 'unknown' words repeated by T. (see page 52), or tones 2R r.h. and 4R for the building-up of the first horizontal constructions by R.

R's primitive inflection seems to display the same behaviour. The apparently morphological features of past tense inflection seem not to be processed by the child as segmentable morphemes. Although a comprehensive list of verbs in this child's speech would be a too long, redundant and deviating task to be carried out in the present thesis, some evidence can be put forward which indicates that past tense inflection is not being processed as such. For instance, the migration of features incorporated from a typical context of completivity to the prospective and progressive phases of the event can provide a good example for this claim:

R. and M. are looking at a picture-book. R. focuses on the picture of a crying girl. on one page, and the picture of the same girl, not crying, on another.

3R a mṍninu 'Look! Boy!'

M. A menina! 'A girl!'

1R sólo: '(she) cried!'

M. Chorou? 'Did (she) cry?'

1R sólo: 'cried!'

M. Ah, aqui que ela chorou, ói. 'Oh, it was here that she cried, look.'

R. hits the picture.

9R tə tə

M. Cê tá batendo na menina, coitadinha? Ela chorou, aí. 'You're hitting the girl, poor little thing. She cried, look'.

R. goes on hitting the picture.

M. Cadê ela chorando? 'Where's the crying girl?'

5R r.h. atɛsólo 'I want cried'

(...)

5R r.h. tɛsólo 'I want cried'

(1;7.8)

The child's form solo stands for chorou [ʃórow], which is the adult form of the 3rd person singular of the past tense of the verb chorar 'to cry'. R. uses it when observing the picture of a crying girl in the story-book, as a resulting state of a previous event ('someone made the child cry and she cried'), that is, with a generic meaning of completion. One should expect that this use of the past tense inflection would be restricted either to reference

to a past event or to reference to completion. Nevertheless, in the two next turns, following the action of hitting the book, the child makes use of this form, with the same apparent past tense inflection, to indicate a generic prospective phase of the event, the 'causative' expression I want + solo. It seems that solo has migrated from its original completivity function to the prospective function as a stand-by mould for future grammatical segmentation (which will be, in this case, the use of the infinitive).

It is not until around 1;10 that the segmentation process starts to take place in this child's speech. There are some deviant uses which show that the inflectional morpheme of 3rd person singular of the past tense -o '-ed' is being used as a sort of 'unbound morpheme', added to non-verbal roots. There are a couple of cases like that registered, but just one is selected, for the sake of providing evidence for the claim. The piece of dialogue below shows how the suffix -o is added to an adverb of place (the deictic la 'there'), in a very peculiar way of segmenting the child's own construction, said in previous turns.

R. pushes the toy woodpecker up to the top of the metal stick to which it is partially fixed. She looks at the base and then up to the woodpecker.

2R r.h. ej vaj́la 'it goes there'

R. observes the trajectory of the woodpecker sliding down the metal stick.

2R r.h. ej vaj́la 'it goes there'

The woodpecker get to the base.

1R vaj́lo: '(It) goes thered'

(1;10.20)

In summary, the aim of this chapter was to demonstrate how intonation is used by the subjects to convey dialogical processes at a time when their means of expressing them grammatically and lexically are restricted. Even when the child has overt manifestation of inflectional or syntactic elements, it does not follow that there is an underlying system as such, as has been demonstrated in this chapter. They are rather the incorporation of sequences present in the flow of the interlocutor's discourse. Although the emergence of the dialogue processes referred to is in the following order: specularity-complementarity-reversal, their gradual acquisition has rather a cumulative than a substitutive nature. The incorporation of a new process does not entail the deletion of another. Such dialogical processes appear to be a feature of the adult language. It seems, indeed, that they are present in the child from an early pre-linguistic stage, arising in a situation of social interaction between himself and his senior interlocutor(s). In addition to intonation, evidence has been provided which shows how the incorporation of elements from the interlocutor's discourse takes place.

CONCLUDING REMARKS

Differences between T's and R's prosodic development can be seen clearly in Chapter 1 and 2. General statements can be made, though, concerning the way whereby their prosodic systems develop from 1;0 to 2;0. It is assumed that at least part of such statements may be generalized to a wider issue about how intonation is acquired.

From a formal and functional standpoint, there seems to be a continuity in the prosodic configuration of both children's speech which goes from babbled sequences through early words up to the first multi-word sequences. More specifically, the continuous process of prosodic emergence is presented through the two subjects: in T., there is continuity from the transition between babbling and proto-language to the one-word stage; in R., from the transition between proto-language and one-word stage to multi-word utterances. It has been pointed out that children are able to produce prosodic patterns as well as sentence-like intonation in long babbled stretches (jargons) before the appearance of the first words. However, a difference has to be established between these two pre-verbal manifestations: while patterned babble is really produced in a regular, systematic and recurrent way, the same cannot be claimed vis-a-vis adult-like sentence intonation in jargon, at least in the light of T's data. There is not much evidence that they are systematic and recurrent. Rather, the clue for their existence is based solely in the adult's interpretation. Nevertheless, the fact that the adult recognizes the prosodic configurations of the jargon as belonging to his system is an indication that the child is somehow sensitive to a language-directed intonational contour. A stronger hypothesis would be that the process of learning is present in the way whereby

the child is trying out prosodic contours in jargon as well as in babble-carriers, through verbal exchanges between himself and his senior interlocutors before he can even produce the first recognizable words. However, a system of intonation has not yet been set up.

The intonational shape of some late babbling forms seems to be embryonic of the first contours which make up true tone systems in later stages. In this sense, babbling stretches are prosodic-carriers. Likewise, the contours which spread over one-, two- or three-syllable words seem to expand to multi-word utterances in later stages.

Obviously the stages of development are not clear-cut divisions; overlapping between the stages is present. For example, babbled carriers are used at the same time as the proto-language; one-word utterance intonation is used simultaneously with the first attempts at multi-word intonation.

The tones emerge in interactional formats between the mother (or other familiar senior interlocutor) and the child. As a result, there are certain tones tied to certain utterances and used this way for several weeks before extending to other utterances (example: tone 3T in T's second stage, 4R in R's first stage). Also, tones when first acquired are always tied functionally to specific contexts of use, i.e. to specific and recurrent formats and, after some time, they spread to other contexts. In other words, the emergence of the intonational units seems to follow a trajectory which starts in limited contexts (intra-format) and moves gradually to contexts other than those which gave origin to them (inter-format).

It is worth stressing that some of the tones which the child first uses are present in the speech of the mother addressed to the child in ritualized and predictable routines and games and some of them are even recognizable as baby-talk features in Brazilian Portuguese (e.g. tones 1R and 5R in R's second stage; tone 3T in T's first stage). So a mutual adjustment seems to take place between the one-to-two year old child and his senior interlocutors.

