INTONATION IN RELATION TO SYNTAX

IN INDONESIAN

by

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(MATERIALS IN LANGUAGES OF INDONESIA, No. 5)

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TABLE OF CONTENTS

ACKNOWLEDGMENTS

support and assistance in more ways than I can describe. I also extend
my thanks to Mrs. Sharon Curtis for her excellent job in typing the
thesis.

Finally, my wife, Annie, and my children, Frieda and Dony, deserve
very special thanks. It was their love, devotion and patience that
made it possible for me to complete the research and the writing of
the thesis.

CHAPTER I

INTRODUCTION

1.1. AIM

This volume is a study of the structural relationships among sentences in discourse as shown by their intonation patterns. The relationships are signalled not only by lexical items, as exemplified by the sample dialogue (1), by syntax, as illustrated by (2), by certain non-segmental features such as accent or stress as demonstrated by Hultzén (1959) and by Gunter (1963, 1966), but also by the total non-segmental features; that is, by the total intonation patterns. This volume attempts to answer the following questions: (1) What are some of the major intonation patterns of Indonesian? (2) What phonological (specifically prosodic) units have to be set up to account for the data, and what are their characteristic features (in terms of pitch levels, pitch movement, pauses, etc.)? (3) What are the major functions of intonation in Indonesian? (4) How are the phenomena of intonation relatable to syntax in Indonesian?

(1) A. Ke mána?[1]
         2- 3 1$_f$#
         to where
         'Where are you going?'

     B. Ke sána.
         2- 3 1$_f$#
         to there
         'I am going there.'

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[1] The Indonesian illustrations in this volume are written in the current Indonesian spelling system. For a brief sketch of the sound system of Indonesian as it is spoken in South Sumatra, see Appendix C. The correspondence between the Indonesian sound system and the spelling system is also outlined in Appendix C. For the intonation notation convention, see 1.5.2. infra.

1

Dialogue (1) is a normal means of exchanging greetings among friends. In this case, A is not excactly asking B as to where he is going, and therefore it is sufficient for B to simply say ke sana, that is without precisely specifying where he is going. However, this dialogue requires that B use the word ke *'to'* in his response. If he uses di *'at'* instead of ke in his response, the resulting utterances will not constitute an acceptable dialogue. Thus the choice between ke and di in B's response signals whether or not the utterances of A and B comprise a dialogue.

(2) A. Sayá bertemu dengan Náni.
   $2\text{-}33_r/\ 2\text{-}$ $3\ 1_f\#$
   I   meet   with   Nani (i.e. a girl's name)
   'I met Nani.'

   B. Bagaimána   dia?
   $2\text{-}\quad 3\ 2_f/\ 211_f\#$
   how   she
   'How was she?'

   C. Baik-baik saja.
   $2\text{-}\qquad 3\ 1_f\#$
   good good just
   'Just fine.'

Dialogue (2) is also a typical dialogue among friends, and the focus of the dialogue (that is, Nani) is familiar to both A and B. The topic of A's first utterance, saya bertemu Nani, is saya I (that is, A), and the comment is bertemu dengan Nani *'met Nani'*. The word Nani is accented because it is the 'focus of information' (cf. Hultzén (1959)) in the predicate.

The occurrence of dia *'she'* (which refers to Nani) in B's response to A is in effect B's proposal to switch the topic from saya *'I'* to Nani, and to switch the focus of information from Nani to bagaimana *'how'*. The former is signalled by B's explicit use of dia, and the latter by the placement of accent on bagaimana and by the inverted word order; that is, the occurrence of the comment (bagaimana) before the topic (dia).

If, instead, B wishes to keep A as the topic of his response, then he will probably say: Bagaimana?, that is with the topic deleted since it has been mentioned in the preceding sentence, and since its reference (A) is present. This is likely to happen if, let us say, A had told B earlier that he was going to ask Nani for a date. Then, B's response bagaimana would mean something like *'how was it?'* or *'how did it go?'* (that is, *'are you going out with her?'*). If that is indeed the case, then A's further response: baik-baik saja *'just fine'* will be out of

place. Instead, he will probably say: baik *'fine'*, or sudah *'(already) done'*; that is, he already did ask Nani for a date without necessarily implying that he succeeded. Or, if he succeeded, he might simply brightly smile instead of saying anything. If he failed, he would probably not tell B that he had seen Nani in the first place.

A's response: baik-baik saja indicates that he goes along with B's proposal to switch the topic to Nani. This is signalled by his deletion of the topic in his response. Thus we see that the coherence of dialogue (2) is the function of various grammatical processes: deletion and inversion transformations, and the interplay between these and the placement of accent.

Dialogue (3) is also a possible dialogue among friends. Let us say A, B, C, and D are friends. A is D's wife. B and C are visiting A and D.

(3) A. Mau minum kopí?
2- $_f 31_f$#
want drink coffee
'Would you like some coffee?' (Not necessarily addressed to anyone in particular).

B. Maú minum kopi.
2-32$_f$/211$_f$ #
'(I sure) would like some coffee.'

C. Minúm mau kopí.
2-33$_r$/ 2-   31$_f$#
'(Come on, every time you are invited) to drink, (you) want coffee.' (Teasingly addressed to B with possible implication: *'You never buy your own coffee'*).

D. Mau kopí minúm.
2- 33$_r$/ 2-31$_f$#
'(If you) want coffee, (why don't you just) drink it.'
(Addressed to B and C with possible implication: *'Why don't you stop teasing each other'*).

A's utterance is interrogative, which is signalled not by word order because the word order of A's utterance is precisely the same as that of B's, but by the intonation pattern as indicated in (3).[1] The pitch movement starts with neutral or mid pitch level /2/, continues on relatively the same pitch level until it reaches the first syllable of minum *'drink'*, after which is gradually moves lower and lower until it

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[1] We might also note A's gestures and facial expressions here. For example, she might look at everyone, rather than at anyone in particular, while asking the question.

reaches the penultimate syllable of the utterance, that is ko- of kopi *'coffee'*. At this point the pitch level is very close to but not quite as low as pitch level /1/. Then, it abruptly rises to high pitch level /3/, and then falls down to /1/ and fades away. The abrupt rise to /3/ and the abrupt fall to /1/ occur on the final syllable of the last word in the utterance, that is on the final syllable of the utterance. There is an utterance final pause (#), but there is no utterance medial pause (/).

B's response is declarative, which is signalled by the intonation pattern as indicated in (3). The intonation pattern of B's utterance differs from that of A's in two ways: (a) its pitch movement, and (b) the number of its pause groups. Its pitch movement starts with a neutral pitch level /2/, abruptly rises to a high pitch level /3/ on the final syllable of mau *'will, want, would like'*, and then abruptly falls to a low pitch level /1/ on the same syllable, after which it ceases without fading away, that is it is followed by a non-final or tentative pause indicating the end of the non-final pause group. The pitch movement then resumes after the non-final pause with relatively level pitch /1/ until it reaches the end of the utterance and fades away.

If, instead of responding as in dialogue (3), B responds by using the intonation pattern as indicated in (4), he

(4) Mau minum kópi.
    2-   3 1$_f$#
    '(I) want to drink coffee.'

misses the focus of information in A's utterance, which is kopi, and thus does not contribute to the coherence of the dialogue. The focus of information in (4) is kopi, and (4), therefore, would be an appropriate response to (5), but not to A's utterance in (3), in which kopi has been mentioned and thus no longer constitutes a novel focus of information.

(5) Mau minum àpa?
    2-   31$_f$#
    'What (do you) want to drink?'

C's utterance in dialogue (3) is declarative. It contains two focuses of information: minum *'to drink'* and kopi *'coffee'*. In effect, C proposes to introduce a new focus of information (minum) and to 'revive' A's focus of information (kopi), which has been switched to mau by B. C's topic now is minum. The pitch movement starts with /2/, rises to /3/ on the last syllable of minum, and then falls slightly to a point where the pitch level is not as low as either /2/ or /1/, after which

it is followed by a non-final pause. The pitch movement resumes after the non-final pause with /2/, rises to /3/ on the last syllabe of kopi, and then gradually falls down to /1/ and fades away.

D's utterance in dialogue (3) is a request. Like C's utterance, D's contains two focuses of information: (mau) kopi *'want coffee'* and minum *'drink'*. In effect, D goes along with and reiterates C's proposal. However, C's utterance and D's differ in two ways: First, C's is declarative whereas D's is imperative. Second, C's topic is minum whereas D's topic is (mau) kopi. They do not differ in their total intonation patterns.

To summarize, the structural interrelations of sentences in discourses must be specified in terms of lexical items (e.g. lexical selection as in dialogue 1), grammar (e.g. topicalization, deletion, inversion as in dialogue 2), intonation (e.g. accent and contour placement, pitch movement, pauses as in dialogue 3), and interplay of these three, especially grammar and intonation. For example, dialogues (2) and (3) show that an inversion of topic and comment is interrelated with a transformation of the intonation pattern.

And, as a corollary of the statement above, we may also state that a satisfactory account of intonation, which is the primary concern of this volume, must refer to the interrelations of sentences in discourses.

The discussion of dialogues (1), (2) and (3) above implies that in order to account satisfactorily for the interrelations of sentences in discourses the "context of situation"[1], which relates the discourses with the features of the actual extra-linguistic situation in which the discourses take place, must be taken into consideration. Consequently, the relations between intonation and the context of situation must also be explained.

The contextually relevant extra-linguistic situation in which a discourse takes place may include features of the physical environment (such as persons, objects, events, etc. which are actually present) as well as social and cultural events and relations.

Most of the works which have been done so far[2] on the Indonesian language[3], are concerned with grammatical analysis and/or lexicon.

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[1]For the term "context", see Halliday (1961:243-244), where "context" is defined as "the relation of the form that is, "the organization of the substance into meaningful events" to non-linguistic features of the situation in which language operates, and to linguistic features other than those of the item under attention: these being to-gether *extratextual* features". See also Catford (1965:1-5).

[2]For a complete bibliography and comments, see Teeuw (1961).

[3]Hereinafter abbreviated IN.

Despite the fact that "the number of grammars and textbooks at different levels, devoted to IN is very large"[1] "a satisfactory grammatical description both of Modern Malay (including Bahasa Indonesia) and Classical Malay is still lacking".[2]

The phonology of IN is the least explored, and within phonology the problem of intonation has hardly been investigated seriously beyond brief accounts of word accent.[3]

A brief survey of some of the earlier studies on IN non-segmental phonology is presented in Chapter II. Chapter III characterises accent, and presents rules of accent placement in IN. The theoretical framework espoused in this volume, by means of which the present investigation is handled, is presented in Chapter IV. Finally, Chapter V presents a summary and conclusions of the investigation.

1.2. THE LANGUAGE

IN is the official and national language of Indonesia, of which the population is about 147,490,298[4]. It is the official language of the country[5] in which major governmental affairs are carried out, and it is the vehicle of instruction in all Indonesian schools, from elementary up to university levels, except, of course, in foreign language classes of high schools and in foreign language departments of universities and colleges, where the foreign language is used. Until quite recently, in areas where the regional languages differ considerably from IN, as in Java, IN was not used as the medium of instruction until the third or the fourth grade of elementary schools.

It is the national language of Indonesia in the sense that it has served as a powerful unifying factor in the development of Indonesian nationalism especially since 1928, when Malay was adopted and proclaimed as Bahasa Indonesia by the All Indonesia Youth Congress in Jakarta on October 28, 1928[6]. It is also the language by means of which inter-

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[1]Teeuw (1961:66).

[2]Roolvink (1965:310).

[3]See, for example, Verguin (1955), Kähler (1956:37-38), Zain (1958:17-20), and Macdonald and Dardjowidjojo (1967:31-32).

[4]This figure is an estimate based on the Indonesian population census of 1980. See Indonesia (1981).

[5]It it stated in Chapter XV, Article 36 of the 1945 constitution of the Republic of Indonesia that "Bahasa Negara ialah Bahasa Indonesia" (*State language is Indonesian*). (See also Jones (1964:6).

[6]Alisjahbana (1957, 1962). Also, Teeuw (1967).

cultural communication is accomplished.[1]

A full account of the history, growth and development of IN is beyond the scope of this volume. Suffice it to point out here that IN has grown and developed out of Malay, which had already been used as a *lingua franca* throughout the Archipelago long before the arrival of the Portuguese in the sixteenth century.[2]

It is generally agreed that Malay, and thus also IN, belongs to the language-group known as Malayo-Polynesian, or, to use a more current term, Austronesian[3], which may be divided into four sub-groups: (1) Indonesian, (2) Melanesian, (3) Polynesian, and (4) Micronesian. IN belongs to the Indonesian sub-group, which also includes the languages of Madagascar and Formosa. To be exact, IN belongs to the Southwest Indonesian sub-sub-group of the Indonesian sub-group of the Austronesian language group.

Observation of IN reveals that written IN differs from spoken IN to such an extent that an attempt to account for both by a single unified approach would be extremely complex, if not impossible. They differ in their degree of uniformity, and also in their grammar.

Firstly, written IN is manifested in a spelling system which is standardized, and, therefore, is more or less uniform throughout the country. Spoken IN, on the other hand, is far from uniform in its sound system. It varies from place to place, owing to the influence of the systems of the numerous regional languages. The resultant variants of IN in this case are its regional dialects.

Secondly, written IN differs from spoken IN in its grammar. The most outstanding difference lies in the extent to which it allows for certain optional transformations, such as inversion and deletion. For example, written IN sentence (6) may be optionally transformed into (6a), (6b) and (6c), but not into (6d) and (6e), etc.

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[1] Slametmuljana (1959), especially pp.27-28.

[2] For accounts of the history, growth and development of IN, see Teeuw (1961), especially pp.61-73 and references therein. See also Teeuw (1959) and (1967, pp.1-9 and 28-33); Alisjahbana (1966); Slametmuljana (1964); Usman (1964); Drewes (1929). For a sociolinguistic account, see Dardjowidjojo (1966:1-12).

[3] Capell (1962:371-378) notes that the term "Malayo-Polynesian" was introduced by W. von Humboldt in 1836, whereas the name "Austronesian" was proposed later by Otto Dempwolff. For the history of the research on Austronesian (Malayo-Polynesian) see Voegelin and Voegelin (1964) especially pp.12-26. See also Brandstetter (1916) and Gonda (1950, 1952-1953).

(6) Mereka minum kopi kemarin.
they drink coffee yesterday
'They drank (some) coffee yesterday.'

(6a) Minum kopi mereka kemarin.
'Drinking coffee was what they did yesterday.'

(6b) Mereka kemarin minum kopi.
'What they did yesterday was drinking coffee.'

(6c) Kemarin mereka minum kopi.
'Yesterday they drank (some) coffee.'

(6d) *Minum mereka kopi kemarin.

(6e) *Kopi minum mereka kemarin.

On the other hand, the corresponding spoken sentence (7), with certain intonation features, which are by nature absent in the written counterpart, may be optionally transformed into (7a) through (7k).

(7) Mereká minum kópi kemarin.
2- 33$_r$/2- 3 2$_f$/ 211$_f$ #
'Speaking of them, as for yesterday, they drank coffee.'

(7a) Minúm mereka kopi kemarin.
2-32$_f$/ 211$_f$ /211$_f$/ 211$_f$ #
'They did drink (some) coffee yesterday.'

(7b) Minum kópi mereka kemarin.
2- 3 2$_f$ /211$_f$ / 211$_f$ #
'Drinking coffee was what they did yesterday.'

(7c) Minum kopi kemarin mereka.
2- 33$_r$ / 2-3 2$_f$ / 211$_f$ #
'As for drinking coffee, it was yesterday that they did it.'

(7d) Kopí minúm kemarin mereka.
2-33$_r$/2-32$_f$/ 211$_f$ / 211$_f$ #
'As for coffee, yesterday they did drink it.'

(7e) Kopí kemarín minúm mereka.
2-33$_r$/2- 33$_r$ / 2-32$_f$ /211$_f$ #
'Speaking of coffee, as for yesterday, they did drink it.'

(7f) Kopí kemarín mereka mínum.
2- 33$_r$ / 2- 3 1$_f$ #
'As for yesterday's coffee, they drank it.'

(7g) Kemarín kopí mereka mínum.
2- 33$_r$ / 2-33$_r$/2- 3 1$_f$ #
'Speaking of yesterday, as for coffee, they drank it.'

(7h) Kemarín mereká kopí minúm.
2- 33$_r$ / 2- 33$_r$ /2-33$_r$/2-31$_f$#
'Speaking of yesterday, as for them, as for coffee, they did drink it.'

(71) Kemarín mereká minum kópi.
      2- 33ᵣ / 2-   3 1f#
      'As for yesterday, they drank (some) coffee.'

(7j) Mereka kemarín minum kópi.
      2-   33ᵣ / 2-   3 1f#
      'As for what they did yesterday, they drank coffee.'

(7k) Mereka mínum kemarín kopi.
      2-   3 2f / 211f   / 211f#
      'They did drink it yesterday, (now that you ask me about) the
      coffee.'

Of course, the possibility of transformations of this kind is not
totally without restrictions. For example, no item can occur between
the preposition di 'at' and the noun kamar 'room' in the prepositional
phrase di kamar as in (8). Thus, sentences like (8a) and (8b) are
ungrammatical.

(8)   Mereká minum kópi di kamar.
      2- 33ᵣ / 2-   3 2f / 211f   #
      they   drink coffee in room
      'As for them, they drank coffee in (the, their) room.'

(8a) *Di mereka minum kopi kamar.

(8b) *Mereka minum di kopi kamar.

The nature of the written language requires that the context in which
a given sentence occurs be explicitly specified. The absence of the
addressee restricts the extent to which deletion transformation is
allowed without resulting in ambiguity of communication. Thus, for
example, while (9) may be transformed into (9a) by deleting the verb
pergi 'go', in both written and spoken IN, (10) may be transformed into
(10a) only in spoken IN.

(9)   Mereka pergi ke perpustakaan.
      they   go   to library
      'They go to the library.'

(9a) Mereka ke perpustakaan.
      they   to library
      'They go to the library.'

(10) Saudara mau masak apa? Saya mau masak ayam, dan. Nani mau
      you   want cook what? I want cook chicken, and Nani want
      menyediakan sayur.
      prepare vegetables
      'What would you like to cook? I am going to cook chicken, and
      Nani would like to prepare vegetables.'

(10a) Masak ápa? Sayá ayam dan Nani sáyur.
       2-   31$_f$# 2-33$_r$/232$_f$/2- 33$_r$/231$_f$#

Without an appropriate context of situation, as in most cases in writing, (10a) is at best ambiguous, or, although the second part of (10): Saya ayam dan Nani sayur is syntactically well-formed, is semantically "incongruous"[1]. Masak apa?, for example, is ambiguous in person in at least three ways; that is, it may be a transform of any one of the following:

(11) Saya masak apa?
      I cook what

      'What shall I cook?'