The main characteristics of the interactional formats (cf. Bruner, 1975) is that they are ritualized games or routines of everyday exchange between the mother and the child whose salient parts (beginnings and endings) are highly predictable. They are, thus, an optimal arena for turn-taking and role exchange. Snow & Goldfield (1983) have pointed out the usefulness of such routines (which they call 'situation-specific' routines) for the process of language acquisition. A child is shown to pick up adult utterances one at a time and use them in a situation-specific way at the beginning, he then generalizes rules on the basis of his own output.

This sort of strategy has been observed in T's and R's early use of intonation. The salient parts of such formats are marked linguistically by the mother. And the most salient linguistic manifestation is prosodic in nature, namely the preference for certain contours, increased loudness and slower tempo. As far as intonation is concerned, two strategies seem to be adopted by T. and R. initially:

1. The child takes up a chunk of adult speech in verbal exchange routines, i.e., both the segmental and the supra-segmental components seem to constitute a whole and unanalysed unit.
2. The intonational component is taken up by the child and assigned to different segmental sequences, but used in highly specific contexts.

It is not until some time later that the child starts gradually either to detach the intonational component from its fixed segmental counterpart (strategy 1) or to apply the intonation originally acquired to less situation-specific contexts (strategy 2).

The same strategy of moving from intra- to inter-format may also explain the intonational characteristics of the first multi-word utterance types in R's speech (during her second stage). As has been seen, they are either one prosodic whole (at the beginning mostly constituted by unanalysed sentential chunks), or two or more utterances separated by pause, but with cohesive continuity between them. What is interesting is that this child selects some tones from her intonational repertoire to use with the initial horizontal constructions (4R, 2R r.h. and 9R r.h.). Not surprisingly, these selected tones seem to function as support for their segmental counterparts, which are either phonetically unstable or filler sound carriers combined with words of the child's vocabulary or repeated items from the interlocutor's discourse. Intonation, being gestaltic par excellence, serves the purpose of incorporating unanalysed chunks from adult speech set up in routines of verbal exchange.

Connected with the idea of incorporation of both segmental and supra-segmental elements of the interlocutor's speech in restricted situations of verbal interaction is the conception that language acquisition is related to dialogue processes such as specularity, complementarity and reversal. The continuity of these processes may be traced from early non-verbal exchanges to the first manifestations of segmental and supra-segmental specularity in the speech of both children. What was imitation of gestures in pre-linguistic stages and mutual matching at babbling stages starts now to be linguistic.

But it is misleading to consider that the child is just mechanically imitating or copying what he hears in his input. The way in which the process of specularity evolves into complementarity through intonation shows that 'imitation' is rather creative. When the child repeats the segmental component of wholes or parts of the interlocutor's previous utterance and adapts its supra-segmental component to his own intonational system, he is in fact processing a reorganization of the input and aiming at keeping the dialogue going. In doing so, the child is taking the role of his interlocutor. The use of intonation to reverse the roles, as seen for instance in the use of T's overgeneralized tone 6T in his third stage and R's rising intonation assigned to an item taken from her interlocutor's previous turn, also shows the creative repetition of an item through segmental incorporation and intonational reorganization. Such strategy reveals that the child is in fact an active participant in the process of learning and engaging in dialogue rather than being merely passive. Moreover, the intonational systems of both children may be formally different, but the processual means whereby they are acquired and developed are similar.

It is worthy of note that intonation seems to be the first step to the linguistic mastering of the processes of specularity, complementarity and reversal. In spite of their emergence in this order, their gradual acquisition has rather a cumulative than a substitutive nature; the acquisition of a process does not imply the deletion of another.

Intonation also seems to function as a strategy for the child's processing of chunks of the speech addressed to him. Although this thesis is concerned rather with production than with comprehension,

there are some indications that intonation provides the child with some clues for comprehension of the adult's discourse. R's production of intonational macrostructures in which a succession of tone units binds together in a cohesive way to make up story-telling paratones gives an impression of wholeness when no syntax or even narrative are yet evident. As has been seen, such paratones are a result of the joint contribution of both mother and child. At the beginning the child inserts attention-drawing devices after each information block said by the interlocutor in these story-telling situations. Later on, the child combines a succession of expressions referring to naming-games within a frame of a paratone typical of narratives. It is questionable whether there is understanding or production of stories at all at this stage, but a frame or schema at the intonational level shows that the child has clues for processing intonational macrostructures. Further work, however, has to be done on intonation functioning as clues for comprehension.

The gestaltic or holistic character of intonation seems to function as a facilitating device for the production of longer utterances. At the beginning, some selected contours seem to function as a template or reference point for the building-up of horizontal constructions. Various answers to questions or unintelligible sequences combined with parts repeated from the interlocutor's discourse show that the child knows how to elaborate an utterance intonationally, but does not have the syntactic means of building up complex constructions. In other words, the phonetic and rhythmic instability of syntactically complex utterances is compensated for by intonational integrity. In this sense, intonation seems to be a facilitating device for the organization of the child's own system and, thus,

for the building-up of more elaborated constructions acquired in further stages.

The conclusions outlined above point to the insufficiency of the proposals of theories of language acquisition that take the sentence as an operational unit, or that consider linguistic structures, categories and rules as primitive for the mastering of the linguistic system. They point rather to the dialogical nature of language acquisition and a consideration of discourse as the basic operational unit. The study of the emergence of intonation in two children linked to dialogical processes indicate that there is an exchange relationship in the structure of (at least) two persons, in which there is the confrontation of two individuals in interaction. If the adult basic-interlocutor is clearly an active subject in this interaction, the child is so too. The child is not the mere Saussurian depository of a supposed linguistic patrimony, nor is he the passive object of modelling processes. On the contrary, the communicative roles are not previously defined categories: they are rather built up and grow in concrete discursive situations. The meanings of the intonational contours used by the child in early stages of language acquisition are, not surprisingly, the result of the perspectives of both the child and his senior interlocutor.

APPENDIX 1

TABLES OF T'S AND R'S INTONATIONAL DEVELOPMENT

APPENDIX 1-a

Development of T's intonational systems (2nd and 3rd stages)

Label	Graphic representation	Phonetic characteristics	CONTEXTS OF USE (2nd stage (1;4 to 1;7)	3rd stage (1;7 to 1;10)
1T		Rising-falling mid-low to mid (or mid-high) to low	- completive or preparatory phase of events - immediate specularity - announcements and invitations for a shared play or object General underlying feature: contact with interlocutor	- emphatic assertions - didactic repetition of the interlocutor's previous utterance; self-correction - requests - announcements of his actions
2T		Falling mid-low to low. Decreased loudness.	- action in progress. - no shared attention when focussing on an object; solitary action on object. General underlying feature: no contact with interlocutor. Definite statements.	- neutral assertions, definite statements No interlocutor established-introspective or solitary speech.
3T		Rising glide from low or mid to high long vowel	Restricted to [majs] 'more' General underlying feature: incompleteness. - Request for repetition of the action performed by the interlocutor. - Recurrence of his own actions upon objects.	Extended to other utterances. General underlying feature: incomplete statements.
4T		High level pitch assigned to monosyllables when assigned to 2 or 3 syllable words, there is a rising pitch range, one level pitch for each syllable. Optional falling terminal tendency.	Vocative.	- Vocative - Phatic device to mark his turn to speak.
5T		Rising-falling: rising mid to high then a falling glide high to low. The pretonic (head) is mid level or rising mid to high.		Exclamations or agreeable surprise.
6T		Rising mid or mid-low to high, with an optional abrupt falling movement in the last syllable, whether stressed or not. Pre-nuclear syllables (if any) low.		- location of an object or intention to perform an action. - checking the names of objects. - 'Infinitive-like' forms of the verbs, assigned both to mands and modalities. - Repetition of the topic introduced by his interlocutor. 3rd stage (1;10 to 2;0) Temporary overextension of tone 6T to the contexts belonging to tones 1T, 2T, 3T, 5T and 6T itself.

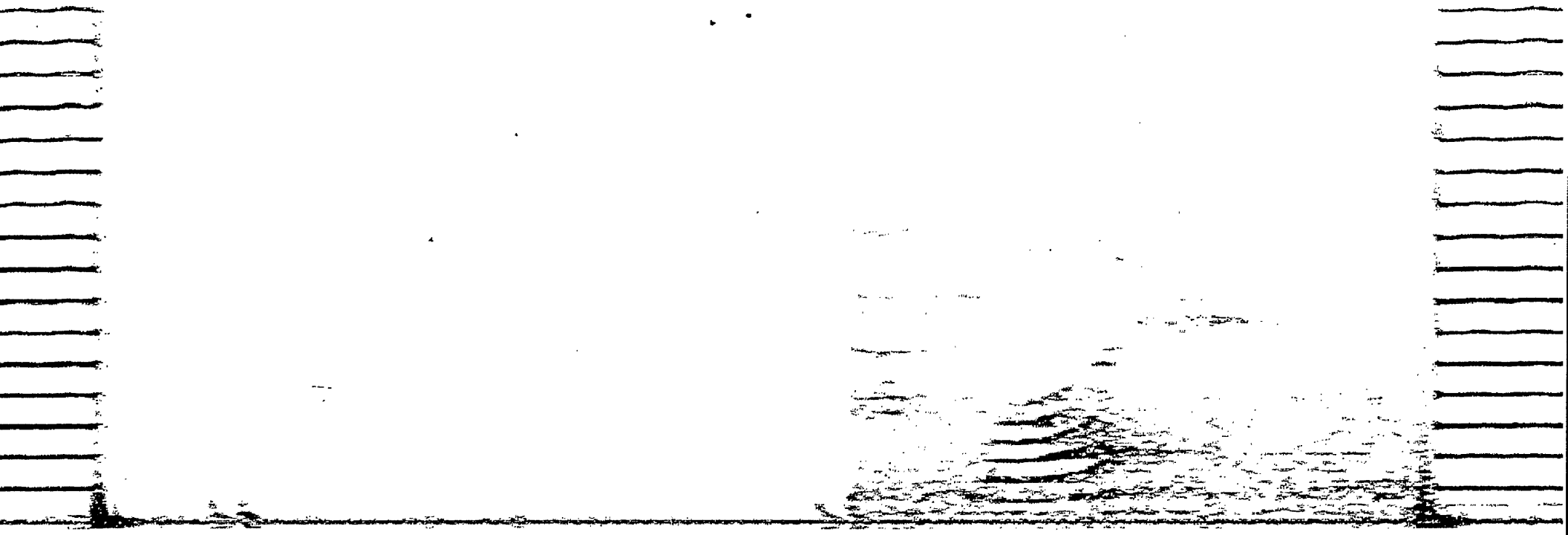
APPENDIX 1-b

R'S INTONATIONAL DEVELOPMENT

Tone	Graphic representation	PHONETIC CHARACTERISTICS: 1st stage (1;2-1;5)	PHONETIC CHARACTERISTICS: 2nd stage (1;5-1;8)	CONTEXTS OF USE: 1st stage (1;2-1;5)	CONTEXTS OF USE: 2nd stage (1;5-1;8)
1R		Fall from relatively high to low. Nuclear syllable long. Generally increased loudness.		Completive phase of achievements. Location of objects and persons in the child's perceptual field.	Completion or action in progress in playful situations.
2R		Low fall, mid-low to low.	Low fall nucleus, with possibility of rising or high head.	Proto-imperative demands. Preparatory phase of the action the child herself is about to perform. Primitive forms of statements. Introspective speech.	Introspective speech. Negative or positive answers to invitations and to stereotyped questions, vacuous answers to vocatives.
'Rh.f.		Sharp falling contour, wide pitch-range.			Demands. Polite insistence and persuasiveness. Firm or bossy statements. Contrastive selection Emphatic announcements. Acknowlegements. Attention-calling device.
R		Two rising-falling movements. A long gliding terminal movement from high to low.		Invitation for shared attention. Agreeable surprise in locating familiar objects and persons.	
R		Two level pitches: high switched to low.	When spread over multi-syllable utterances, a downward stepping movement from high onset to low terminal.	Deictic ostention. Proto wh-questions.	Intonational model for the first attempts at wh-questions.
R		Two level pitches: high switched to mid. Begging quality of voice. Accelerated rhythm.	When stressed in the penultimate syllable, high-to-mid fall, with level terminal. Possibility of rising or high head.	Requests.	
?		Two level pitches, either the first one lower than the second one, or vice-versa. If the last syllable is higher, there is a tendency to an abrupt terminal fall.		Vocative	
?		Rise to high, mid onset. Possibility of abrupt terminal fall.		Proto yes/no confirmation questions. Questioning attitude for location of objects. Topic-maintaining or attention-drawing device.	Dialogue-maintaining or elicitation device. Stereotyped questions and request for permission. Proto yes/no confirmation questions. Invitation for shared actions.
		Rise to mid or high, low onset.	Possibility of abrupt terminal fall, when the peak is high.		Enumeration of objects, conveying succession in a series. Succession of actions. Continuation and cohesion in protoparatones.
			Mid level terminal nucleus, with possibility of high or rising head.		Deprivation, negative state, absence or displacement of objects or persons from the speaker's perceptual field. Incomplete statements. Reference to given information. Call for the involvement of the interlocutor.
R			Falling-rising continuous gliding movement on the nuclear syllable.		Warning. Firm agreement and definiteness.
?			Falling-rising movement spread over the utterance, with two prominent points.		Interrogative locative expressions. Formulae of invitation and request for permission.