(12) Saudara masak apa?
      you   cook   what

      'What would you like to cook?'

(13) Dia masak apa?
      he/she cook what

      'What would he/she like to cook?'

Saya ayam dan Nani sayur is semantically incongruous because, as it stands, it means *'I am a chicken, and Nani is a vegetable'*. However, the ambiguity and the semantic incongruousness of (10a) are solved by a suitable intonation pattern and by an appropriate context of situation such as the following: Imagine a situation in which three housewives (Tati, Nani, and Tini) are planning the menu for a dinner party. They have decided that each contribute one main dish. In such a situation, dialogue (14) is very likely.

(14) Tati: Kalau saya masak ayám bagaimána?
             2-   33$_r$/ 2-   3 1$_f$#
             if   I   cook   chicken how
             'What about if I cook chicken?'

      Nani: Kalau begitú sayá sáyur.
             2-   33$_r$ / 2-33$_r$/231$_f$#
             if   so   I   vegetables
             'If so, I will cook vegetables.'

Tati (after a while, and Tini still has not said anything):
             Masak apa? Saya ayam, dan Nani sayur. (cf. 10a).

The context of dialogue (14) makes Nani's utterance Kalau begitu saya sayur *'if so, I vegetable'*, and Tati's last utterance Masak apa? Saya ayam dan Nani sayur *'cook what? I chicken and Nani vegetable'* neither ambiguous nor semantically incongruous. The context instructs Nani's

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[1]Joos (1958).

audience to select the fact that Kalau begitu saya sayur is a deletion transform of (14a), and not of, for example, (14b).

(14a) Kalau begitu, saya masak sayur.
      if   *so*   *I*   *cook*   *vegetables*
      'If so, I will cook vegetables.'

(14b) Kalau begitu, saya adalah sayur.
      if   *so*   *I*   *be*   *vegetables*
      'If so, I am a vegetable.'

The context, including perhaps Tati's turning her head toward Tini, also instructs Tini's linguistic competence to trace Tati's Masak apa? to (12): Saudara masak apa? *'what would you like to cook?'* and not to either (11) or (13).

1.3. DATA

1.3.1. Material

The material used in this study consists mainly of familiar informal spoken IN as it is used in South Sumatra by adults of relatively equal age and socio-economic status. The feature "familiar", as opposed to "non-familiar", means that the speakers are familiar with each other. The feature "informal", as opposed to "formal", refers to the degree to which formality of behavior, including speaking, is involved in the situation in which the language is used. State functions, for example, are formal. On the other hand, a social get-together among friends is informal.[1]

In particular, the material consisted of a set of recordings of the informants' speech, and the writer's casual observation of his own speech (intuition)[2] and that of other speakers of the language.

IN as it is spoken in South Sumatra was chosen because the primary informants used in this study were from South Sumatra, and also because

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[1]The features "familiar" and "informal" need not co-occur. It is possible to have combinational features "familiar formal", "non-familiar formal", as well as "non-familiar informal". The first characterises a situation in which the speakers are familiar with each other, but in which some degree of formality is nevertheless maintained. A situation of this kind is illustrated by one involving students and their teachers. The second characterises a situation in which the speakers are not familiar with each other, and which calls for a relatively high degree of formality. For example: a public lecture involving a visiting speaker and his audience. The third, "non-familiar informal", characterises a situation in which the speakers are not familiar with each other, but in which the degree of formality is quite low. For example: a situation in which a host is trying to make his newly introduced guest feel at home.

[2]The writer grew up in a bilingual home. His mother's language is *Bengkulu,* and that of his father is *Serawai*. Both are spoken in the western coastal region of South Sumatra.

IN varies from place to place in such a way that to attempt to analyze the language as it is spoken in all the regions of Indonesia would be far beyond the scope of this volume. To analyze a hypothetical general IN is neither desirable nor empirically justifiable.

1.3.2. Informants

The informants used in this study comprised the adult Indonesian community on the campus of the University of Michigan. They were classified into two groups: primary informants and secondary informants.

Primary informants were South Sumatrans. Secondary informants were non-South Sumatrans. The function of the secondary informants was to provide the primary informants with a "familiar informal" social context, and to induce them to speak.

There were two primary informants: the writer and his wife. Thus the analysis presented in this volume is an analysis of IN as it is spoken by the writer and his wife, both of whom are from South Sumatra.

1.4. TECHNICAL PROCEDURE

Thirteen Indonesians (ten graduate students at the University of Michigan and three wives) served as secondary informants in this study. The three wives were college graduates.

The (secondary) informants were told in advance that tape-recordings of their speeches would be made either indirectly on the telephone or directly whenever there were social get-togethers, and that no announcements about the recording would be made immediately prior to telephone conversations to be recorded so that the naturalness of the conversations could be preserved maximally. The informants were also told that the study was especially concerned with the primary informants' speeches, and that their function was to provide the primary informants with an appropriate familiar informal social context and to induce them to speak.

The recording was conducted off and on from October 1967 up to April 1968, totaling about twenty hours in all. However, the background of some of the direct recordings made was so noisy that only about fifteen of the twenty hours of recordings were considered in the study.

The recording, furthermore, was done at 3 3/4 inches per second on four different tape-recorders, depending on whatever machine the writer had at his disposal at the time. The four tape-recorders were Norelco EL 3585/54, Sony TC910, Sony TC860, and Uher 4000 Report-L.

The tape-recordings were than transcribed in the conventional IN spelling system. Accents and intonation were auditorily identified, noted and analysed. Furthermore, qualitative evidence in the form of

Mingographic tracings for the analysis was secured by recording the
following items at 7½ inches per second on an Ampex 350 tape-recorder,
and by subjecting them to a Mingograph intonation analyzer at the
Phonetics Laboratory of the University of Michigan:

1. The first list of items consisted of 140 words (82 unmarked and 58
marked). (For a discussion of the categories "unmarked" and "marked",
see Chapter III.) The items of this list are presented in Appendix A.
Of these 140 words, forty were selected to make up twenty accentual
minimal pairs; that is, pairs of words which are identical in their
sounds but differ in the placement of their accents. These accentual
pairs are listed in Appendix B.

The purpose at this point was to specify the physical correlates of
the auditory impressions: pitch, intensity and length.

2. The second list consisted of 100 phrases and sentences which make
up eighteen sentential sets; that is, sets of sentences which either
(a) are identical in their words and the order of these words, but
differ in their intonation patterns, or (b) consist of sentences and
their deletion and/or invertion transforms.

3. The third list was composed of 100 utterances (phrases, sentences
as well as utterances larger than sentences) selected from the original
recordings of natural conversations mentioned above. The following
criteria were considered in the selection of these items:
    a. These items were spoken by the writer in the original recordings.
    b. The list was made up of declarative, interrogative as well as
        imperative utterances.

Finally, the Mingographic tracings obtained were studies. The
results were then incorporated into the analysis and discussion in
Chapters II, III and IV.

1.5. TRANSCRIPTION, NOTATIONAL CONVENTIONS, AND ABBREVIATIONS

1.5.1. Transcription

Sample IN items (sentences, phrases, etc.) are presented in the
current spelling system of IN because the main concern of this volume
is the intonation, and not the (segmental) phonology of IN. For a brief
sketch of the (segmental) phonology of IN and of the relation between
this and the spelling system, see Appendix C.

IN items are underlined whenever they are being discussed in the
text of this volume.

14

1.5.2. Notational Conventions

/   Non-final (or, tentative) pause, indicating the end of a
          non-final pause-group.

\#   Final pause, indicating the end of a sentence final pause-group,
          or the end of a discourse medial pause-group.

1   Pitch level 1 (one), or 'low'.

2   Pitch level 2 (two), or 'mid', or 'neutral'.

3   Pitch level 3 (three), or 'high'.

v́   (Accent mark on a vowel letter of sample items): Sentential
          or phrasal accent, indicating the place of the peak of the
          primary contour of the sentence, or of the phrase under
          attention.

→   'Rewritten as', 'analysed into', 'dominate'.

←   'Derived from', 'dominated by'

*   'Non-existent', 'ungrammatical', 'unacceptable'.

**   'Reconstructed forms'.

1.5.3. Abbreviations

db.	decibel
EP	end of pitch
f	(subscript): falling (contour)
Hz	Hertz
IN	Indonesian
IP	intonation pattern
M	Modality
mm	millimeter
N	Noun
NP	Noun phrase
P	Proposition
PP	peak of pitch
PL	pitch level
PROG.	Progressive
QI	Question Indicator
QW	Question Word
r	(subscript): rising (contour)
s	(subscript): sustained (contour)
S	Sentence
Sec	Second
V	Verb

CHAPTER II

BRIEF SURVEY OF EARLIER STUDIES ON IN NON-SEGMENTAL PHONOLOGY

2.1. *GENERAL*

It was pointed out in Chapter I that the intonation of IN has hardly
been investigated beyond short accounts of word-accent. Intonation,
especially in relation to grammar, is treated very briefly, if at all.
This chapter is a brief survey of some of the earlier works on BI non-
segmental phonology.

Most of the earlier studies on the word-accent and the intonation of
IN are based on the investigator's auditory impression only. The results
are then noted in orthographic notation. Some investigators use musical
notation. As far as the writer is aware, there has been only one
objective, though very limited, investigation of "la nature de
l'accentuation en . . . . malais."[1] In general, most of these earlier
studies are characterised by a lack of coherent theoretical framework
behind them.

2.2. *SURVEY*

2.2.1. William Marsden

Marsden (1812) defines "prosody" as

> that part of grammar which treats of the accent and quality
> or measure of syllables, and of their due arrangement in
> forming metrical composition, or verse as distinguished from
> prose (p.118),

and uses written texts as his primary data. He arrives at his prosodial
rules based upon "no more than inferences from the practice of good
writers" (p.125), a view consistent with the general trend in eighteenth

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[1]Verguin (1955:522).

and early nineteenth century linguistics. However, apart from the fact
that his phonological units are (Arabic-) orthographically defined, as
when he states on page 119 of his book that:

> by long vowels we are to understand . . . the quiescent
> (Arabic) letters ‍ā, ‍ū, and ‍ T, and by their being
> rendered short is meant that they give place to their
> corresponding short or supplementary (Arabic) vowels,
> *fat-hah, dammah,* and *kersah.*[1]

Marsden's is probably one of the earliest reasonably detailed
description of the placement of word-accent in Malay/IN. To him, then,
IN accent is a matter of quantity, or length.

The following are Marsden's rules of IN word-accent placement (pp.118-
126):

1. When the penultimate syllable of a "primitive word" (cf. the
term "base word" in this volume) is long, it is always accentuated.
Examples: būnuh *'to kill'*, tākut *'afraid'*, kepāla *'head'*.

2. When both syllables of a disyllabic word are either long or short,
the accent tends to fall on the first syllable. Examples: mālū
'ashamed', tūlT *'deaf'*, lambat *'slow'*, gantI *'to change'*.

3. Rule ² does not apply to words with schwa's in their first
syllables, in which case "a decided stress is laid upon the last"
(p.118). Examples: besár *'big'*, kecíl *'small'*.

4. When there is a suffix attached to the base word, the accent
(that is, length) shifts from the penult to the final syllable of the
base, however, when there are two or more suffixes, the base retains
its original accent (that is, on the penult), and the second from the
last suffix are accented as well. Examples: kūda *'horse'* → kudāku
'my horse'; jādI *'to become'* → jadTkan *'to cause to become'*; but,
dijādIkannyālah *'to be caused to become by him.'*

5. When there is a suffix, and both the vowels of the penult and the
final syllable of the base are short, the vowel of the final syllable
of the base is lengthened. Examples: pada *'on'* → padānya *'on him'*;
sempurna *'perfect'* → kesempurnāan *'perfection'*.

6. When the final syllable of the base is closed (that is, it ends
with a consonant), and there is a suffix other than -an (nominalising
suffix) or -T (pluralising suffix), the accent remains on the penult of
the base. Examples: sārung *'sarong'* → sārungmu *'your sarong'*; tūrut
'to join' → tūrutkan *'to follow'*; but pānas *'hot'* → kepanāsan *'overcome
by heat'*; sambut *'to receive'* → sambūti *'to receive repeatedly'*, or
'to receive plural objects'.

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[1] *Fat-hah, dammah,* and *kersah* are diacritic marks of Arabic consonantal-base characters,
and indicate that the consonants carry the (short) vowels [a], [u] and [i], respect-
ively.

7. When both syllables of a disyllabic base contain long vowels, and there is a suffix, the vowel of the first syllable is shortened. Examples: dīrī 'self' → dirīmu 'yourself'; mārī 'let us' → marīlah 'come on, let us!'.

8. The vowel of a monosyllabic base, if short, becomes long only when -an or -ī is suffixed to it.

9. When a word is reduplicated as in the formation of compound words, and there is a suffix, the first base undergoes no change, but the length in the second base is shifted to the final syllable. Examples: būnyi 'sound' → būnyi-bunyīan 'accumulation of sounds, musical instruments'; lāma 'long (time)' → selāma-lamānya 'forever'.

10. When a word is reduplicated as in rule 9, but there is no suffix, the vowel length in the first base is lost, but the second base undergoes no change in the placement of the vowel length. Examples: lāki 'husband' → laki-lāki 'man, male'; bāgai 'kind, variety' → berbagai-bāgai 'various'.

Marsden's account is incomplete since he does not go beyond word-accent. He does not deal with accents in larger grammatical units such as phrases and sentences at all. Furthermore, his reluctance "to enter into the question of the difference or the identity of accent and quantity, which has divided the learned world" (p.118) leads into a serious lack of explicitness in his account, where he uses the terms "accent" and "quantity" (and "length") interchangeably in some cases but not in others. His reliance of "the authority of such books [written by non-linguist 'native writers' in Arabic script] as appear to be written with the most skill and precision" (p.119) makes the descriptive adequacy of his account, as far as spoken IN goes, questionable. This approach compels him to postulate long and short vowels because these two types of vowels are distinguished in the Arabic script. If, instead, he postulated just vowels (regardless of length or the lack of it) and quantity or length, then his ten rules could easily be simplified, and thus increased in their explanatory power. By way of illustration, Marsden's ten rules may be summarised into the following two rules:

1. The accent falls on the penult of a primitive word with the following exceptions:

    a. When the primitive word is monosyllabic, in which case the rule of accent placement is unnecessary because there is only one syllable, which is automatically accented if the word contains an accent.

    b. When the penult of the primitive word contains a schwa, in which case the accent falls on the final syllable.

2. If a word consists of one or more primitive words and one or more affixes, the accent is shifted from the penult of the underlying primitive word or words to the penult of the derivative.

2.2.2. Tassilo Adam and James P. Butler

Adam and Butler[1], like Marsden, also limit their treatment of IN non-segmental phonology to word-accent, and believe that "it is only when Malay is written in the Arabic script, where the non-accented vowels are left out, that rules on accent can be laid" (p.6). They agree with Marsden in that in general the accent falls on the penultimate, and in that when the penult contains a schwa the accent is on the final syllable. They also generalise that when suffixes are added to a base word, the accent "continues to be on the penultimate of the compound", and thus they reject Marsden's rules 4 and 9. Unlike Marsden, Adam and Butler do not postulate long and short vowels.

2.2.3. Hans Kähler

Kähler[2], and also Oplt[3], who, like Marsden, do not go beyond word-accent in their accounts, differ from him considerably. They do not depend on Arabic script, and do not postulate long and short vowels.

Kähler states that:

> Der Akzent tritt in indonesischen Wörtern (d.h. in Nicht-Lehnwörtern) im allgemeinen nicht so stark in Erscheinung wie etwa im Deutschen. Er ist in der B.I. ausserdem z.T. von emotionellen Faktoren abhängig..... Im allgemeinen ist jedoch in der Umgangssprache die vorletzte Sible stärker betont (p.37).

However, he does not pursue further just how those emotionelle Faktoren are related to IN word-accent. Do they determine the strength of the accent? Do they condition the placement of the accent? A yes answer might be accepted to the first question, but not to the second. The strength of word-accent (that is, the height of the pitch of the syllable being accentuated is proportional to certain emotional factors: the more enthusiastic and excited the speaker the higher the pitch. On the other hand, the placement of word-accent is grammatically conditioned.

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[1] Adam and Butler (1948:6).

[2] Kähler (1956:37-38).

[3] Oplt (1960:29-30).

Unlike Marsden, Kähler (and also Oplt and Wolff[1]) maintains that the word-accent of a base word remains unshifted when the base is followed by the suffix -kah 'interrogative suffix', -lah 'imperative suffix', or -pun 'suffix indicating sequential emphasis'. Examples: mákan *'eat'* → mákankah, mákanlah, mákanpun, and not makánkah, makánlah and makánpun respectively. This is not consistent with the findings of this volume which show that -kah, -lah and -pun behave exactly like other suffixes, and they therefore follow the general word-accent placement rule that when a suffix is attached to a base word the accent of the base shifts from the penult to the final syllable of the base, or, in other words, to the penult of the new non-base word. Thus:

> mínum *'drink'* + -kah 'interrogative' → minúmkah
> mínum + -lah 'imperative' → minúmlah
> mínum + -pun 'sequential' → minúmpun.

2.2.4. J. Verguin

Verguin (1955) represents the only instrumental study of the nature of Malay word-accent. He investigates the accents of about 200 disyllabic words because "ce type étant caractéristique du malais". He goes on to say: "Nous avons pris soin de plus de ne relever que des mots dont la voyelle *longue* était notée en caractères arabes" (p.525). Again, like Marsden's, his criterion for establishing long vowels is phonologically irrelevant.

Verguin finds that in general the first vowel, which is accentuated, is longer in duration, stronger in the *force articulatoire,* and higher in pitch than the second vowel of the base-words studied. However, the difference is so slight that he concludes that

> en malais moderne le mot racine ne comporte pas d'accent démarcatif. La durée, la force articulatoire, no le ton ne créent d'opposition appréciable entre les voyelles du mot. Cela pour la généralité des cas. (p.526)

Verguin's conclusion is refuted by the present study, which shows that IN word-accent is clearly defined by pitch, and to a considerable extent by duration. Verguin is correct in that intensity is not a defining feature of IN word-accent.

2.2.5. S. Takdir Alisjahbana

Alisjahbana treats not only word-accent, but also intonation, and relates it to IN grammar.

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[1]Wolff (1965:1-27).

Alisjahbana, undoubtedly one of the leading scholars of modern IN, is deeply impressed by Esperanto and Volapuk. He believes that:

> new nations such as Indonesia have the opportunity to develop
> and mold their languages more purposefully and systematically,
> in accordance with the findings of linguistics and related
> sciences,[1]

and that by using what he calls a "language engineering" (that is, normative) approach he can "influence the growth of the language according to [his own] ideas" (p.21).

Alisjahbana (1964:23-30) postulates two types of accent: word-accent and sentence-accent. He asserts that IN word-accent falls on the final syllable of the word, except when the word ends with a pronominal suffix such as -ku *'my'* and -nya *'his'*. This is evidenced, he argues, by

(1) name abbreviations: Abdul → Dul,

(2) alternation between /a/ and /ə/ in words like sadar or sedar
     'conscious'.

(3) variant forms bahasa and basa *'language'*, and

(4) vowel assimilation as in juaran → joran *'fishpole'*.

None of these arguments are convincing. The fact that the speakers of Malay/IN tend to retain the final syllable when they abbreviate names does not necessarily prove that IN word-accent falls on the final syllable. Names (and also kinship terms) are usually abbreviated this way only when they occur as vocatives, and when there is a certain degree of intimacy or familiarity between the speaker and the addressee. Then, the abbreviated forms serve as terms of endearment in general. For example, Abdul of (15) may be abbreviated to Dul as in (16). A generalized use of Dul is illustrated by (17), where Dul is used as a pronoun (as subject):

(15) Mau ke mána, Abdúl?
      want where Abdul

      'Where are you going, Abdul?'

(16) Mau ke mána, Dúl?

      'Where are you going, Dul?'

(17) Dul mau ka mána?

      'Where are you [i.e., Dul] going?'

The fact that vocatives are marked words accounts for the placement of their word-accent on the final, rather than on the penult, syllable.

The alternation between /a/ and /ə/ in sadar or sedar *'conscious'*, again does not necessarily prove that the accent therefore falls on the

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[1]Alisjahbana (1962:12).

final syllable. If it did, then one would expect to find in Minangkabau, where the word-accent consistently falls on the final syllable, words like *tenáng alternating with tanáng *'peaceful'*, and *lemák with lamák *'tasty'*. The fact that tanáng and lamák occur in Minangkabau, and ténang and lemák occur in IN shows that the alternation between /a/ and /ə/ in IN words like sadar/sedar has nothing to do with the placement of IN word-accent. It simply shows that /a/ and /ə/ alternate words like sadar *'conscious'*, but not in other words like sabar *'patient'*. Therefore, the alternation between /a/ and /ə/ in words like sadar/sedar, but not in words like sabar must be explained in ways other than in terms of accent placement. It would seem more reasonable, for example, to account for the phenomena involved by assuming that sedar and sabar have come from different sources, at least at some time in the history of IN. Let us say, they have come from **sedar and **sabar respectively. It might then be stated that **sabar developed uniformly and straightforwardly into sabar in all regional languages of Indonesia. On the other hand, **sedar developed into sadar in such languages as Minangkabau (Mk.), where the vowel system does not contain schwa, and into sedar elsewhere. Notice further, for example, Mk. sanang, IN senang *'pleased'*; Mk. lapeh, IN lepas *'loose, liberated'* (the correspondence between Mk. -eh and IN -as is irrelevant at this point); but Mk. tali, IN tali *'rope'*; Mk. malam, IN malam *'night'*. Thus, this probably explains the alternation between /a/ and /ə/ in words like sedar *'conscious'*, especially as these words are pronounced by Minangkabau speakers of IN.

The variant forms bahasa and basa *'language'* may be explained as follows. The two forms are two products derived from the same source through two different processes. The source is Sanskrit bhāṣā *'language'*. Three changes took place (not necessarily in the order given here): First, since aspirates do not occur in IN, a vowel, here a schwa, was inserted, resulting in *bəhāsā. Second, since [ṣ] does not occur in IN, it changed to [s], producing *bəhāsā. Third, vowel shortening (ā became a) resulted in *bəhasa, from which IN bahasa *'language'* was then formed by progressive assimilation; that is, the schwa is lowered because of the influence of the following /a/'s. The form basa *'language'*, on the other hand, was derived directly from Sanskrit bhāṣā through three changes (again, not necessarily in the order given here): First, de-aspiration (bh became b) produced *bāṣā. Second, de-retroflexization (ṣ became s) produced *bāsā. Third, vowel shortening (ā became a) resulted in BI basa *'language'*. However, this explanation does not appear to be sufficiently powerful since it is doubtful whether it can account for similar cases like baharu versus baru *'new'*

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and sahaja versus saja *'just, only'*.

Another explanation, which appears to be more reasonable than the
first, is that bahasa *'language'* has a variant form basa, where the /h/
is lost. The loss of /h/ does not prove that the accent falls on the
final syllable. It is a simple case of optional deletion of /h/ between
two like vowels in words of more than two syllables, resulting in
*/baasa/. And then the /aa/ was reduced to /a/, giving the variant form
basa. See Appendix C.

Finally, we find nothing to support Alisjahbana's contention that the
phenomenon involved in juaran → joran *'fishpole'* also shows that IN
word-accent falls on the final syllable.

Alisjahbana also distinguishes three kinds of (sentence) accent:
1. dynamic or loud accent,
2. voice pitch or high accent, and
2. durational accent, or tempo.
These three kinds of accent have different functions. Dynamic accent
is used to signal contrasts such as in

(18) Anak itu tidak *bodoh,* tetapi *pandai.*
      child the not stupid but clever
      'The child is not stupid, but clever.'

Pitch accent is used to express emotional meanings such as happy, sad,
angry, deliberate, etc., whereas durational accent is used to emphasise
important part(s) of one's sentence.

It is obvious that Alisjahbana's contention that there are these
kinds of accent in IN is not supported by instrumental studies, such as
the one reported in this volume, which show that pitch, intensity and
duration are merely features of accent; that is, they do not constitute
three different types of accent. Of course, one or more of these
features may be more characteristic of the accent in one language than
in others. In the case of IN, intensity is the least characteristic,
the defining features of IN accent being pitch and duration. Thus,
there is only one kind of accent. Emotional meanings such as happy,
sad, etc., are signalled not by the features (that is, pitch and/or
duration) of accent, but by the total intonation, of which the accent
is a part. In other words, the accent itself, be it pitch or duration
or intensity, does not express emotional meanings.

Furthermore, contrastive accent is exactly the same as non-contrastive
accent in terms of its defining features. Thus, what signals contrasts
and other grammatical features is not the intensity feature of accent,
as asserted by Alisjahbana, but by the placement of the accent in a
sentence, and by other intonational features like pitch movement, pause,
etc.

Finally, Alisjahbana suggests that there is a one-to-one correspon-
dence between sentence intonation (lagu kalimat) and sentence modes
(bentuk kalimat) when he talks about:

(a) basic intonation of declarative sentence
     (lagu dasar kalimat berita),
(b) basic intonation of interrogative sentence
     (lagu dasar kalimat tanya), and
(c) basic intonation of imperative sentence
     (lagu dasar kalimat perintah).

The following are some examples of these three basic intonations
(presented in Alisjahbana's notation, where solid lines indicate pitch
movements, and dots (.....) or single vertical bars (|) indicate
pauses):[1]

   (a) Basic intonation of declarative sentence: This consists of
two parts. The first part is characterised by a rising pitch, the
second by a falling pitch, and there is a pause between the two:
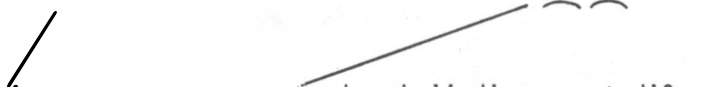
(19)

```
Ali, anak Ahmad ........ makan nasi mentah.
Ali  son  Ahmad          eat   rice uncooked
'Ali, Ahmad's son, ate uncooked rice.'
```

   (b) Basic intonation of interrogative sentence: Like the first
basic intonation, this one also consists of two parts, and the first
part has a rising pitch and is followed by a pause. The second part,
however, has a rising pitch followed by an "interrogative intonational
ending" (getar tanya):[2]

(20)

```
Apa .............. engkau beli di pasar tadi?
What              you    buy in market just now
'What did you buy in the market just now?'
```

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[1]It is not clear just what the difference is between a pause indicated by the dots
and one indicated by a single vertical bar, except that the former is used in the
first two basic intonations, and the latter only in the basic intonation of
imperative sentence.

[2]See also Danoesoegondo (1966), who claims that "unlike English, all questions in
Bahasa Indonesia are said with rising intonation" in his introductory notes [no
page number].

(c) Basic intonation of imperative sentence: Like the first basic intonation, this one also consists of two parts: the first part has a rising pitch, and the second a falling pitch. Unlike the first basic intonation, where there is a "dots" pause between the two parts, the basic intonation of imperative sentence has a "single vertical bar" pause between the two parts:

(21)

Berjalanlah | tuan dahulu:
walk | *you first*
 '(Please), you walk first!'
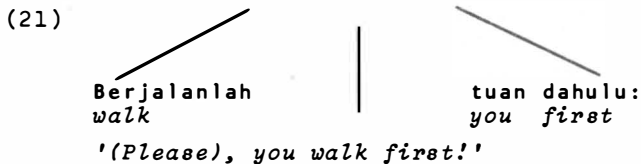
Non-basic intonations, which Alisjahbana discusses only implicitly, are any modifications (either emotionally or grammatically motivated) of basic intonations.

The present investigation provides counterevidence for Alisjahbana's suggestion that there is a one-to-one correspondence between sentence intonation and sentence modes. One and the same intonation patterns, which is here transcribed as $233_r/231_f\#$, is found with declarative, interrogative and imperative sentences. A rising interrogative intonation pattern is emotionally rather than grammatically motivated.

2.2.6. Armijn Pané

Dissatisfied with Alisjahbana's *Grammar* (first Indonesian printing; Djakarta: 1949), Pané (1950) remarks that [English translation is the writer's]:

> Alisjahbana's work appears to be an adaptation of Dutch grammar based on current linguistics, adapted to the needs of IN. Thus, his working method is not different from that of earlier grammarians (p.356).

Pané then proposes (p.35) that IN grammar must be based on:
(1) the actual character of the language (i.e., as it is actually spoken),
(2) context of sentence (kesatuan ikatan kalimat), which is defined in terms of intonation (alun kalimat), accent and word-order, and
(3) word classes.

Methodologically, Pané explicitly states (p.51) that analysis must begin with the spoken language because only here can the phenomena of accent and intonation be clearly observed. He thus rejects most of the earlier works on IN because they rely heavily on the language written in either Roman or Arabic script. He also finds himself in general agreement with Bloch and Trager (1942) in that he works "from the bottom up"; that is, he begins his investigation with sounds, and

accent, and then proceeds from there to morphology and syntax. However, Pané is up to date in his approach in that it is necessarily psycho- logical and sociological. It is psychological because he believes that linguistic intuition (rasa bahasa) must be taken into account. It is sociological because language functions as a basic means of communica- tion and social interaction in the society (pp.248-249).

In his investigation, Pané cooperates with, or rather is assisted by, Kusbini, an Indonesian musician and song writer, because he had no recording instruments at his disposal then, and, also because he sees a close parallel between IN, which he labels as a "melodic language" (bahasa berlagu), and songs (p.50). This, he feels, justifies his use of musical notation in recording his accent and intonation. He points out, however, that there are drawbacks in the use of (western) musical notation to describe IN intonation. The most important of these is the fact that the character of Western music contrasts with that of IN: Western music is dynamic whereas IN is melodic. Thus, he concludes (p.314):

> It is clear that the method in which Western music is used is correct, but it must be adapted to the requirements of IN accentuation [which is durative rather than dynamic]: it must take into account the number of syllables in words, and it must give importance to (intonational) junctural phenomena *(alun penghubung)*.

Pané also points out (pp.446-447) that it is sometimes quite difficult to get the musician into the proper mood (keadaan menerima) for accurate transcription.

Pané does not explicitly state how many distinctive pitch levels need to be set up in order to account for IN intonation. In his notation, however, he arbitrarily decides (p.273) on three pitch heights (tinggi suara): beginning pitch, pitch at changing point (contour), and closing pitch.

Unlike Alisjahbana, who postulates three kinds of accent: dynamic accent, pitch accent, and durational accent, Pané maintains that in IN there is only one kind of accent, of which the defining feature is duration. He concludes that IN accent is temporal or durative. How- ever, his conclusion is contradicted by his own findings (p.59) that the penult of a word is both longer and higher (in pitch) than the final syllable. The question is: what is the justification for his conclusion that IN accent is durative? In other words, why does he not regard pitch as another of its defining features?

Pané also differs from Alisjahbana in the placement of word-accent. Like most of the scholars discussed earlier, Pané maintains (pp.61-73) that IN word-accent falls on the penult except when the vowel of the

penult is a schwa, in which case the accent falls on the final syllable.
In a non-base word made up of one base and one or more suffixes, the
accent shifts from the penult of the base to the penult of the derived
non-base word, except when the base is followed by the suffix -kah
'interrogative suffix', in which case the accent remains unshifted.

Pane differentiates (pp.78-79), again without explicit justification,
three types of accent: (1) syllable-accent, (2) word-accent, and (3)
sentence-accent. A syllable-accent, which is carried by a (speech)
sound, makes the whole syllable of which the sound is a part prominent.
A word-accent, which is carried by a syllable, makes the whole word
prominent, and the whole sentence is distinguished by accentuation of
one or more words in it. This differentiation of accent is needlessly
complex. The so-called syllable-accent is obviously of a different
order than word-accent and sentence-accent because a syllable has one
and only one syllable nucleus, and this nucleus is the only segment of
the syllable capable of carrying accent. There are no problems of
placement of accent, which is definitely relevant to word-accent and
sentence-accent.

Intonation is studied by Pané not as an end in itself, but as an
instrument in his search for new foundations of IN grammar. Intonation
is to him either sentence-melody (lagu kalimat) or sentence-rhythm
(irama kalimat), both of which are expressions of sentence-accent
(tekanan kalimat). Sentence-melody conveys emotional meanings, whereas
sentence-rhythm carries grammatical (that is, non-emotional) meanings.
The former is finer than and is based on the latter. A sentence is
either a manifestation of melody (wujud lagu) characterised by melody
pattern (rangkaan lagu) and melody wave (alunan lagu), or a manifest-
ation of rhythm (wujud irama) characterised by rhythm pattern (rangkaan
irama) and rhythm wave (alunan irama). It would seem, however, that
intonation is not necessarily rigidly either melody or rhythm; in other
words, a sentence as part of an actual discourse can be a simultaneous
manifestation of both melody and rhythm.

How is intonation related to grammar? According to Pané, a sentence
as a manifestation of rhythm is made up of two rhythm immediate con-
stituents (ruas), which are related to each other by a junctural
phenomenon called "connecting wave" (alun penghubung), which belongs
neither to the first nor to the second constituent. The connecting
wave, symbolised by / in his examples, is represented by a lengthening
of the last sound, except stops, of the first constituent (pp.96-97),
or by silence if the last sound of the first constituent is a stop
(p.81), followed by the initial sound of the second constituent. For

example:

(22) Sāya / gūru.
      I   teacher
      'I am a teacher.'

(23) STrad / gūru.
      Sirad   teacher
      'Sirad is a teacher.'

The lengthening as connecting wave of the final a of sāya (22) is
the same as the length of the penult, which is accentuated (p.97). If
so, then the length of the ya of sāya plus the lengthening as connecting
wave is greater than that of sā. The question is, therefore, how does
he justify assertion that the penult (sā) still carries the word-accent?
Since Pané defines IN word-accent as durative, and since sā is shorter
than ya plus the lengthening as connecting wave, the logical conclusion
is that the penult of saya (SS) no longer carries word-accent. Saya in
(22) is marked, and therefore the accent shifts from the penult to the
final syllable of the word.

Pané correctly believes that intonation is closely related to gram-
mar in IN. According to him, the grammatical counterparts of the two
rhythmic immediate constituents discussed above are *subject* and *predi-
cate* in predicative relation (p.98ff). The subject, the predicate and
the relation between the two are marked not only by syntax, that is the
position of the subject before that of the predicate, of which the
function is to "clarify" the subject (p.98), but also by intonation.
The subject is intonationally characterised by higher pitch than the
predicate (p.103) and by rising pitch (suara naik) (pp.393, 445). The
predicate is intonationally marked by lower pitch than the subject
(p.103) and falling pitch if the sentence is declarative (pp.393, 445).
The pitch of the predicate is rising if the sentence is interrogative
(pp.109, 116).

It is obvious that Pané confuses pitch level and pitch movement.
He associates high pitch with rising pitch, and low with falling, except
in interrogative sentences where the final pitch is always rising. His
statement concerning intonational features of sentences and their
immediate constituents above is again and again contradicted by the
notation of his own speech. Notice, for example, the following.

(24)

DT a γ gū   ru (p.99)
he   teacher
'He is a teacher.'
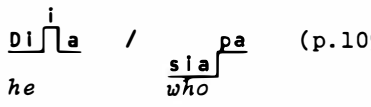
where both the subject and the predicate are level-pitched, but the pitch (level) of the subject is higher than that of the predicate. Notice, furthermore, that the pitch of the subject is not rising, and that of the predicate is not falling.
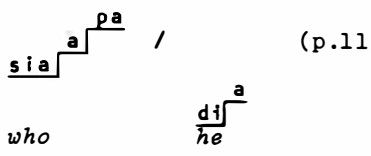
(25)

Di   a   gu   ru   (p.102)
he   *teacher*
'He is a teacher.'

where the pitch of the subject is higher than that of the predicate, and falling, and the pitch of the predicate is level.

    Notice also Pané's notation of interrogative sentences below:

(26)

Di   a   gu ru? (p.104)
he   *teacher*
'Is he a teacher?'

(27)

Di a / pa   (p.109)
    sia
he   *who*
'Who is he?'

(28)

sia a pa /   (p.115)
      di a
who   *he*
'Who is he?'

    Contrary to Pané's assertions, notice that in (26) not only is the pitch of the predicate (guru *'teacher'*) higher than that of the subject (dia *'he'*), but it is also falling instead of rising. If, as he maintains passim in the book, guru is the subject because it is higher-pitched, then again the rising pitch of his interrogative sentence is missing.

    In (27), the pitch of the subject (dia), while higher than that of the predicate (siapa *'who'*) is falling instead of rising.

    Pané states that in (28) siapa *'who'* is the subject because it occurs first in the sentence and because it is higher-pitched, and dia *'he'* is the predicate. Regardless of which is the subject, and which is the predicate, the fact remains that both are rising in pitch.