APPENDIX 2

SELECTED COPIES OF T'S AND R'S SPECTROGRAMS



T4 3T βa:ʃ
1;7.1

β a: ʃ

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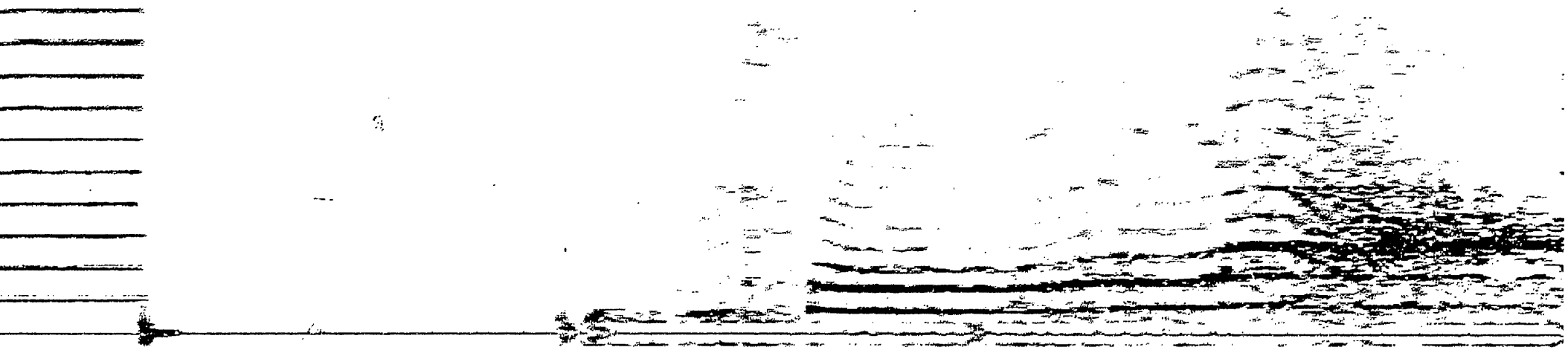

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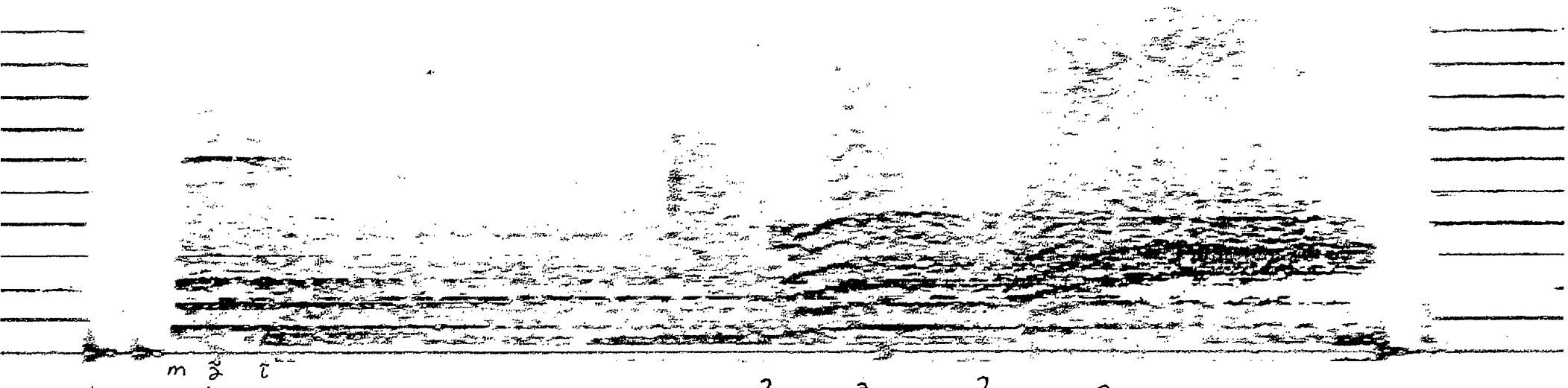

T12 4T mɜ̃ĩ 6T ʔaʔa

1;10

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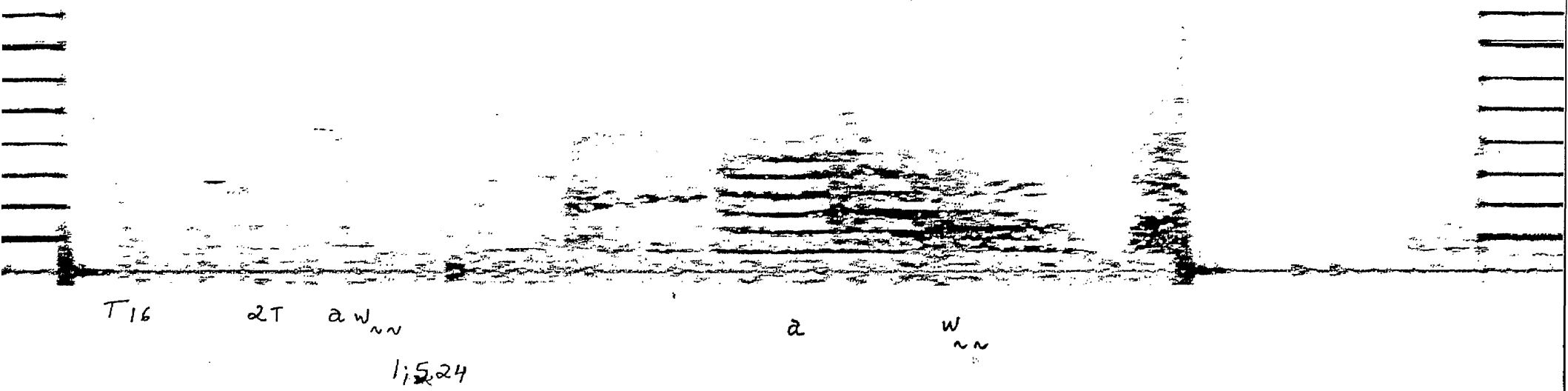