    While Pané's work is quite detailed, and contains quite a few

interesting points concerning the relation between intonation and grammar in IN, it lacks coherence. As Teeuw (1961) states:

> on account of its size, the lack of clarity of his hypotheses and the confused arrangement, it remained a book little read, difficult to read and without much influence on later studies (p.67)

2.2.7. A.A. Fokker

Like Alisjahbana and Pané, Fokker (1960) also believes that there is a close relation between intonation and grammar in IN. In fact, he explicitly states (p.9) that intonation is the only criterion which gives the final decision whether or not a given IN linguistic unit is a sentence, which he defines as follows:

> A sentence is a meaningful linguistic expression, of which the terminal boundary is characterized by the falling of the voice (pitch).

Intonation is viewed as a totality of complex musical signals, of which the main components are timbre, pitch, duration, rhythm, and pauses. A sentence, furthermore, is always a part of a broader context, either expressed or understood (p.11). If so, then according to Fokker, each of the sentences which make up a unit larger than the sentence, such as a paragraph, are characterised by a terminal falling pitch. We doubt the descriptive accuracy of this implication because the intonation of sentences as parts of a paragraph is 'dominated' by the intonation of the paragraph as a whole, and the intonation of the paragraph is in turn dominated by the intonation of a still larger unit, of which the paragraph is a part, and so on. The intonation of the paragraph, for example, is such that generally only the last sentence in it has a (paragraph) terminal falling pitch, and the preceding sentences have non-terminal falling (sometimes non-falling) pitch, that is, the pitch does not fall to the lowest pitch level and fade away. It appears that Fokker's difficulty lies in the fact that he does not postulate distinctive pitch levels so that he has no ways of indicating the various degrees of falling pitch.

On the other hand, Fokker correctly states (pp.63-71) that the interrelations of sentences in a paragraph are also signalled by non-intonational devices or features such as semantic homogeneity or co-herence, reference (including coreferentiality and pronominalisation), ellipsis, and conjunction.

Fokker distinguishes types from kinds of sentences. Declarative sentences are classified into nine sentence-types on the basis of their syntactic patterns (pp.13-52), each of which is independent; that is,

one is not derived or transformed from any other. Non-declarative sen-
tences (interrogative, imperative, prohibitive and exclamatory sentences)
make up what he calls kinds of sentences (macam kalimat).

Like Alisjahbana and Pané, Fokker asserts that there is a one-to-one
correspondence between intonation and sentence-types or kinds. Thus,
for example, question sentences have non-falling intonation.

Since, according to Fokker, the defining feature of a sentence is
falling intonation, question sentences are not (complete) sentences
unless they are supplemented by their answers (p.58). In other words,
a question such as (29a) is not a (complete) sentence, but a question
plus its answer such as (29b) is.

(29a) Orang itu sahabat tuan?
       man   that friend you
       'Is that man your friend?'

(29b) Orang itu sahabat tuan? Bukan.
       'Is that man your friend? No.'

Let us discuss Fokker's differentiation between types and kinds of
sentences, the validity of his use of intonation as the absolute defin-
ing feature of the sentence, and, therefore, his statement that questions
are non-sentences. His differentiation between types and kinds of sen-
tences is without motivation. Declarative, interrogative, imperative,
etc. sentences are representations of a set of grammatical categories,
and can be generated by a set of grammatical rules. Fokker's nine
sentence-types are grammatically related, and can also be simply
accounted for by a set of transformational rules. Thus, for example,
his sentence-type V (illustrated by (30) can be accounted for as an
optional transform of his sentence-type I (exemplified by (31)).

(30) Sibuk / mereka.
      busy   they
      'They are (indeed) busy.'

(31) Mereka / sibuk.
      they   busy
      'They are busy.'

Fokker is correct in that mereka 'they' is the subject, and sibuk
'busy' is the predicate in both (30) and (31), and that the two sentences
differ in their intonations. According to Fokker, their intonations
differ in that the pitch of the first constituent of (30) rises higher
than that of the first constituent of (31). It is found that that is
not the case here. Their intonations are as indicated in (30a) and
(31a) below.

(30a) Síbuk mereka.
       232_f / 211_f #

(31a) Mereká síbuk.
       2- 33_r/231_f#

Thus, sibuk retains the accent on its penult as well as its falling intonation pattern in both (30) and (31), and that mereka *'they'* is unaccentuated, level-pitched and falling in (30), but is accentuated and slightly falling in (31). On the other hand, whereas Fokker maintains that (30) and (31) are independent sentence-types, this thesis finds that (30) and (31) are grammatically related. One way of accounting for their relation is to postulate that (30) may be derived from (31) by inversion transformation, of course without neglecting to take into consideration the concomitant changes in intonation involved. Another way, which is a theoretically sounder way, is to account for their relation in the framework of the case-grammar of Fillmore (1968). In this framework, both (30) and (31) are derived from one and the same underlying deep structure; mereka *'they'* is in the agentive, or dative[1], case relation to sibuk *'busy'* in both (30) and (31). The sentence (30) is generated by applying 'focalisation' to sibuk so that it becomes the focus of the proposition, and is placed first in the sentence. The sentence (31), on the other hand, is generated by applying both focalisation and 'topicalisation' to mereka *'they'* so that it is placed first in the sentence, and becomes the topic of the proposition.

Before Fokker's work is discussed further, the terms focalisation and topicalisation need to be clarified since these two terms are of prime importance to the rest of this thesis, especially Chapter IV.[2] Focalisation refers to the processes by means of which a constituent of a sentence is brought into focus; that is, it is moved toward the front in the sentence. Agent-fronting, object-fronting, and modality-fronting as in (32), (33) and (34) respectively are examples of focalisation. In IN, almost any constituent of a given sentence may be focalised; that is, undergo focalisation.

---

[1] The choice between agentive case and dative case here depends on how sibuk *'busy'* is viewed. If sibuk is considered a *predicative adjective,* then the relation is dative. If it is considered a *verb*, then the relation is agentive. Whatever choice is made between these two relations is not crucial to the point we are making here.

[2] Fillmore (1968:57) defines topicalisation processes as "devices for isolating one constituent of a sentence as *topic*, of bringing one particular constituent of a sentence into some kind of *focus*". This volume deviates from Fillmore in that a topic may be or may not be focalised.

32

(32) Ibu memanggil Nani tadi.
      mother call Nani just now

      'Mother called (i.e. summoned) Nani just now.'

(33) Nani dipanggil ibu tadi.[1]
      Nani be called mother just now

      'Nani was called (i.e. summoned) by mother just now.'

(34) Tadi Ibu memanggil Nani.
      just now mother call Nani

      'Just now mother called Nani.'

Topicalisation, on the other hand, refers to the processes by means of
which a constituent or a segment of a sentence is made *topic* of the
sentence. A topic of a sentence, then, is that constituent or segment
of the sentence which is considered *known, given,* or *assumed to be known*
by the speaker; that is, in short, a topic contains a non-novel point
of information. A sentence may contain more than one non-novel point of
information, and therefore may contain more than one topic. If a sen-
tence contains two or more topics, some or all of these topics may be
either focalised or unfocalised. An unfocalised topic is also called a
retracted topic; that is, it undergoes *retraction*. That constituent or
segment of a sentence which contains a novel point of information is
called the *comment* of the sentence. A simple sentence contains only one
comment.

   Unlike focalisation, which is marked by word-order, topicalisation
is marked by intonation. Negatively, topicalisation is not marked by
word-order. A focalised topic is marked by the contour symbolised by
233_r. An unfocalised topic is marked by the contour symbolised by 211_f.
A topic contains an accent only when and if it is focalised. A comment,
on the other hand, always contains an accent regardless of its position
relative to the topic or topics. Because of this fact, the accent of
a sentence is marked by the contour 231_f if it is preceded by the topic
or topics of the sentence. It is marked by the contour 232_f if it is
followed by the topic or topics.

   Returning to the discussion about Fokker's work, notice that Fokker
does note a special grammatical function of pauses (jeda). He states,
for example, that the pause is optional between the two constituents of
sentences like (30) and (31). However, it is obligatory between the
topic and the comment of sentences like (35) and (36).

---

[1]The difference between memanggil *'call'* in (32) and dipanggil *'be called'* in (33)
lies in the fact that memanggil is generated from the base panggil plus the feature
[+active], whereas dipanggil is generated from the same plus the feature [+passive].
An elaborate account of the processes involved is beyond the scope of this volume.

(35)   Anak perempuan itú / kelakuannyá báik.
        child female   that   behaviour her good

        'As for that girl, her behaviour is good.'

(36)   Kalau sayá / tidak akan sayan béli rumah itu.
        if   I   not will I   buy house that

        'As for me, I will not buy that house.'

The pause is also obligatory in sentences like (37), where the topic
consists of two or more sub-topics (that is, there is more than one
topic), as well as in sentences like (38), where the comment is made
up of two or more constituents.

(37)   Tempo harí / di Palembáng / dia agak sákit.
        recently   in Palembang   he quite sick

        'Recently, in Palembang, he was quite sick.'

(38)   Mereka berjalan-jalán / hendak melihat kóta.
        they   take a walk   want   see   city

        'They took a walk (in order) to see the city.'

Fokker's pauses are performance phenomena, and as such they are
subject to the influence of various performance factors such as speed
of speaking. The faster one speaks the less likely that the pauses
will be represented by a cessation of speech. In other words, all of
the pauses in (35) through (38) are optional in the performance of
speaking.

Pauses as deep structure phenomena must be dealt with in relation
to deep structure pause-groups, which are not necessarily realised in
the actual performance of speaking. A deep structure pause-group is an
intonational correspondence of a deep structure sentential constituent.
Thus, (35) through (38) are represented by (35a) through (38a)
respectively.

(35a)   Anak perempuan itú kelakuannyá báik.
        2-   33$_r$/ 2-   33$_r$/231$_f$#

(36a)   Kalau sayá tidak akan saya béli rumah itu.
        2-   33$_r$/ 2-   3 2$_f$/ 211$_f$ #

(37a)   Tempo hari di Palembáng dlá agak sákit.
        2-   33$_r$/ 2-   33$_r$/ 2 33$_r$/2- 3 1$_f$#

(38a)   Mereka berjalan-jalán hendak melihat kóta.
        2-   33$_r$/2-   3 1$_f$#

2.3. CONCLUSION

We have seen that these earlier works are inadequate for the follow-
ing reasons:

1. None of them answer the questions posed in Chapter 1.

34

2. Most of them do not handle IN intonation beyond superficial and brief accounts of IN word accent.

3. Postulation of IN long and short vowels based on texts written in Arabic script is phonologically irrelevant.

4. No evidence is found that there is a one-to-one correspondence between intonation patterns and sentence-types or sentence-modes.

We can conclude, therefore, that a study of IN intonation as reported in this volume is needed.

IN accent will be characterised, and its rules of placement will be presented in the next chapter. IN intonation and its relation to syntax will be discussed in Chapter IV.

CHAPTER III

WORD ACCENT

3.1. *CHARACTERISATION OF ACCENT*

This chapter characterises _ _ _ _ _ _ _ word-accent. It also
presents rules of accent placement.

The word accent in IN is non-distinctive in the sense that it is
never used to differentiate lexical meaning.

The word accent of _ _ _ _ _ _ _ may be termed 'tonotemporal', in
the sense that it is a kind of prominence characterised by the pitch of
the voice - thus, tonal -, and by the length of time (duration) in which
the accentuated syllable is pronounced - thus, temporal -, rather than
by intensity.

It will be shown below that, while pitch, duration and intensity are
undeniably variables which have to be taken into account, intensity as
such is not a defining feature of the word accent of _ _ _ _ _ _ _ _ _

3.1.1. Pitch, Duration and Intensity

Pitch, duration and intensity are complexly related. The highest
pitch does not necessarily occur within the syllable of the longest
duration. Nor does the highest pitch necessarily coincide with the
strongest intensity. It is possible that (1) a vowel with the highest
pitch may have relatively short duration and relatively weak intensity;
(2) a vowel with the longest duration may have relatively low pitch and
relatively weak intensity; and (3) a vowel with the strongest intensity
may have relatively low pitch and relatively short duration.

36

3.1.1.1. *Pitch*

Pitch is the auditory correlate of the fundamental frequency of vocal cord vibration, which may be characterised in terms of "cycles per second" or *Hertz* (Hz.). The pitch at which a word begins is called the initial pitch. The highest pitch within the word under attention is called the peak of pitch. End pitch refers to the pitch at the terminal point of the word. Different from a pitch as such, the initial pitch, the peak of pitch, and the end pitch are not quantitatively absolute. They are relative to each other. They vary not only from speaker to speaker, but also from word to word. The varying pitches of the initial pitch, the peak of pitch, and the end pitch constitute pitch ranges, which are definable in terms of their minimum point (lowest pitch) and their maximum point (highest pitch).[1]

Figure (1) shows the frequency ranges[2] of the initial pitch, the peak of pitch and the end pitch of both the unmarked (citational) form and the marked (contextual) form of the words included in the corpus. A word is unmarked when it is least affected by its environments, either linguistic or non-linguistic. Thus, the citational form of a word is unmarked. A word which has a sentential function, that is as a product of deletion transformation, or which occurs as a component of a larger syntactic unit, is somehow affected phonologically by its relation to the deleted component or to the other component or components of the whole sentence. This word is then said to be marked.

The initial pitches of unmarked forms ranges from 130 to 180 Hz., the most frequent being 150 Hz. (22.1 percent). The least frequent initial pitches of unmarked forms is 160 Hz. (10.4 percent). The initial pitches of marked forms, on the other hand, differs considerably from that of the unmarked forms. It ranges only from that of the unmarked forms. It ranges only from 120 Hz. to 140 Hz. The most frequent value is 130 Hz. and the least frequent is 140 Hz. Thus, the range of the initial pitches of the unmarked forms is considerably greater than that of the marked forms.

The peaks of the pitches of both the unmarked forms and the marked

---

[1] The term "pitch level", which is also relative in nature and characterisable in terms of pitch range, is reserved to refer to the pitch unit of (sentence) intonation.

[2] The horizontal axis of Figure (1) represents pitch ranges, each of which is divided into sub-ranges or categories. Each sub-range is made up of ten Hz., of which the minimum point is the value given in the table, and the maximum point is the next higher value minus one. For example, 150 Hz. in the table represents the sub-range from 150 Hz. up to (and including) 159 Hz.

FIGURE 1

Ranges of the initial pitch (IP), the peak of pitch (PP), and the end pitch (EP)

(Shaded columns represent marked forms.)
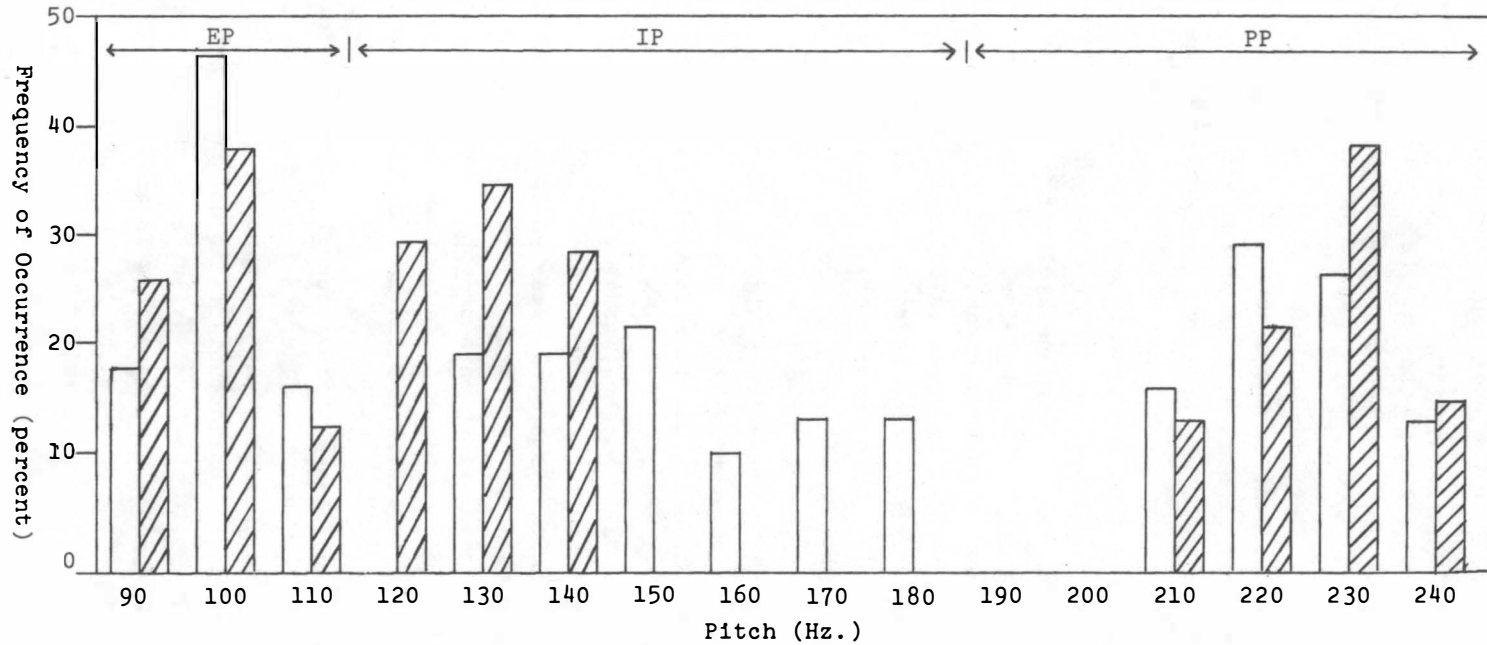
forms range from 210 Hz. to 240 Hz. However, they differ in that the most frequent peaks of the unmarked forms is 220 Hz., whereas that of the marked forms is 230 Hz. (28.6 percent and 36.5 percent respectively). The least frequent peaks of the unmarked forms is 240 Hz. (14.3 percent), whereas the least frequent peaks of the marked forms is 210 Hz. (14.3 percent).

The frequency range 190-200 Hz. is here considered a border area in which occur 1.3 percent of the initial pitches of the unmarked forms, 1.6 percent of the initial pitches of the marked forms, 9.1 percent of the peaks of the unmarked forms, 4.8 percent of the peaks of the marked forms, and 3.2 percent of the end pitches of the marked forms. Since occurrence of less than 10 percent is disregarded, these figures are not represented in Figure 1. The frequency range 190-200 Hz. is attributed to the range of the peak of pitch.

The end pitch of the unmarked forms and the end pitch of the marked forms have the same frequency range, that is from 90 Hz. to 110 Hz. In both cases, the most frequent value is 100 Hz. (46.7 percent of the unmarked forms and 36.5 percent of the marked forms) and the least frequent is 110 Hz. (15.6 percent of the unmarked and 12.7 percent of the marked forms).

Figure 1 shows that (1) the initial pitch is relatively lower than the peak of pitch but relatively higher than the end pitch, (2) the peak of pitch is relatively higher than either the initial or the end pitch, and (3) the end pitch is relatively lower than either the initial pitch or the end pitch.

What Figure 1 fails to show, however, is the fact that within individual words there are fifteen cases (10.7 percent) of the total corpus (three unmarked and twelve marked forms) in which the initial pitch is lower than the end pitch. This phenomenon does not necessarily alter the above generalisation since this deviation is perfectly predictable. The initial pitch is lower than the end pitch if the accent falls on the last syllable and the last syllable ends with a (voiceless) stop.

Figure 2 illustrates a typical case in which the initial pitch is higher than the end pitch. Figure 3 illustrates the case in which the initial pitch is lower than the end pitch.

The highest pitch consistently falls on the accentuated vowel regardless whether it is in the final syllable as the case is in most marked forms or in the penult as the case is in most unmarked forms. It was hypothesised that the word accent is characterisable in terms of pitch. This hypothesis seems to be evidences by the perfectly regular occurrence of the peak of pitch of the accentuated vowel.

The above evidence is tested further by using accentual minimal pairs; that is, pairs which are segmentally "identical" but which differ solely in the accent placement. In one the accent falls on the penult (unmarked), while in the other the accent falls on the final syllable. Twenty accentual minimal pairs were used in this test. The purpose of the test was to see if an increase in pitch can be associated with an accent. If the above hypothesis is correct, the association should be clear.

Table 1 shows the results of the test. There is a consistent correlation between an increase in pitch and accent. The peak of the pitch becomes higher in an accentuated position than in an unaccentuated position, either in the penult or in the final syllable of each of the twenty cases.

Table 1 shows that the pitch of unaccentuated penultimate vowels range from 135 Hz. to 175 Hz. When accentuated, they range from 195 Hz. to 238 Hz. On the average, the pitches of unaccentuated penultimate vowels increase by 45.1 percent because of accent. The minimum increase is 30.0 percent and the maximum 67.8 percent. The pitches of unaccentuated final vowels range from 145 Hz. to 185 Hz. They range from 210 Hz. to 250 Hz. when the final vowels are accentuated. The mean increase of the pitches of final vowels associated with accent is 36.0 percent. The minimum increase is 21.6 percent and the maximum is 72.4 percent.

Figure 4 displays the mingographic tracings of the pitch patterns and intensity patterns of accentual minimal pair 9: (A) [ijázah] and (B) [ijazáh]. In (A), which is unmarked, the accent falls on the penultimate vowel, whereas in (B), which is marked, the accent falls on the final vowel. The highest pitch falls on the penultimate vowel of (A) and on the final vowel of (B). This phenomenon is consistently true with the other nineteen accentual minimal pairs which were used in the test. It is clear then that the word accent of _ _ _ _ _ _ _ _ is regularly characterisable in terms of pitch. The same does not appear to be true with regard to duration and intensity. Thus we can tentatively conclude at this point that pitch is the primary defining feature of the word accent of _ _ _ _ _ _ _ _.

FIGURE 2

**An illustration of the case in which the initial pitch
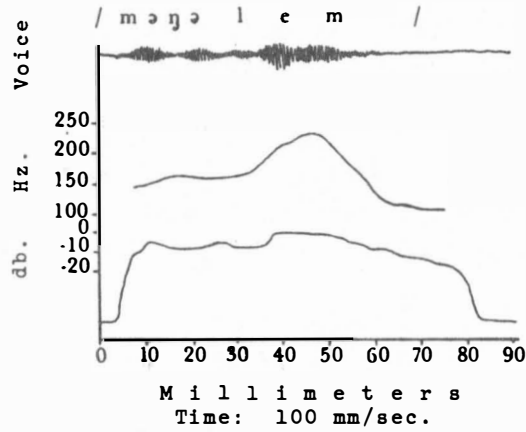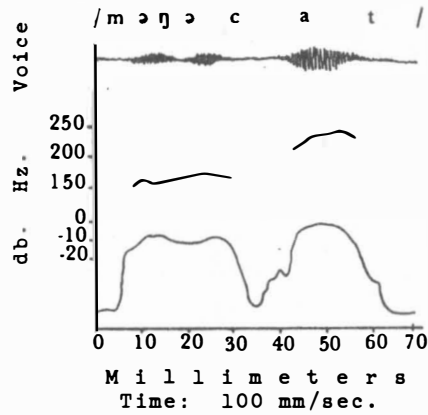is higher than the end pitch**

FIGURE 3

**An illustration of the case in which the initial pitch
is lower than the end pitch**

3.1.1.2. *Duration*

Duration is here defined as the length of time required for the pronunciation of a speech sound. It is thus defined in terms of its beginning and end.

Articulatorily, the beginning of a penultimate or final vowel is marked by the movement of the tongue away from whatever position it is in for the articulation of the preceding sound and toward its relative position required for the articulation of the vowel under attention, and by the cessation of the vibration of the vocal cords if the following sound is voiceless or, in the case of a final vowel, if it is followed by silence. The time required for the articulation of the vowel, that is from its beginning up to its end, is called its duration. The syllable containing the vowel with the longest duration within a word, which is either the penult or the final syllable, depending on whether the word is marked or unmarked, is said to be characterised by the peak of duration of the word.

<div align="center">

TABLE 1

RELATION BETWEEN WORD ACCENT AND PEAK OF PITCH

</div>

Accentual Pair No.	Penultimate Vowel			Final Vowel		
	Unaccentuated (Hz.)	Accentuated (Hz.)	Increase (%)	Unaccentuated (Hz.)	Accentuated (Hz.)	Increase (%)
1.	170	235	38.2	180	225	25.0
2.	170	230	35.3	185	225	21.6
3.	175	235	34.3	175	225	28.6
4.	170	235	38.2	170	225	32.3
5.	150	238	58.7	180	235	30.5
6.	165	230	39.4	170	220	29.4
7.	145	235	62.1	175	225	28.6
8.	140	235	67.8	165	238	44.2
9.	160	235	46.9	180	225	25.0
10.	150	220	46.7	160	215	34.4
11.	140	220	57.1	170	235	38.2
12.	135	212	57.0	145	210	44.8
13.	150	210	40.0	160	220	37.5
14.	150	205	36.7	158	230	39.2
15.	160	210	31.2	150	238	58.7
16.	140	220	57.1	170	230	35.3
17.	137	210	53.3	145	250	72.4
18.	150	210	40.9	165	215	30.3
19.	140	200	42.8	160	230	43.7
20.	150	195	30.0	165	210	27.3
Mean	152.3	221	45.1	166.4	226.3	36.0

FIGURE 4

Mingographic tracings of (A) ijázah and (B) ijazáh *'diploma'*.
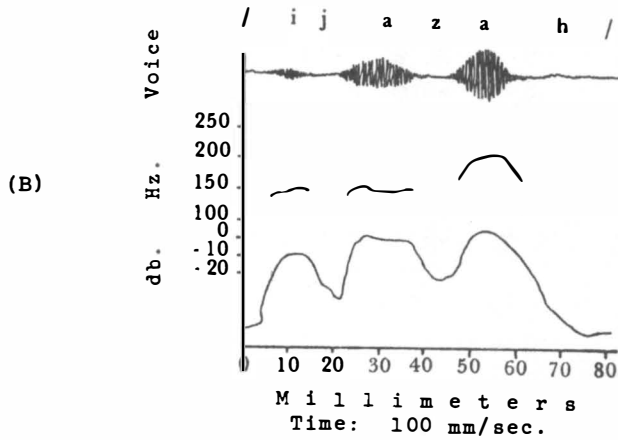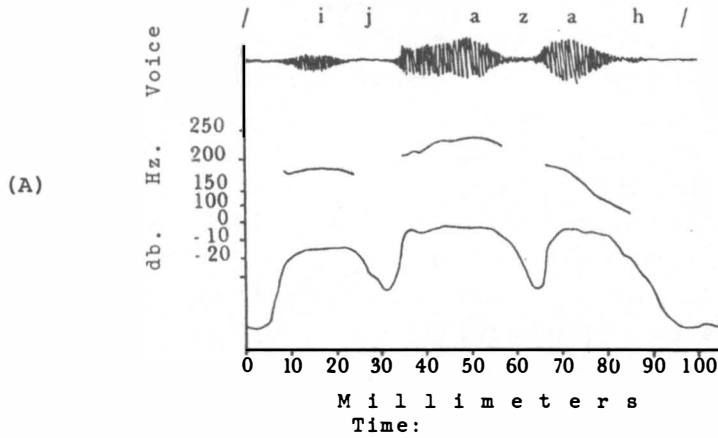
The duration of final vowels tend to be relatively longer than the duration of penultimate vowels. In unmarked words, where the word accent in most cases (97.2 percent) falls on the penultimate vowel, the average duration of the penultimate vowel is 15 centiseconds whereas that of the final vowel is 17.8 centiseconds. In marked words, where the word accent falls on the final vowel in 67.9 percent of the cases, the average duration of the penultimate vowel is 13.2 centiseconds whereas that of the final vowel is 20.1 centiseconds. On the whole, in which 68.5 percent of the 127 items studied have accentuated penultimate vowels, the mean duration of the penultimate vowel is 14.6 centiseconds and that of the final vowel is 19 centiseconds.

The longest duration tends.to occur on the final vowel. This is especially true with the marked words, where the accent most frequently falls on the final vowel. Of the unmarked words, 71.8 percent are characterised by the longer duration on their final vowels. Most of the marked words (91.1 percent) contain final vowels with the longest duration.

Table 2 shows the distributional relation between the highest pitch, which consistently characterises word accent (3.1.1.1.), and the longest duration. Of the 71 unmarked words less than half (31 percent) are characterised by the highest pitch coinciding with the longest duration. The most frequent relation is that in which the highest pitch is followed by the longest duration; that is, the highest pitch falls on the penultimate vowel whereas the longest duration falls on the final vowel. On the other hand, of the 56 marked words, 71.4 percent show that the highest pitch falls on the same vowel as the longest duration. Only 25 percent show the relation in which the highest pitch precedes the longest duration. The relation in which the highest pitch follows the longest duration, which never occurs in the unmarked category, occurs in two of the marked words (3.6 percent). On the whole, however, the relation in which the highest pitch coincides with the longest duration occurs almost as frequently as that in which the highest pitch precedes the longest duration; that is, 48.8 and 49.6 percent respectively.

We can perhaps tentatively conclude at this point that pitch and duration are partly independent variables of Indonesian word accent. However, in marked forms, they show some degree of association. We may thus expand our earlier generalisation by stating that IN word accent is primarily characterised by pitch and secondarily by duration.

TABLE 2 DISTRIBUTIONAL RELATIONS BETWEEN HIGHEST PITCH (PP) AND LONGEST DURATION (PD)			
Distributional Relation	Unmarked (%)	Marked (%)	Total (%)
PP coincides with PD	31.0	71.4	48.8
PP precedes PD	69.0	25.0	49.6
PP follows PD	0.0	3.6	1.6

Figure 5 displays mingographic tracings of the pitch, duration and intensity illustrating the three types of the relation between the highest pitch and the longest duration: (A), where the highest pitch falls on the same vowel as the longest duration, (B), where the highest pitch precedes the longest duration, and (C), where the highest pitch is preceded by the longest duration. (A) and (B) are unmarked, whereas (C) is marked.

If the Indonesian word accent is tonotemporal, there must be a reasonable increase of pitch and duration associated with word accent. This was tested by using the same accentual minimal pairs, which do show that there is a regular increase of pitch associated with word accent (Table 1). Table 3 summarises the results of the test with regard to duration.

Table 3 shows that the duration range of accentuated vowels is greater than that of unaccentuated vowels: the former is from 8 to 34 centiseconds, whereas the latter is from 5 to 25 centiseconds. The duration of penultimate vowels ranges from 5 to 15 centiseconds when unaccentuated and from 8 to 21 centiseconds when accentuated. Their duration increase ranges from minus 10.7 to 130 percent. The duration of final vowels ranges from 9 to 25 centiseconds when unaccentuated and from 8 to 34 centiseconds when accentuated. Their duration increase ranges from minus 32.1 to 120 percent. Table 3 also shows that the results may be classified into three groups: (a) those in which there is a definite increase of duration due to word accent, (b) those in which there is no increase; that is, the duration remains constant whether accentuated or unaccentuated, and (c) those in which there is a decrease, that is the duration becomes shorter when the vowel under attention is accentuated. Seventeen (85 percent) of the twenty penultimate vowels tested show a definite increase of duration, two (10 percent) show no increase and one (5 percent) show a decrease. Of the final vowels, fourteen (70 percent) definitely increase, three (15 percent) do not increase and five (25 percent) have shorter duration

FIGURE 5

Mingographic tracings of (A) gigit *'to bite'*,
(B) titik *'dot'*, and (C) tepat *'accurate'*.
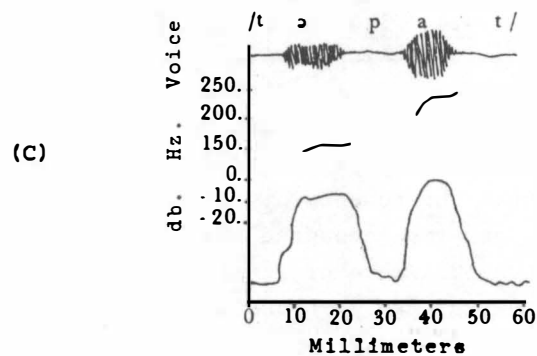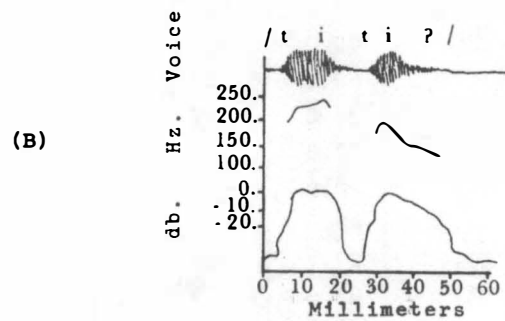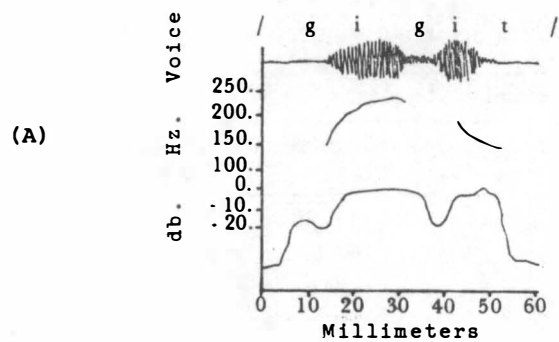
when accentuated. On the whole, 31 out of 40 cases (77.5 percent) show
a definite increase, 7.5 percent show no increase, and 15 percent show
a decrease.

Accentual Pair No.	Penultimate Vowel			Final Vowel		
	Unaccentuated (Csec.)	Accentuated (Csec.)	Increase (%)	Unaccentuated (Csec.)	Accentuated (Csec.)	Increase (%)
1.	12	16	33.3	23	34	47.8
2.	10.5	17	61.9	11	12.5	13.6
3.	10	17	70.0	23	28	21.7
4.	8.5	15	76.5	9	9.5	5.5
5.	12	18	50.0	14	9.5	-32.1
6.	8	12	50.0	10	10	0.0
7.	12	20.5	70.8	13	16.5	26.9
8.	6	13.5	125.0	11	8	-27.3
9.	15	21	40.0	19	13.5	-32.1
10.	11.5	18.5	60.9	19.5	23	17.9
11.	5	11.5	130.0	17.5	16	- 8.6
12.	8	15	87.5	22.5	28	24.4
13.	14	14	0.0	25	26.5	6.0
14.	9	11.5	27.8	15	33	120.0
15.	9	11.5	27.8	12	13	8.3
16.	6	8	33.3	13	14.5	11.5
17.	12	12	0.0	25	29	16.0
18.	14	12.5	-10.7	19	16	-15.8
19.	11	13.5	22.7	24	29.5	22.9
20.	6.5	11	69.2	20.5	28.5	39.0
Mean	10	14.4	44.0	17.3	19.9	15.0

TABLE 3

RELATION BETWEEN WORD ACCENT AND LONGEST DURATION

The fact that 22.5 percent of the total cases show no increase or
decrease appear to be structurally trivial because the cases which do
show a definite increase are far more frequent than those which do not.
There is no evidence that the absence of the increase of duration can
be phonologically or otherwise accounted for. Regardless of their
phonetic environments, penultimate or final vowels may be either longer
or shorter when accentuated than when unaccentuated. Compare[1], for

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[1]See Figures 6 and 7.

example, (accentual minimal) pair 8; jémput and jempút, and pair 15: menjémput and menjempút *'to pick up, fetch'*[1]. The u of jempút is three centiseconds (27.3 percent) shorter than the u of jémput. On the other hand, the u of menjempút, which is also final and followed by t, is one centisecond (8.3 percent) longer than the u of menjémput. Pair 11: sebéntar and sebentár *'short while'*, in which the final vowel a is followed by a non-stop consonant, also shows a decrease of duration in relation to accent. The a of sebentár is 1.5 centiseconds (8.6 percent) shorter than the a of sebéntar. There are no cases of final vowels followed by silence that are shorter when accentuated than when unaccentuated.

Thus it seems reasonable to generalise at this point that Indonesian word accent is characterised by pitch (3.1.1.1.) and by duration.

3.1.1.3. *Intensity*

The loudness of a speech sound relative to the loudness of the preceding and/or the following sound(s) is called its intensity. The present study is primarily concerned with the intensity of penultimate and final vowels for the purpose of seeing whether or not intensity is a defining feature of Indonesian word accent.

Intensity is measured in decibels. The intensity of the sound A is said to be higher than the intensity of the sound B if and when the difference in decibels between A and a given point of reference is greater than that between B and the point of reference.

In this study, the lowest point on the scale of the intensity calibration is taken as the point of reference. This arbitrary chosen point is approximately 40 decibels below zero volume unit on the volume meter of the Ampex 350 tape-recorder that was used in this experiment. This is more or less equal to the background noise level on the tape. For all practical purposes, the lowest relevant intensity is somewhere between fifteen and twenty decibels lower than the peak of intensity. At that point, voicing, pitch and audibility of speech sounds fade away.

The highest intensity within a word is called the peak of intensity. The peak of intensity of unmarked words ranges from 35 to 50 decibels. The greater part (53.2 percent), however, ranges from 45 to 47 decibels. The peak of intensity of marked words ranges from 37 to 50 decibels.

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[1] jemput is a base and menjemput is a non-base.