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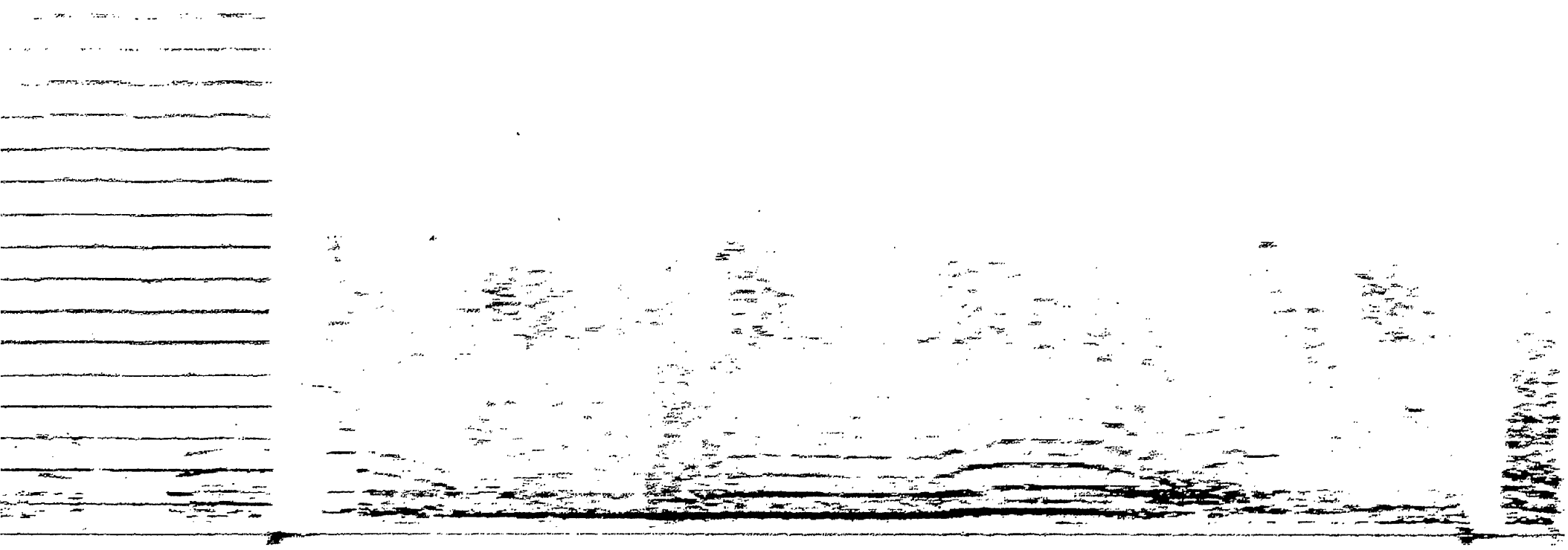

T20 6T nene n e n e

1;7.23

257

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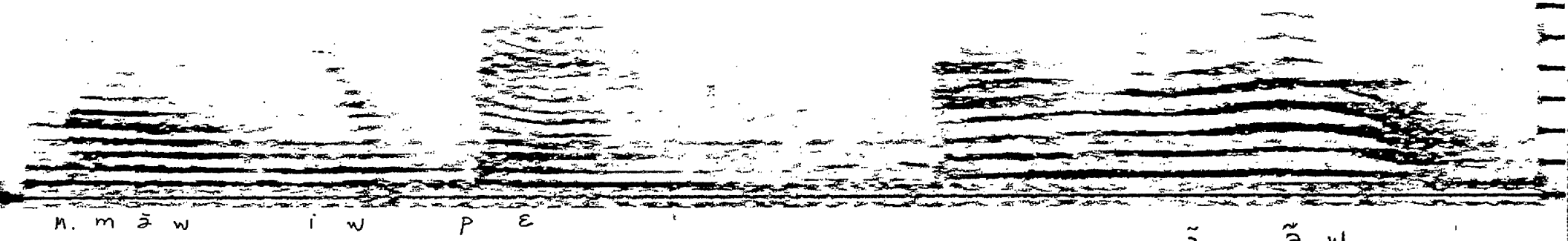

T24 M. mɔ̃w iw pɛ
T. ɓT a mãɔ̃w 1;8.13

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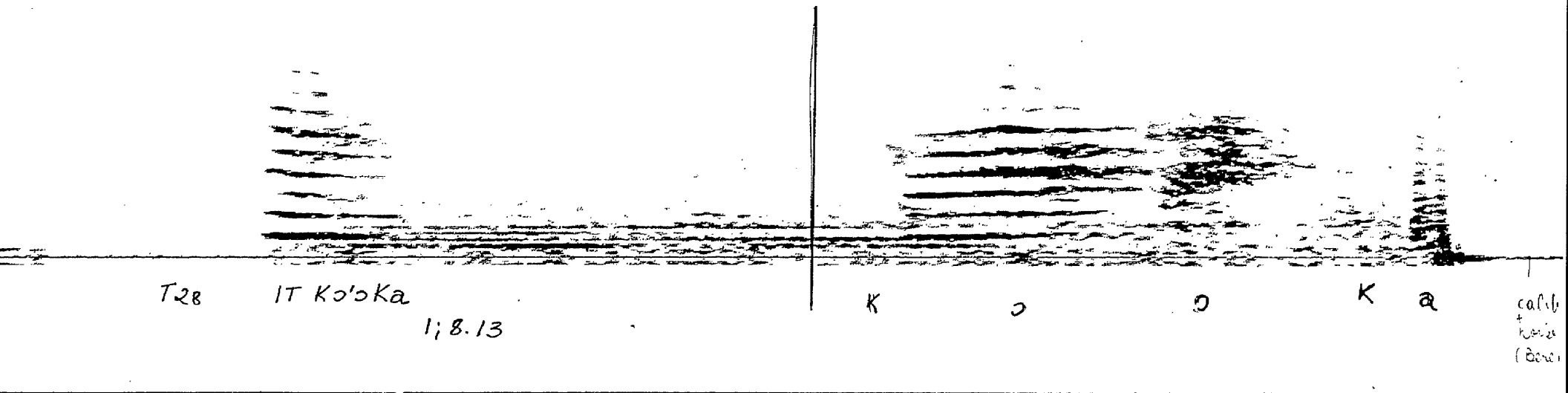