48

FIGURE 6

Mingographic tracings of (A) jémput and
(B) jempút *'to pick up, to fetch'*. (Base).
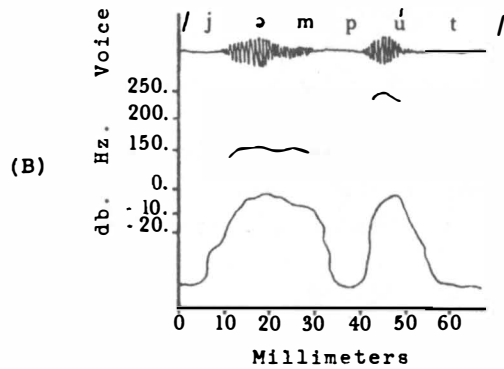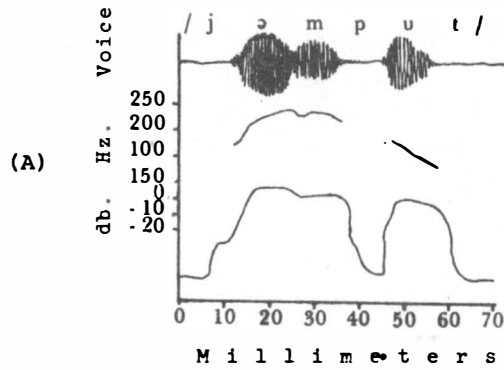
FIGURE 7

Mingographic tracings of (A) menjémput and (B)menjempút*'to fetch'*.
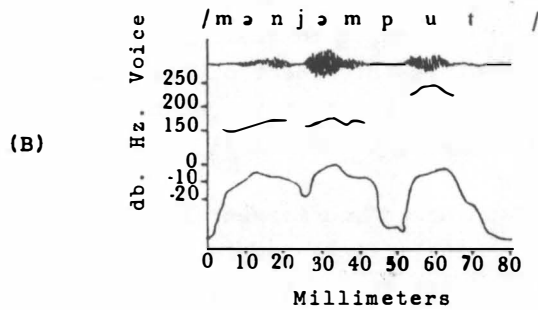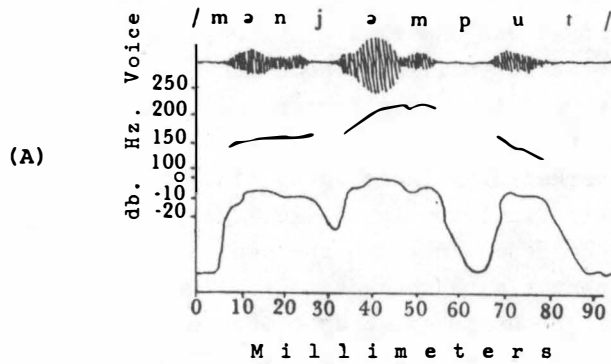
The greater part (66.7 percent) ranges from 42 to 45 decibels. Of the 140 items studied, 94 (66.7 percent) have their peaks of intensity between 42 and 47 decibels.

Different from the peak of pitch (3.1.1.1.) and the longest duration (3.1.1.2.), which occur on the vowels of either penult or final syllables, the highest intensity occurs as follows:

(1) A word may have more than one peak of intensity.

(2) Of the thirty-three unmarked disyllabic words studied, 18.2 percent have the peaks of intensity on their final vowels, 69.7 percent on their penultimate vowels, and 12.1 percent on both the final and the pneultimate vowels.

(3) Of thirty marked disyllabic words, 73.3 percent have the peaks of intensity on their final vowels and 26.7 percent on their penultimate vowels. There are no cases in which the peak of intensity falls on both the final and the penultimate vowels.

(4) Of thirty-eight unmarked words of three or more syllables, 13.2 percent have the peaks of intensity on their final vowels, 52.6 percent on their penultimate vowels, 13.2 percent on the third vowels from last, 5.3 percent on the fourth vowels from last, 7.9 percent on the fifth vowels from last, 2.6 percent on the sixth vowels from last, and 5.3 percent on more than one vowel. There is one case in which the peak of intensity falls on the final and fourth vowels, and one case in which the peak of intensity falls on the fourth and fifth vowels.

(5) Of twenty-six marked words of three or more syllables, 57.9 percent have their peaks of intensity on their final vowels, 23.1 percent on the penultimate vowels, 3.8 percent on the fourth vowels from last, and 15.4 percent on more than one vowel, including one case in which the peak of intensity falls on the final, fourth and fifth vowels (see Figure 8).

(6) On the whole (127 unmarked and marked words), 37.8 percent have their peaks of intensity on their final vowels, 44.9 percent on their penultimate vowels, and 17.3 percent on vowels other than the final or the penultimate, or on more than one vowel.

It appears to be reasonable to conclude at this point that pitch and duration on the one hand and intensity on the other differ considerably in their patterns of occurrence.

FIGURE 8

A mingographic tracing of berceritera *'to tell a story'*,
illustrating the occurrence of the peak of intensity on three
vowels (indicated by the three arrows).
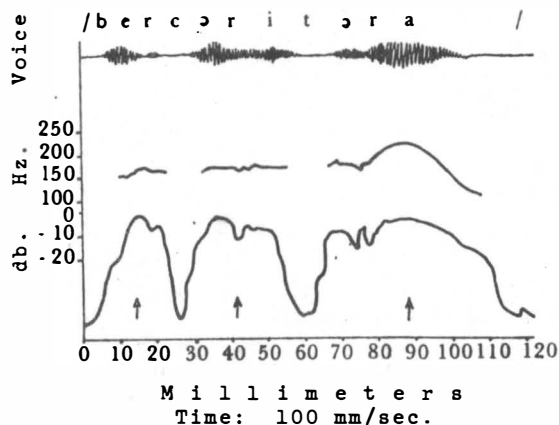
Table 4 shows the distributional relation between the highest pitch,
which consistently characterises word accent (3.1.1.1.), and the peak
of intensity. There are five types of relation: (1) The peak of
intensity coincides with or corresponds to the highest pitch, symbolised
by PI ≝ PP, (2) the peak of intensity and the highest pitch fall on the
same vowel but the highest pitch slightly precedes the peak of intensity,
symbolised by PP·PI, (3) the peak of intensity falls on the same vowel
as the highest pitch but the peak of intensity precedes the highest
pitch, symbolised by PI·PP, (4) the peak of intensity occurs on the
vowel following the one on which the highest pitch occurs, symbolised
by PP-PI,[1] and (5) the peak of intensity occurs on one or more than one
vowel preceding the one on which the highest pitch occurs, symbolised
by PI-PP.[2]

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[1]Since the highest pitch occurs on either the final or the penultimate vowels, PP-PI
implies that the highest pitch occurs on the penultimate and the peak of intensity on
the final vowel.

[2]PI ≅ PP includes cases in which the peak of intensity occurs on more than one syllable,
as long as the peak of intensity and the highest pitch coincide on one of them.

TABLE 4			
DISTRIBUTIONAL RELATION BETWEEN PEAK OF PITCH (PP) AND PEAK INTENSITY (PI)			
Distributional Relation	Unmarked (%)	Marked (%)	Total (%)
PI≅PP	45.1	30.0	48.8
PP˙PI	0.0	8.9	3.9
PI˙PP	23.7	19.6	22.0
PP-PI	12.7	8.9	11.0
PI-PP	18.3	8.9	14.2

The greater number of the cases (45.1 percent of the unmarked 30.0 percent of the marked, and 48.8 percent of the total cases) are of the PI≅PP type. The least frequent type is PP˙PI: none of the unmarked, 8.9 percent of the marked, and only 3.9 percent of the total cases.

The PP˙PI and PI˙PP types clearly indicate that pitch movement differs considerably from intensity movement. In PP˙PI the pitch movement reaches its highest point at least two centiseconds earlier than the intensity movement. On the other hand, in PI˙PP the intensity movement reaches its highest point at least two centiseconds earlier than the pitch movement.

Figure 9 displays the pitch and intensity movement of ilmu bahása, which illustrates the PI-PP type.

In the PP˙PI, PI˙PP, PP-PI and PI-PP types, the peak of intensity is between one and eight decibels higher than the intensity at the point (of time) at which the highest pitch occurs. The average difference is 3.3 decibels.

It seems to be reasonable to state here that intensity is so independent a variable of accent that it may be regarded as a concomitant but not defining feature of Indonesian word accent.

Let us see now to what extent intensity increases in association with accent. If the above generalisation is correct, there should be very little, if any, correlation between accent and intensity.

The same accentual minimal pairs were used to see if there is an increase of intensity associated with accent. Table 5 displays the results, which may be divided into three groups: (1) those cases which show a definite increase, (2) those cases which show no increase, and (3) those cases which show a decrease.

FIGURE 9

A mingographic tracing of ilmu bahasa 'linguistics'

Time: 100 mm/sec.
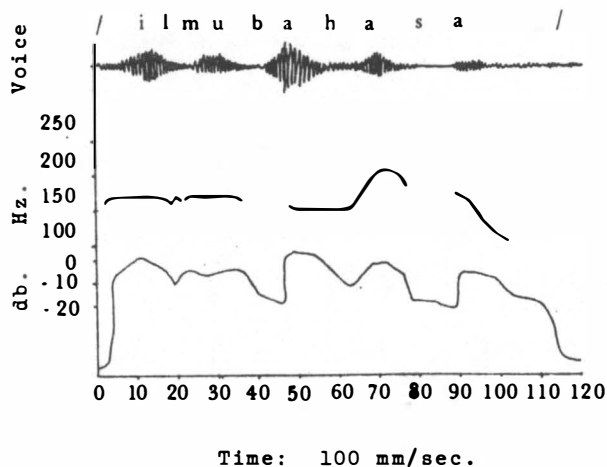
Of the twenty unmarked words, 90 percent show a definite increase
of intensity ranging from 7.1 percent to 15.4 percent. There is one
case (5 percent) which shows no increase. Another case shows a
decrease of 2.4 percent.

The first group of the marked words shows a smaller range of increase:
from 2.0 to 7.5 percent, and is comprised of 80 percent of the twenty
cases. The second group consists of two cases (10 percent). The third
group (10 percent) shows a decrease of 4.4 percent.

The average intensity increase of the penultimate vowels is 9.4 per-
cent and that of the final vowels is 3.1 percent. On the whole, the
mean increase of intensity of the total cases is only 6.3 percent.
This supports the earlier statement that there is very little correla-
tion between accent and intensity. Thus it can be generalised that
intensity is a concomitant but not necessarily a defining feature of
Indonesian word accent.

	TABLE 5 RELATION BETWEEN WORD ACCENT AND PEAK OF INTENSITY					

Accentual Pair No.	Penultimate Vowel			Final Vowel		
	Unaccentuated (db)	Accentuated (db)	Increase (%)	Unaccentuated (db)	Accentuated (db)	Increase (%)
1.	38	43	13.1	40	43	7.5
2.	40	40	0.0	40	43	7.5
3.	37	40	8.1	38	40	5.3
4.	38	41	7.9	42	45	7.1
5.	42	47	11.9	49	50	2.0
6.	44	48	9.1	44	47	6.8
7.	40	45	12.5	45	43	-4.4
8.	41	45	9.7	41	43	4.9
9.	44	47	6.8	46	47	2.2
10.	44	50	13.6	45	47	4.4
11.	39	45	15.4	45	43	-4.4
12.	42	47	11.9	42	43	2.4
13.	40	45	12.5	43	45	4.6
14.	42	45	7.1	37	37	0.0
15.	43	47	9.3	40	41	2.5
16.	35	39	11.4	45	45	0.0
17.	40	45	12.5	39	40	2.6
18.	41	40	-2.4	42	43	2.4
19.	40	43	7.5	40	42	5.0
20.	40	45	12.5	43	45	4.6
Mean	40.5	44.3	9.4	42.3	43.6	3.1

3.1.2. Summary

Figure 10 summarises the results displayed in Tables 1, 3 and 5. Of the three variables: pitch, duration and intensity, intensity is the least influenced by accent.

It was noted in 3.1.1.1. that pitch consistently characterises word accent and that there is a definite increase of pitch in relation to accent in all of the cases. It was generalised in 3.1.1.2. that Indonesian word accent is also generally characterised by duration. On the whole, there is a considerable increase of duration associated with accent. It was just concluded in 3.1.1.3. that intensity is not a defining feature of Indonesian word accent on the ground that intensity may occur in a syllable other than the penult or the final syllable, where word accent typically occurs, and that there is a very small increase of intensity in relation to accent.

FIGURE 10

Mean increase of pitch, duration and intensity of penultimate (P) and final (F) vowels in relation to accent. A represents the average increase.
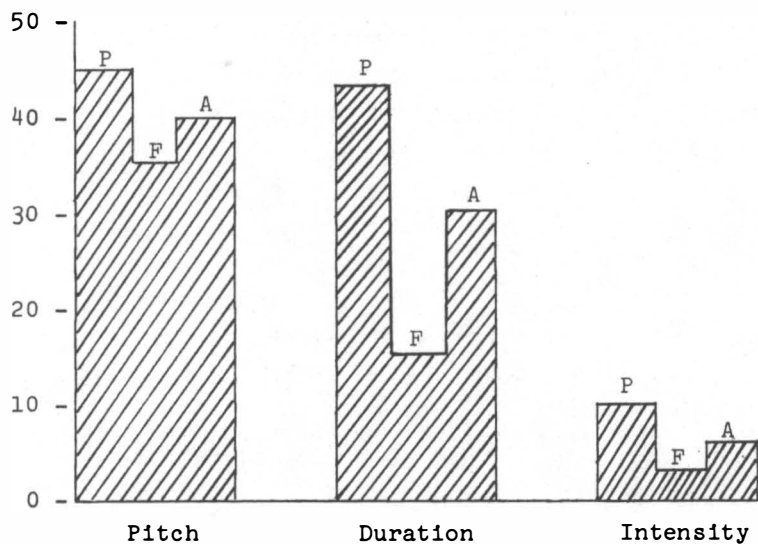
Thus, Indonesian word accent is characterised by pitch and duration, and therefore, it may be called "tonotemporal".

56

3.2. *DISTRIBUTION OF WORD ACCENT*

In order to satisfactorily account for the distribution or placement of word accent of IN, two categories of IN words need to be recognised. These categories are (1) base and (2) non-base. A base is monomorphic. A non-base is made up of at least one base and one affix, either a prefix, a suffix or an infix. Furthermore, a base may be either monosyllabic or polysyllabic. A monosyllabic base consists of only one syllable. A polysyllabic base consists of at least two syllables. A word, base or non-base, monosyllabic or polysyllabic, may be either unmarked or marked. A word in its citational form is unmarked. It is least influenced by its environments. A word is marked when and if it is affected by certain contextual conditions.

3.2.1. Unmarked Words

3.2.1.1. *Monosyllabic Base*

3.2.1.1.1. *Base*

Within a word there is one syllable which is accentuated. The accent which falls on this syllable is traditionally called word accent. A monosyllabic base by definition consists of only one syllable, and this same syllable is where the word accent falls. The feature unmarked versus marked is, furthermore, also irrelevant to monosyllabic bases since the word accent remains on the one and the same syllable in either case.

3.2.1.1.2. *Non-base*

A non-base of a monosyllabic base is derived from the base by affixation; that is, by prefixation, infixation[1], or suffixation, as well as by juxtaposition. For example, the following non-base words are all derived from the monosyllabic base cat *'paint'*:

(39) dicát *'be painted'* (← di- 'passivising prefix' + cat *'paint'*)

(40) mengecát *'to paint'* (← meng- 'verbalising prefix' + cat)

(41) cátan *'painting'* (← cat + -an 'nominalising prefix')

(42) pengecátan *'(process of) painting'* (← peng- ... -an 'nominalising simulfix' + -e- *'intrusive'* e + cat)

(43) pengecatánnya *'the painting of it'* (← pengecátan *'(process of) painting'* (42) + -nya *'its, his, her'*)

---

[1]Infixation is no longer productive in present-day IN, and thus will be excluded from our discussion.

(44) pengecatannyálah *'it is the painting of it (that I'm talking
      about'* (← pengecátan *'(process of) painting'* (42) + -nya *'its'*
      + -lah 'emphasising suffix')

(45) tukang cát *'painter'* (← túkang *'workman'* + cat)

(39) and (40) show that prefix syllables, of which the maximum number
is two, do not influence the placement of word-accent. Nor does the
occurrence of a suffix syllable as in (41) and (42). The word-accent
placement furthermore remains unchanged in compound words (that is, in
multiple-base non-bases) of which the last component is a monosyllabic
base, as in (45).

    Notice that in (43) and (44) the accent placement is conditioned by
whether or not there are at least two suffix syllables. The word
accent, under this condition, falls on the penultimate syllable of the
word.

    Thus, the word accent in unmarked words of which the base is mono-
syllabic falls on the penult, except when the final syllable is the
base itself, in which case the accent falls on the final syllable.

3.2.1.2. *Polysyllabic Base*

3.2.1.2.1. *Base*

    A polysyllabic base is a monomorphic word of two or more syllables.
The following are some examples:

Two syllables:
(46) íbu *'mother'*

(47) súka *'fond of, to like'*

(48) béo *'parrot'*

(49) témbak *'to shoot'*

Three syllables:
(50) sembílan *'nine'*

(51) daérah *'region'*

(52) putéri *'girl, daughter'*

(53) baháya *'danger'*

Four syllables:
(54) istiméwa *'special'*

(55) ceritéra *'story'*

(56) keluárga *'family'*

(57) istiráhat *'rest'*

Five syllables:

(58) diskriminási *'discrimination'*

(59) universítas *'university'*

(60) antropológi *'anthropology'*

(61) khatulistíwa *'equator'*

Notice that the accent placement in polysyllabic-base words is perfectly regular: the accent falls on the penultimate syllable.

3.2.1.2.2. *Non-base*

An unmarked non-base of a polysyllabic base is derived from the base by affixation as well as juxtaposition. The following are some examples:

(62) beríbu *'to have a mother'* (← ber- *'to have'* + íbu *'mother'* (46)

(63) sepersembílan *'one ninth'* (← se- *'one'* + per- *'over'* + sembílan *'nine'* (50))

(64) daya témbak *'firing power'* (← dáya *'power'* + témbak *'to shoot'* (49))

(65) keistimewáan *'specialty'* (← ke- ... -an 'nominalising simulfix' + istiméwa *'special'* (54))

(66) tembákan *'shot'* (← tembak *'to shoot'* + -an 'nominalising suffix')

(67) tembakánnya *'his shot'* (← tembákan *'shot'* (66) + -nya *'his'*)

(68) tembakannyálah *'it is his shot (that I'm talking about)'* (← tembakánnya *'his shot'* (67) + -lah 'emphasising suffix')

(69) ketidakadílan *'injustice'* (← ke- ... -an 'nominalising simulfix' + tídak *'not'* + ádil *'just'*)

Notice that in (62) and (63), in which the bases are prefixed, and in (64), in which the base under attention is the last component of a compound word, the word accent of the base remains unshifted: the word accent falls on the penult of the base.