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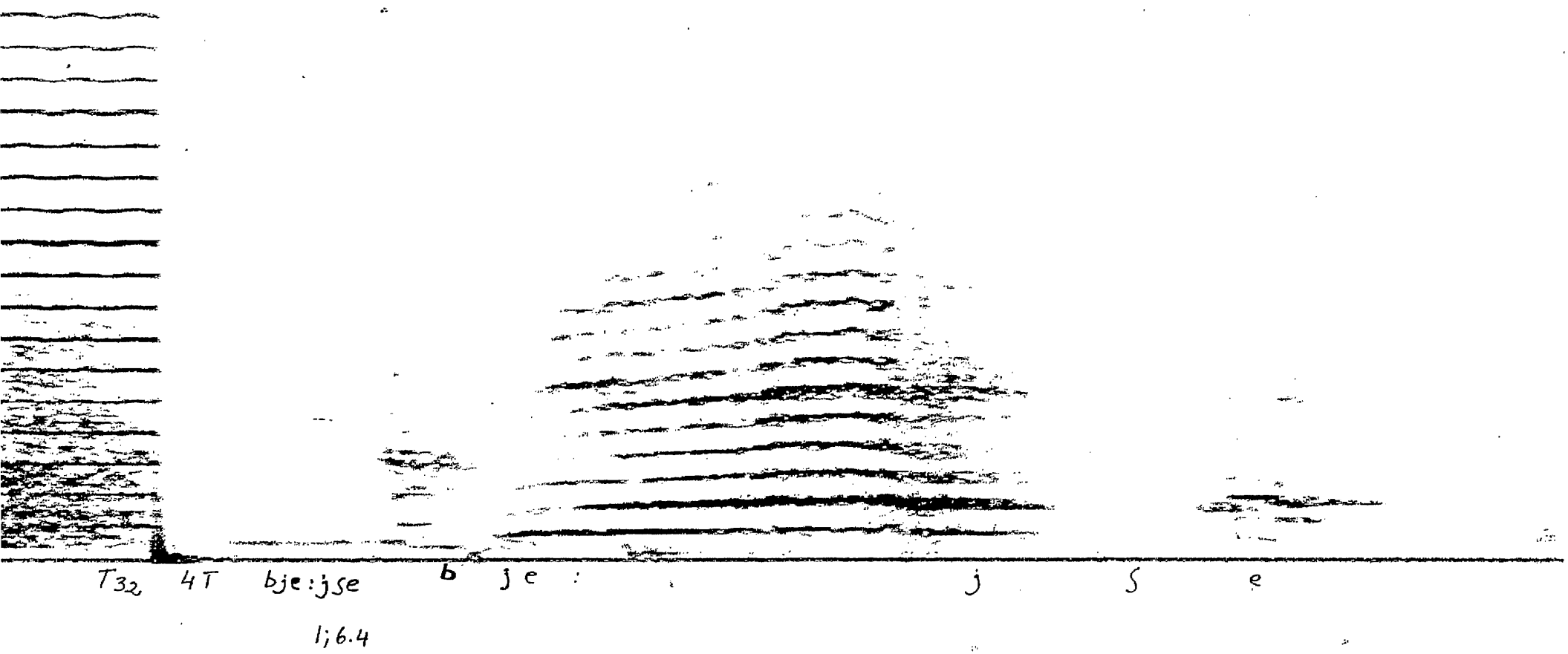

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R4 1R a: 1;3.19

a:

260

261

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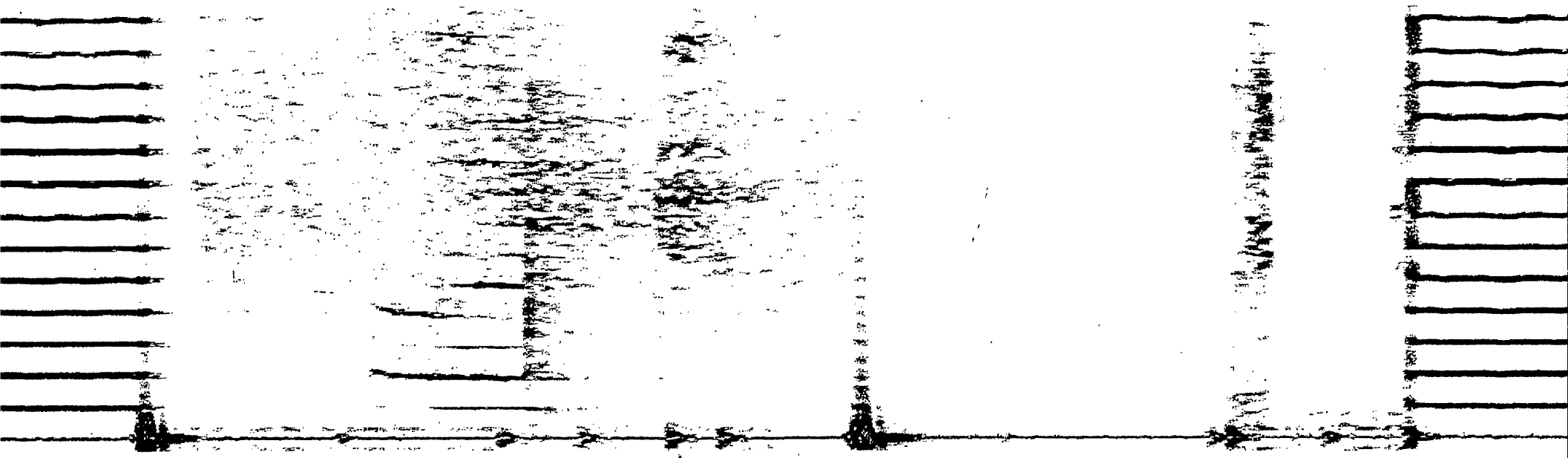
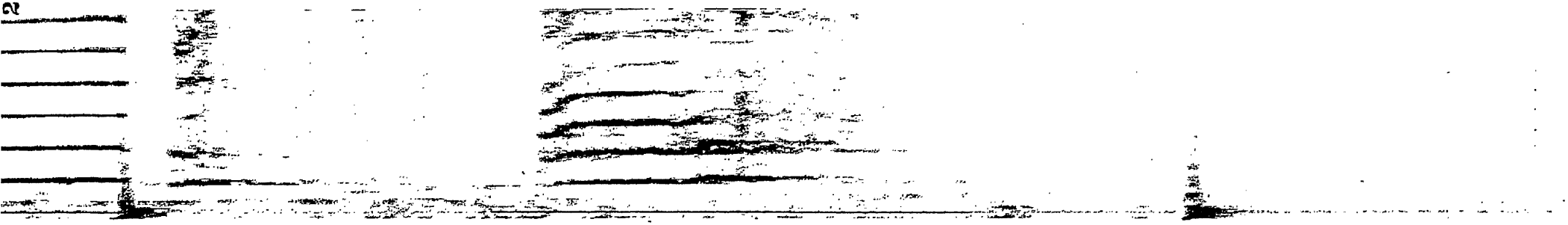