The word accent is shifted to the final syllable of the base if there is only one suffix syllable as exemplified by (65), (66) and (69). Items (67) and (68) show that the word accent is progressively shifted to the penult of the non-base word so that the accent no longer falls on either the penult or the final syllable of the base itself.

Notice also that within a word there is only one syllable which is accentuated. This syllable carries the word accent. A compound word is by definition a word; it differs from a non-compound word in that it is multiply based with or without affixation. It therefore has only

one word accent also. This is achieved by reducing the accent in the non-final base of the compound word. See, for example, items (45), (64), and (69), as well as the following:

(70) rumah sákit *'hospital'* (← rúmah *'house'* + sákit *'sick'*)

(71) ibu kóta *'capital'* (← íbu *'mother'* (46) + kóta *'city'*)

Items (62) up to (69) have one feature in common: the word accent falls on the penultimate syllable. Thus, it may now be stated that the word accent in unmarked words (regardless whether the base is mono-syllabic or polysyllabic) falls on the penult, except when the final syllable is the base itself, in which case the accent falls on the final syllable. This statement is general enough to account for the accent placement in words like (72).

(72) dipertahankannyalah *'(it/they) was/were than defended by him/*
      them' (← di- 'passivising prefix' + per- ... -kan 'verbalising
      simulfix' + -nya *'him'* + -lah 'emphasising suffix')

3.2.2. Marked Words

The feature of monosyllabicity versus polysyllabicity is no longer relevant to the generation of word-accent placement in marked words because the accent placement is now conditioned by any one of the following:
(a) whether or not the word under attention occurs as the last word
     in a marked pause-group,
(b) whether or not there is a schwa in the non-final syllable(s) of
     the word, and
(c) whether or not there is a grammatical contrast to be signalled.

3.2.2.1. *Occurrence in Marked Pause-Groups*

Pause-groups are discussed in Chapter IV. Suffice it to indicate at this point that a non-final pause group in a total intonation pattern of certain types is marked.

If the word under attention occurs as the final word in a marked pause-group relatable to the category *comment*, it is accentuated on its final syllable; that is, the accent is shifted from the penult. Like the case with compound words, the word(s) preceding the last word is/ are unaccentuated. For example:

(73) Buku merah itú tidak máhal.
      2- 33_r/2-   3 1_f #
      book red   the not   expensive
      'The red book is not expensive.'

(74) Kalau ada uáng belílah!
      2-   33ᵣ/ 2-3 lᶠ#
      if   have money buy
      'If you have money, buy (it).'

3.2.2.2. *Schwa in Non-Final Syllables*

In connected speech, or in relatively rapid speech, schwas in non-final syllables tend to be deleted (see C.1.1.2. in Appendix C for schwa deletion rule). The deletion of the schwa in a penultimate syllable shifts the word-accent away from that syllable. The accent movement, or accent shifting, may be described as follows:

(a) If the word under attention is a base of two syllables, the deletion of the schwa in the penult shifts the accent to the final syllable. For example:

(75) démam → demám /dmam/ *'fever'*

(76) térbang → terbáng /trbaŋ/ *'to fly'*

(77) ménang → menáng /mnaŋ/ *'to win'*

(b) If the word is a base of more than two syllables, and if the vowel of the syllable preceding the penult is not a schwa, the deletion of the schwa in the penult shifts the accent to the syllable preceding the penult.

(78) putéri → púteri /putri/ *'girl, daughter'*

(79) majélis → májelis /majlis/ *'council'*

(80) gubérnur → gúbernur /gubrnur/ *'governor'*

(c) If the word is a base of more than two syllables, and if the vowel of the syllable preceding the penult is also a schwa, then recursive applications of the schwa deletion rule shift the accent to the final syllable.

(81) telépon → telepón /tlpon/ *'telephone'*

(82) sebéntar → sebentár /sbntar/ *'a short while'*

(83) kelénjar → kelenjár /klnjar/ *'gland'*

Notice that condition (b) does not apply to those words of the type (84) through (86) because the schwa occurs in the final and not in the penultimate syllable. Nor does condition (b) apply to (87) because it applies only to (polysyllabic) bases, and because (87) is not a base. If it were applied to (87), the output would be *tantenya (cf. 78 through 80).

(84) úlet *'tough'*

(85) rúwet *'complicated'*

(86) tánte *'aunt'*

(87) tanténya *'his/her aunt'*

3.2.2.3. *Grammatical Contrasts*

One type of grammatical contrasts that is commonly signalled by accent is what may be called 'emphasis'. It is conditioned by the larger context in which the word under study is used. Compare, for example, (88) and (89).

(88) gurúnya *'his/her teacher'*

(89) gurunyá *'his/her teacher/*

Item (88) is a possible response to the question:

(90) Itú siápa?
      $233_r/2-31_f$#
      that who
      'Who's that?'

whereas (89) is a possible response to the question (91).

(91) Itú siapá?
      $233_r/2-31_f$#
      that who
      'Who is that?'

The movement of word-accent to the final syllable to signal 'emphasis' takes place in any word which occurs finally or as the only word in a stress group, except in cases where the word is a monosyllabic base. A monosyllabic base has, by definition, only one syllable and therefore is not subject to accent shifting.

Another type of grammatical contrast commonly signalled by accent (shifting) is 'aspectual'[1] contrast. Here, the accent is not necessarily shifted to the final syllable as in signalling emphasis above. The accent may also be shifted to a prefix syllable. Compare, for example (92) and (93) in the sentence (94):

(92) ménanam *'to plant'* (← menánam)

(93) bértanam *'to plant (habitually)'* (← bertánam)

---

[1] The term 'aspectual' is used here with the meaning of 'aspect', 'voice', and 'mode' as defined by Nida (1963:167-169).

(94) Diá   bukan ménanam kembang tapi bértanam kembang.
      2-33$_r$/2-   3 2$_f$ /2- 3 1$_f$ #
      he   not   grow   flowers but grow   flowers
      'He is not growing flowers but (he) grows flowers (as a job).'

Compare also the following in (98):

(95) méngundang *'to invite'* (← mengúndang)

(96) diundang *'to be invited'* (← diúndang)

(97) térundang *'to invite unintentionally'* (← terúndang)

(98) Diá bukan méngundang tapi diundang.
      2-33$_r$/2- 3 2$_f$ /   3 1$_f$ #
      he not   invite   but he invited.

      Meréká.... tidak mau mengundang dia tapi terundang.
      2- 33$_r$/ 2--   3 2$_f$/2-   3 1$_f$ #
      they   not   want invite   him but invite
      'He was not (the one who) invited but (he) got invited.
      They didn't want to invite him but they did invite him
      unintentionally.'

   We can conclude that the word accent in marked words is distributed
as follows:

   (a) The word accent falls on the last syllable of the word under
any one of the following conditions:
(al) The word occurs as the last (or as the only) word in a marked
      pause-group,
(a2) The penult and its preceding syllable(s) contain schwas.
   (b) The word accent falls on the syllable preceding the penult if
the penult contains a schwa and the vowel of the syllable preceding the
penult is not a schwa, provided that the word under observation is a
base.
   (c) The word-accent falls on whatever syllable which is assigned to
carry or to signal grammatical contrasts, such as aspectual contrasts.

CHAPTER IV
INTONATION AND SYNTAX

4.1. *GENERAL*

This chapter presents the theoretical framework by means of which a partial solution will be given to the questions posed in Chapter I, and the inadequacies of the treatment described in Chapter II will hopefully be overcome. Specifically, the questions are: What are the major intonation patterns of IN, and what are their functions? What prosodic units have to be postulated to account for the observed phenomena, and what are their characteristic features? Finally, to what extent and in what ways are phenomena of intonation relatable to the syntax of IN?

The theory espoused in this thesis is eclectic to the extent that while the general framework is generative-transformational as developed by Chomsky (1965), and modified by Fillmore (1968), it embraces certain insights and concepts of other scholars such as Pike (1967), Halliday (1967), and Vanderslice (1968). The influence of these scholars will be obvious, and therefore will not be specifically acknowledged in the course of the presentation. The eclectic approach is adopted here out of necessity for these scholars have provided ways to relate intonational phenomena to syntax. Their insights are relevant to the problems at hand.

Crucial to generative-transformational grammar is the distinction between "**competence** (the speaker-hearer's [innate] knowledge of his language) and **performance** (the actual use of language in concrete situations)"[1]. A grammar of a language seeks to account for the former by means of "a system of rules that in some explicit and well-defined

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[1] Chomsky (1965:4).

64

way assigns structural descriptions to sentences"[1]. This set of rules
makes up the form of the grammar, which may be broken down into three
components[2]: a syntactic component, a semantic component and a phono-
logical component. The syntactic component is central, the semantic
and the phonological components are peripheral in the sense that they
are "purely interpretive", and that "they play no part in the recursive
generation of sentence structures" (p.141). Concerning the syntactic
component, Chomsky (1965) further states that:

> the syntactic component consists of a base and a transformational
> component. The base, in turn, consists of a categorial sub-
> component and a lexicon. The base generates deep structures.
> A deep structure enters the semantic component and receives a
> semantic interpretation; it is mapped by the transformational
> rules into a surface structure, which is then given a phonetic
> interpretation by the rules of the phonological component (p.141).

The centrality of syntax seems to be implicitly recognised by Pike
(1974) when he talks about grammatical prerequisites to phonological
analysis, and when he states that "grammatical patterns in part - but by
no means completely - control the placement both of the borders of units
of the phonological hierarchy and of the nuclei of these units"[3]. It
is also recognised by Halliday (1967) when he says that "in describing
English intonation, we let the grammar decide how delicate we should
be" (p.9), and that "it is the requirements of the grammar that set the
limits of delicacy on the phonological statement" (p.11).

A substantive modification to the theory of transformational grammar
is proposed by Fillmore (1968) who questions the deep structure validity
of the traditional division of the sentence into subject and predicate.
He argues that such concepts as *subject* and *object* of the sentence are
aspects of the surface structure[4], and that "what is needed is a con-
ception of base structure in which case relationships are primitive
terms of the theory" (p.2). Thus, in place of the earlier concept of
transformational grammar that the underlying deep structure of the
sentence is expressed by the rule represented by (99), in which NP and
VP are directly dominated by S, Fillmore proposes a modification in

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[1]Chomsky (1965:9).

[2]Note, however, that Chomsky's three components and their order of operation have
recently been challenged. See, for example, Lakoff and Ross (1967); McCawley (1968);
Bierwisch (1968). Note also that Pike (1967) has long maintained that from the point
of view of "wave" and "field" the components interlock at various points.

[3]Pike (1967:573).

[4]cf. Becker (1967), pp.2-3.

(99)

```
              S
            /   \
          NP      VP
```
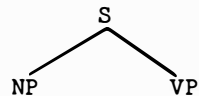
which the deep structure of the sentence (S) consists of **proposition**
(P), which dominates a verb (V) and one or more case categories in
labelled case relation to P, and **modality** (M). Each of the case cate-
gories dominates a case marker and a noun phrase (NP). Labelled case
relations are relations mediated by such labels as Agentive (A),
Objective (O), Instrumental (I), etc. Modality includes such modalities
as tense, mood, negation, etc., which apply to the sentence as a whole.
Furthermore, it is assumed that prepositions, postpositions and case
affixes are realisations of the same underlying element (that is, case
marker), symbolised by K (for **Kasus**). Thus, for example, the deep
structure of (100) is represented by (100a).

(100)   **Isterinya akan minum kopi di dapur.**
        'His wife is going to drink (some) coffee in the kitchen.'

(100a)

akan	minum	ø	kopi	di	dapur	oleh	isteri	nya
will	*drink*		*coffee*	*in*	*kitchen*	*by*	*wife*	*his*
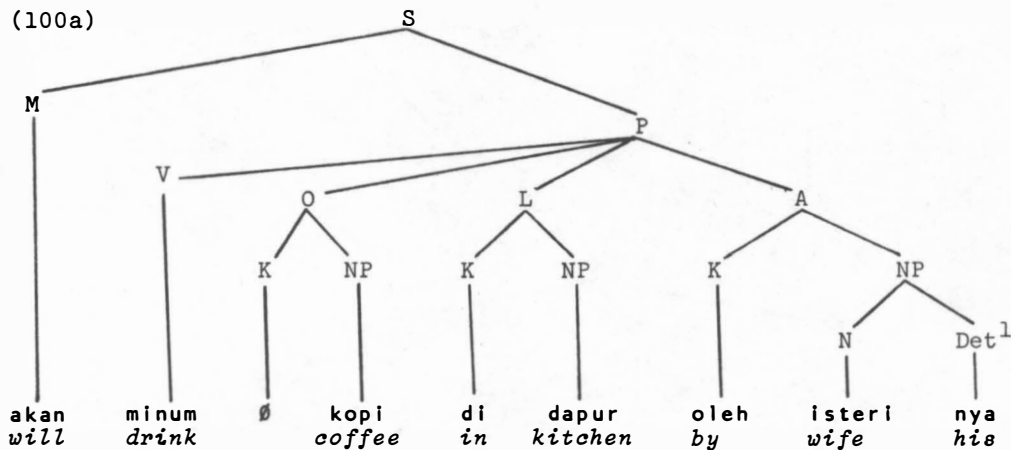
Subject-fronting transformation changes (100a) to (100b). As in
English, A (gentive) becomes the (surface) subject if there is an A.
This subject is *unmarked.*

_____

[1] Notice that the order Det(erminer)-N(oun) in Fillmore's work is here changed into
N-Det. This change is motivated by the fact that modification constructions in BI
are of the post-modification type: the modifier follows the "head". The change
does not alter the validity of Fillmore's argument in any way.

(100b)


```
                              S
              ┌───────────────┼───────────────────┐
              A               M                    P
         ┌────┴────┐          │         ┌──────────┼──────────┐
         K        NP          │         V          O          L
         │     ┌───┴───┐      │         │      ┌───┴───┐   ┌───┴───┐
         │     N      Det     │         │      K      NP   K      NP
         │     │       │      │         │      │       │   │       │
       oleh  isteri   nya   akan      minum    ∅     kopi  di    dapur
```
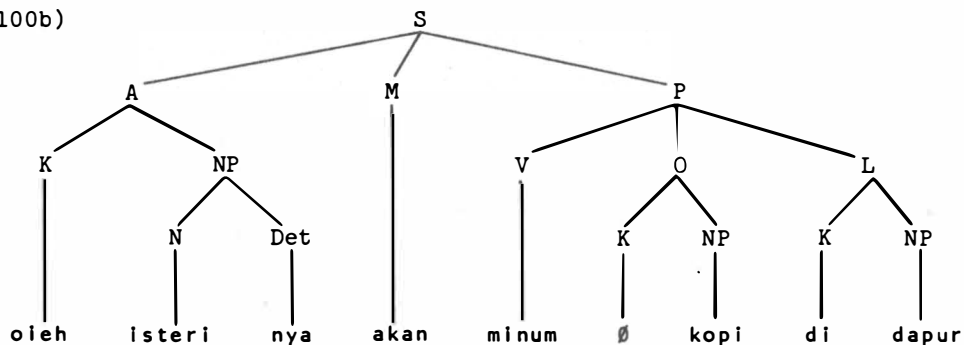
Subject-preposition deletion changes (100b) to (100c), and object-preposition deletion[1] generates (100d), which is the surface structure of (100), of which the deep structure is (100a).

(100c)


```
                              S
              ┌───────────────┼───────────────────┐
             NP               M                    P
         ┌────┴───┐           │         ┌──────────┼──────────┐
         N       Det          │         V          O          L
         │        │           │         │      ┌───┴───┐   ┌───┴───┐
         │        │           │         │      K      NP   K      NP
         │        │           │         │      │       │   │       │
       isteri    nya        akan      minum    ∅     kopi  di    dapur
```

(100d)


```
                              S
              ┌───────────────┼───────────────────┐
             NP               M                    P
         ┌────┴───┐           │         ┌──────────┼──────────┐
         N       Det          │         V         NP          L
         │        │           │         │          │      ┌───┴───┐
         │        │           │         │          │      K      NP
         │        │           │         │          │      │       │
       isteri    nya        akan      minum      kopi     di    dapur
```
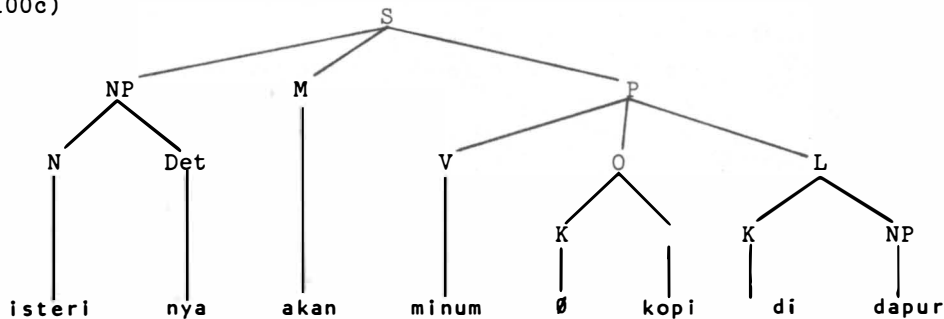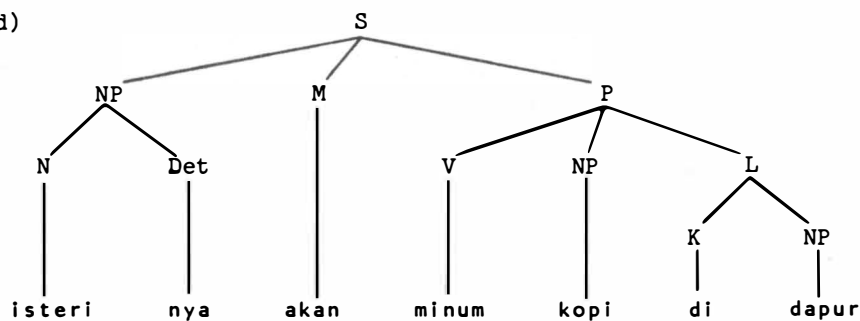
The surface structure (100d) then becomes the input of the phonological component. The output is the (systematic) phonemic representation in terms of distinctive feature compositions (100e), where, for convenience, the feature compositions are abbreviated into phonemic

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[1] Note that not all prepositions as case markers are actually deleted in the eventual surface structure. Some of these case markers may come out as affixes assigned to the verb. The case markers of the Instrumental and the Locative cases, for example, explains the verbal suffixes -kan and -i respectively as in the sentences **Dia menuliskan pena** *'he wrote with a pen'*, and **Dia menulisi dinding** *'he wrote on the wall'*. cf. the treatment of this problem in terms of "preposition incorporation rules" in Rose (1969). cf. also Becker and Arms (1969).

symbols. The eventual phonetic interpretation is represented by (100f).