R_8 5R ot o: t

1; 3. 19



R12 7R 7ʒ̃ĩ ? ɛ̃ ĩ

1; 3.6

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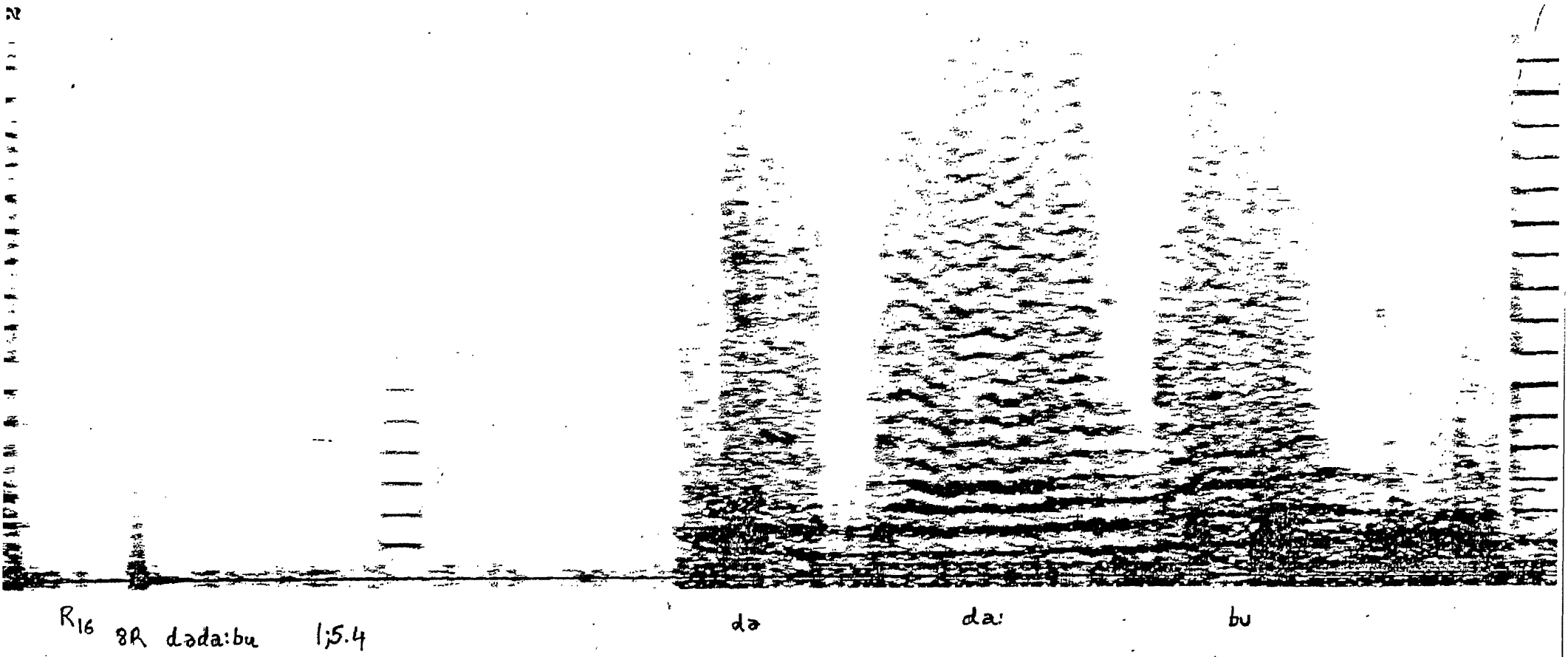

R16 8R dəda:bu 1;5.4

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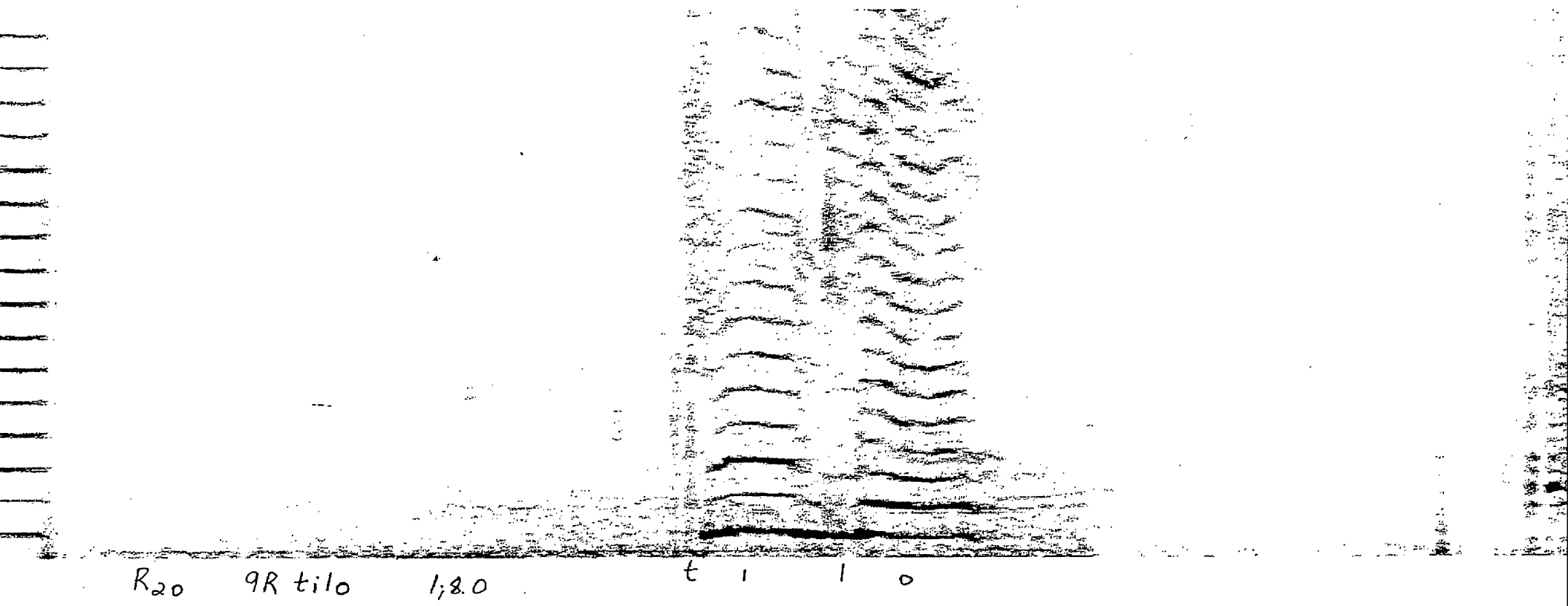

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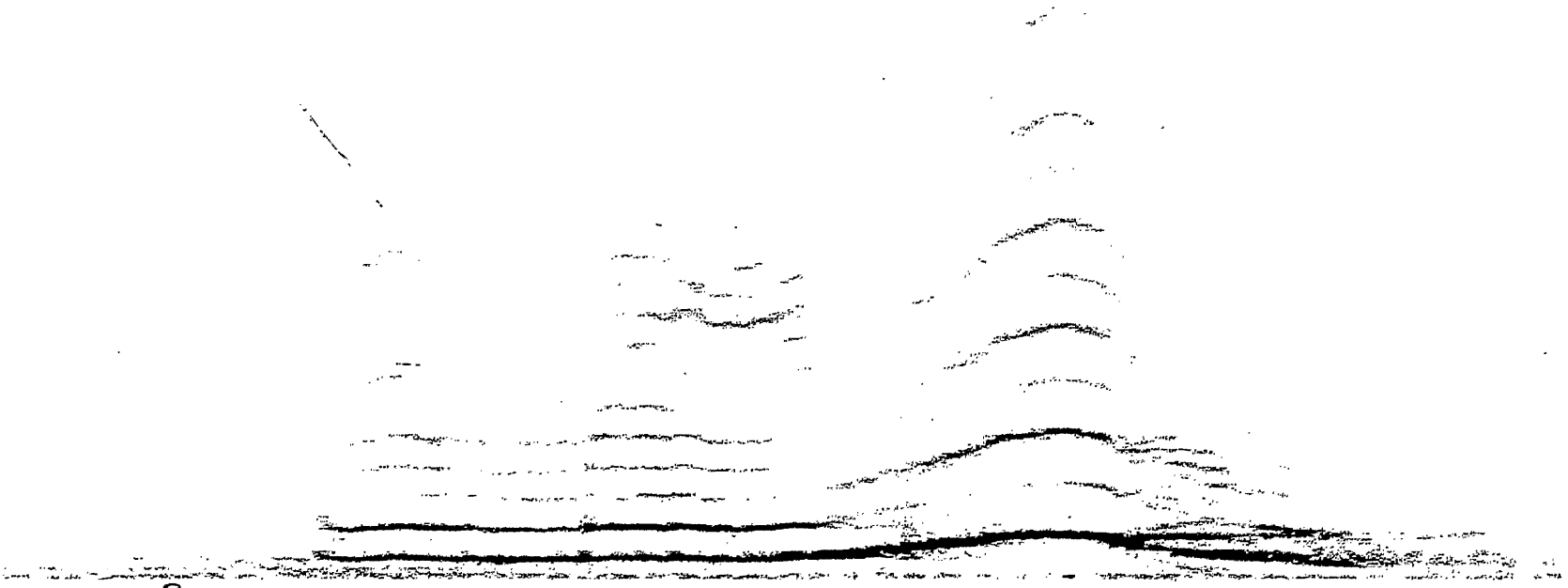

R24 u m e n i m u
8R umeninu
1;9.8

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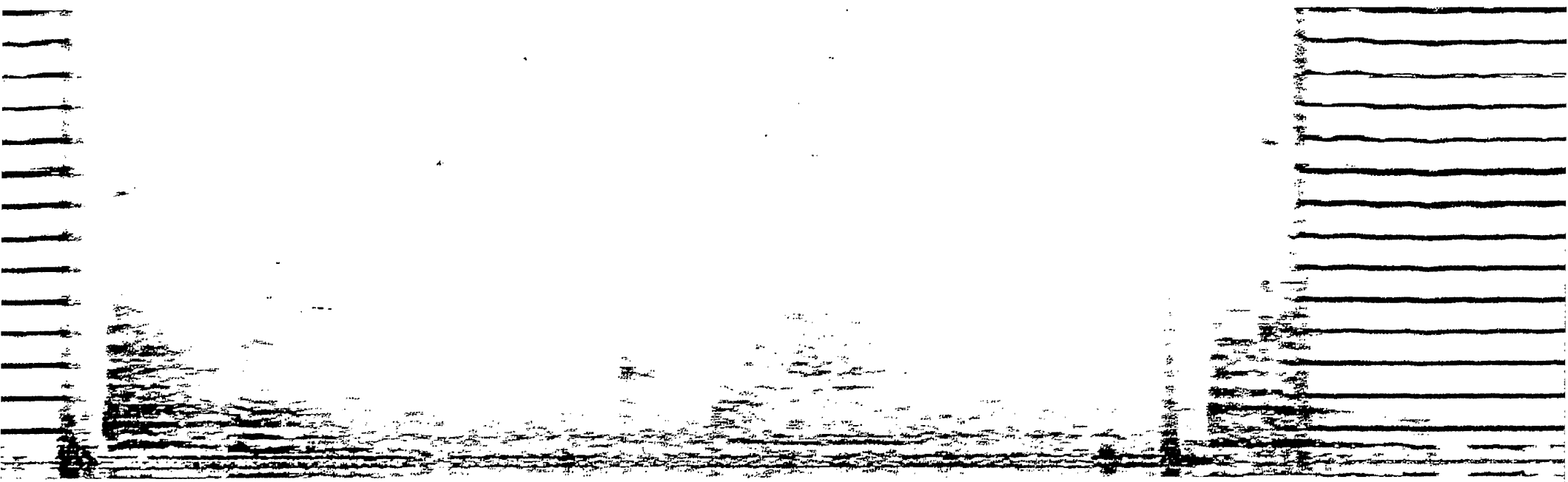

R28 2R Kala
1;6.22

K a l a

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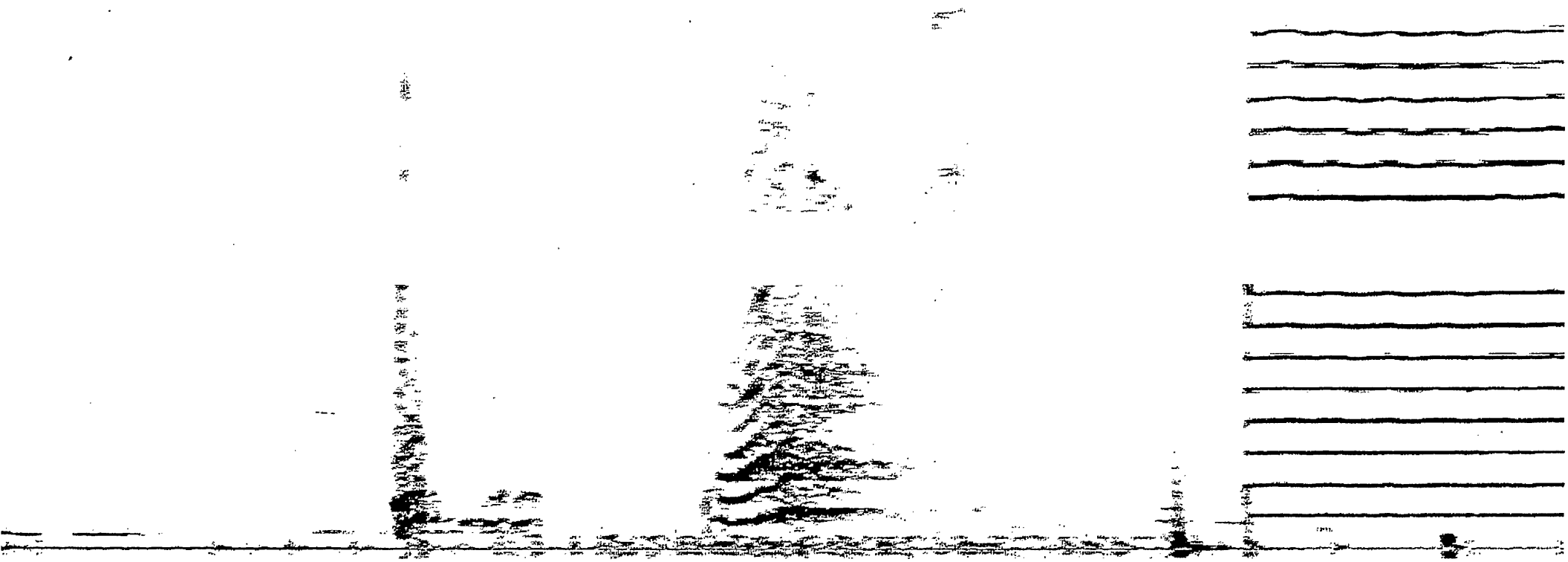

R 32 ˈR ˈpɔtʂi 1;6 ˈp ɔ tʂ i

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