(100e) /isteri ɲá minum kopi di dápur/

(100f) [istri ɲǎ mĩnũm kopi di dápur].

It has long been recognised that current theory of transformational grammar does not handle sufficiently the interrelations of sentences in discourse, and the place and role of intonation in relation to syntax. The rest of this chapter deals with these two problems.

4.2. *SENTENCES IN DISCOURSE*

By discourse is meant a set of sentences which, by virtue of its semantic coherence, is accepted as a "relatively complete whole" by the language user (speaker as well as listener). A set of sentences without a semantic coherence, then, does not constitute a discourse. This definition of discourse is rather simple, but it is sufficient for the immediate purpose here.

The internal make-up of a discourse, which is very complex, lies beyond the scope of our investigation, and therefore will not be discussed in detail. Suffice it to point out, however, that a discourse may be divided into five parts: (1) announcement, (2) introduction, (3) body, (4) conclusion, and (5) closing. Only the third part, the body is obligatory[1], because it is the body that contains the nuclear message of the discourse.

Viewed from the number of speakers involved, a given discourse is one of the three types: (1) monologue, (2) dialogue, and (3) polylogue.

A monologue is a discourse in which there is only one speaker involved. It ranges in descending degree of formality from such official speeches as addresses given by heads of state, presidents of universities, by dignitaries of such world organisations as the United Nations, etc., to such informal accounts as those given by children to their parents at the end of a long hard day at school.

A dialogue is a discourse in which there are two speakers involved. The two speakers, of course, alternate their roles as speaker and as addressee. Unlike a monologue, a dialogue is characterised by a give-and-take of information between the two speaker-addressees.

A polylogue is a discourse involving three or more speaker-addressees. Unlike a dialogue, where there is a two-way give-and-take of information, a polylogue allows for a three (or more than three)-way exchange. A polylogue is exemplified by a question-and-answer session after a paper presentation in a professional meeting.

The criterion of semantic coherence required of a discourse excludes

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[1]Stennes (1961:9).

the totality of the linguistic activities going on at parties, at the
market, at the airport and so on although in such circumstances
simultaneous discourses may be taking place. On the other hand, there
are cases which might be called "interrupted discourses", as, for
example, when a discourse is interrupted by a non-participant of the
same discourse, or when one of the speaker-addressees "inserts" a sen-
tence (or more) into the discourse. The former is illustrated by a
situation in which a mother and her guest are engaged in a dialogue.
Meanwhile, she notices that her young son comes to her and asks if he
can play outside. His mother answers, "No, Jimmy, not now", and then
turns back to her guest to resume the interrupted discourse. The dia-
logue between Jimmy and his mother might be called an "included" dis-
course; that is, within that between the mother and her guest.

The same situation may also illustrate the case in which the dis-
course is interrupted not by a non-participant of the same discourse,
but by one of the participating speaker-addressees by inserting into
the discourse one or more irrelevant sentences. Suppose, for example,
while talking to her guest, Jimmy's mother notices that he is trying to
take his shoes off. She says, "Keep your shoes on, Jimmy", and then
turns back to her guest and resumes the discourse.

Returning to the remark that in transformational grammar there is a
gap which concerns the interrelations of sentences in discourses or
discourse segments, we may note explicit statements by transformation-
alists to the effect that transformational grammar does not go beyond
the sentence. Notice, for example, that Chomsky considers "a language
to be a set (finite or infinite) of sentences, each finite in length
and constructed out of a finite set of elements"[1], and views a grammar
"as a device of some sort for producing the sentences of the language
under analysis"[2], that is, as

> a device that (in particular) specifies the infinite set of
> well-formed sentences and assigns to each of these one or
> more structural description.[3]

Furthermore, Chomsky states that:

> in the study of grammar we abstract away from the many other
> factors (e.g. memory limitations, distractions, changes of
> intention in the course of speaking, etc.) that interact with
> underlying competence to produce actual performance.[4]

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[1]Chomsky (1964a:13).

[2]Chomsky (1964a:11).

[3]Chomsky (1964b:9). cf. Chomsky (1965:8-9), and Lees (1964:XVII, XXIX-XXX).

[4]Chomsky (1966:12).

Note also Katz and Fodor, who state that

> Grammars seek to describe the structure of a *sentence in*
> *isolation from its possible settings in linguistic discourse*
> *(written or verbal) or in nonlinguistic contexts (social or*
> *physical)* [emphasis is mine]. The justification which permits
> the grammarian to study sentences in abstraction from the
> settings ... is simply that the fluent speaker is able to
> construct and recognize syntactically well-formed sentences
> without recourse to information about settings, and this
> ability is what grammar undertakes to construct.[1]

That transformational grammar does not handle interrelations of sentences in connected speech is recognised by Stockwell (1960):

> [The transformational grammar] is (at best) a sentence-
> generating grammar which is still unable to specify relations
> between two sentences (p.362).

It was indicated in Chapter I that interrelations of sentences in discourses have a legitimate place in a grammar such as the one we propose here. The structure of a sentence can be satisfactorily accounted for only with reference and in relation to its context, either linguistic or non-linguistic, because the context provides for the information needed in accounting for the motivation for certain grammatical processes such as anaphoric processes; that is, processes by means of which sentences are conjoined or subjoined, various deletion transformation, and focalisation transformation.

If a theory seeks to account for competence, which is defined as the speaker-hearer's innate knowledge of his language, following Chomsky, and if part of this knowledge is his ability to recognise and to generate syntactically well-formed sentences then it does not seem to be unreasonable to expect the theory to account for the speaker-hearer's motivation for such grammatical processes as mentioned above; that is, the condition or conditions under which certain transformational choices are made.[2] For example, under what condition or conditions is the (deep) structure) agentive case chosen to become the (surface) subject of a sentence, apart from the obvious requirement that the deep structure contain an A? Under what condition or conditions is objective case chosen to fulfill this function? What contextual factor or factors (that is, information) decide which constituent of the deep structure of a sentence is to undergo deletion, or to undergo focalisation? The answers to these questions are part of the speaker-hearer's competence, and, therefore, must be accounted for by the theory. The speaker-hearer

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[1]Katz and Fodor (1964:484).

[2]At this point this volume deviates from Chomsky, Katz, Fodor, et al, in that it assumes the relevance of contexts (linguistic or non-linguistic) to the structure of a sentence.

derives his answers not only from the internal deep structure of the sentence under attention, such as the generation of (101) from the underlying deep structure (102), but also from the larger context

(101) *'Frieda lost her book.'*

in which the sentence occurs, (that is, from the sentence or sentences preceding it as well as from certain relevant non-linguistic condition or conditions). Recall, for example, dialogue 2 in Chapter I, which

```
                            S
              _____
             M                        P
             |           _____|_____
             |          V          O              A
             |          |        __|__          __|__
             |          |       K    NP        K    NP
             |          |       |   _|_        |     |
             |          |       |  Det  N      |     |
             |          |       |   |   |      |     |
            past       lose     Ø  her book    by  Frieda
```
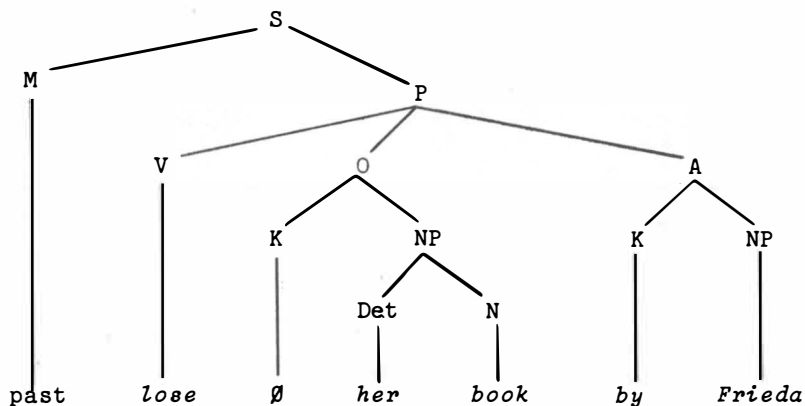
illustrates how contexts provide for information necessary in accounting for deletion and focalisation transformations. Dialogue (103) is another example.

(103) A1. **Bagaimana kalau saya kembalikan sája buku ini?**
          2-   3 2$_f$/211$_f$ #
          how   if   I   return   just book this
          'What about if I just return this book (to the library)?'

      B1. **Jangan sekárang!**
          2-   31$_f$ #

      A2. **Masih perlú?**
          2-   f31$_f$#
          still need
          'Do you still need it?

      B2. **Ya. Besók boléh!**
          231$_f$#2-33$_r$/2-31$_f$#
          yes. tomorrow may
          'Yes. You may return it tomorrow.'

   Notice that (103): B1 (**Jangan sekarang!** *'Not now'*) is speaker-hearer B's answer to A's question (103): A1 (**Bagaimana kalau saya kembalikan saja buku ini?** *'What about if I just return this book?'*). The deep structure of IN and grammatical processes involved in generating it can be accounted for only in relation to A1. The deep structure of

Bl is represented by (104). Subject-fronting transformation is applied to the objective case (buku ini *'this book'*) rather than to the agentive case (saudara *'you'*) because it is buku ini that is in the focus of IN; that is, what B is interested in is the book. Thus, this produces,

(104)

```
                            S
               ┌────────────┴──────────────┐
               M                            P
          ┌────┼────┐          ┌────────────┼──────────┐
          │    │    │          V            O           A
          │    │    │          │        ┌───┴───┐   ┌───┴───┐
          │    │    │          │        K      NP   K      NP
          │    │    │          │        │    ┌──┴──┐ │      │
          │    │    │          │        │    N    Det│      │
        imp. neg. sekarang  kembalikan  Ø   buku  ini oleh saudara
```
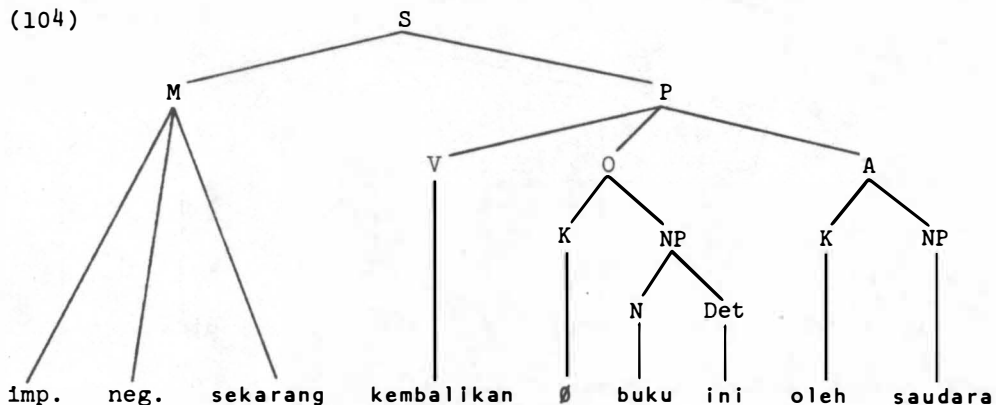
after all obligatory preposition-deletion and agentive-deletion trans-formations are completed, (105) rather than (106).

(105)   **Buku ini jangan dikembalikan sekarang!**
        book this don't be returned now

        'This book, don't be returned now (that is, *don't return this*
        book now).

(106)   **Buku ini jangan· saudara kembalikan sekarang!**
        book this don't you   return   now

        'As for this book, don't (you) return it now.'

The sentence (106) is a possible opening sentence of a dialogue, but not as a response to (103): Al.

Now, buku ini has been mentioned in (103): Al, and therefore is no longer novel information in (103): Bl. For this reason, it may be optionally deleted, changing (105) to

(107)   **Jangan dikembalikan sekarang!**
        don't be returned now

        'Don't return (it) now.'

For the same reason, dikembalikan *'be returned'* may be optionally deleted, changing (107) to the final surface structure (103): Bl.

The deep structure of (103): A2 Masih perlu? *'Do you still need it'* can be accounted for in exactly the same way; that is, with reference and in relation to the preceding sentences. It may be represented by (108). Subject-fronting applied to the agentive case and preposition-deletions change (108) to (109). Subject-deletion, justified by the presence of the addressee (that is, the referent of saudara *'you'*),

changes (109) to (110), which is in turn changed to (111) by object-
deletion applied to buku ini *'this book'*.

(108)
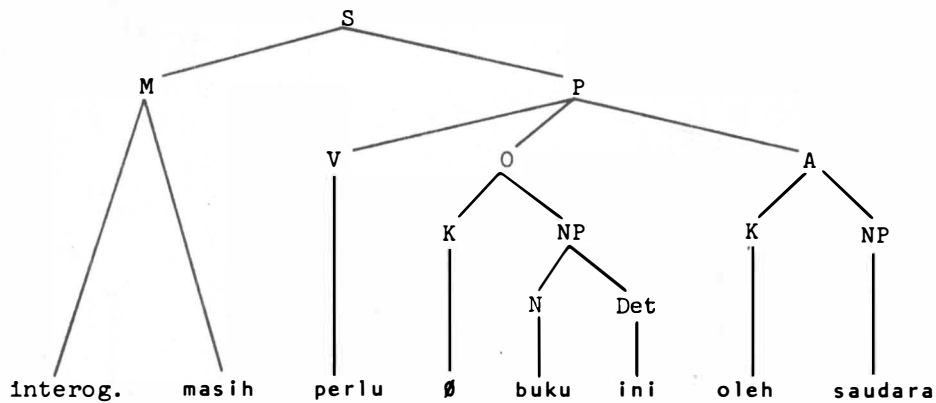
(109)   Apakah saudara masih perlu buku ini?
        do   you   still need book this

        'Do you still need this book.'

(110)   Apakah masih perlu buku ini?
        do   still need book this

        'Do you still need this book?'

(111)   Apakah masih perlu?
        do   still need

        'Do you still need it?'

Finally, the interrogative indicator apakah is deleted, and the inter-
rogativeness of the sentence is now signalled by prosodic features (that
is, by intonation) as transcribed in (103): A2. This optional use of
prosodic features in place of the question word apakah is very common
in spoken IN. The more informal and familiar the relation between the
participants of a discourse, the more likely that intonation will be
used to signal the interrogativeness of a sentence.

The deep structure of Besok boleh *'Tomorrow you may return it'* of
(103): B2 may be represented by (112). Subject-fronting applied to O
(plus the concomitant addition of the feature [+passive] to the verb,
subject-preposition deletion, and deletion of A change (112) to (113),
which is in turn changed to (114) by subject deletion. Finally, (103):
B2 is produced by verb deletion applied to dikembalikan of (114).

(112)

```
                          S
              _____|_____
             M                         P
          ___|___          _____|_____
                V         V         O              A
                |      ___|___    __|__         ___|___
                K     K      NP  K    NP       K      NP
                |     |    __|__ |    |        |      |
                |     |   N   Det|    |        |      |
 besok  boleh kembalikan  Ø  buku ini    oleh  saudara
```
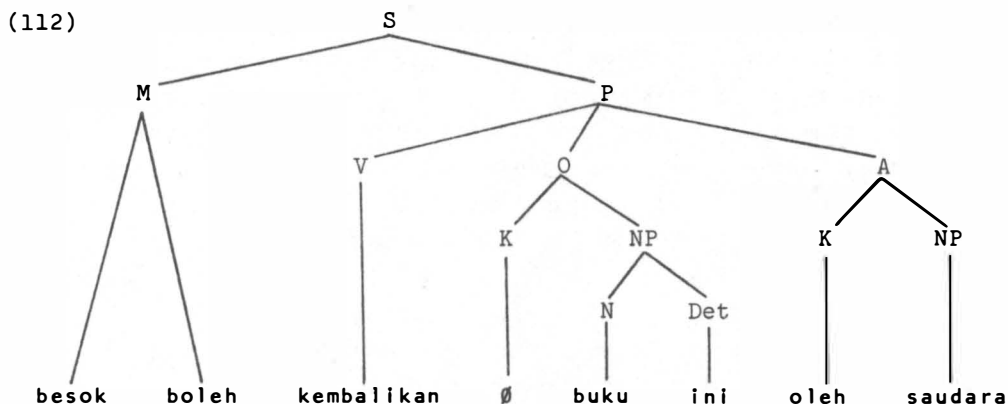
(113) Besok   buku ini boleh dikembalikan
       tomorrow book this may be returned
       'Tomorrow this book may be returned.'

(114) Besok   boleh dikembalikan
       tomorrow may be returned
       'Tomorrow (it) may be returned.'

In short, the whole P of (112) is deleted.

Deletion of second-person pronouns is a regular feature of spoken IN. This deletion is motivated not only by the presence of the referents of the pronouns, as the case is in the change of (109) to (110) above, but also for more complex reasons of another kind. Second-person pronominalisation in IN is realised by a set of forms such as **saudara, kamu, kau, bapak, tuan, nyonya,** kinship terms and personal names, as well as by a host of terms derived from regional languages like Javanese, Sundanese, Minangkabau, etc. The choice of one form rather than another is conditioned by the relation between the participants of the discourse. This relation may be defined in such terms as formality, familiarity, social status, age status, etc.[1] There are occasions when this relation cannot be clearly defined, at least temporarily, as the case with, say, new acquaintances, so that no one form can *comfortably* be chosen and used by either speaker-hearer. This situation is overcome, in IN, by deleting second-person pronouns in the surface structure. The presence of the addressee generally eliminates the otherwise possible ambiguity of IN sentences where the second-person pronouns have been deleted.

The relevance of contexts[2] (linguistic or otherwise) to the structure of the sentence has been demonstrated. The condition or conditions under

[1] cf. 1.3.1. supra. cf. also Halim (1963). For setting, content and social distance as "situational factors influencing code selection in an encounter", see Tanner (1967).

[2] cf. Gunter (1966); Pike (1964a, 1964b, 1967 especially Ch.11); Halliday (1961); Junus (1967). Note also the implicit relevance of contexts in Fillmore's discussion of anaphoric processes (1968:56-57).

which the choice of grammatical processes is made by the speaker-hearer
in arriving at the surface structure of his sentence may be specified in
terms of its relation to the preceding sentence or sentences in the same
discourse. The speaker-hearer's ability to select the *appropriate* one
among the available grammatical processes is part of his competence,
which the grammar seeks to account for. Therefore, contexts must be
integrated into the theory by setting up a node higher than the sentence
in the tree-diagram. This node may be labelled as D for discourse.
This first rule of grammar, then, is represented by (115), in which D
dominates one or more sentences in sequential order (S_1, S_2, ..., S_n),
where n is theoretically infinite in value, such that S_1 precedes S_2,
S_2 precedes S_3, and so on. The next rules are Fillmore's rules, first
applied to S_1, then to S_2, and so on until they are applied to S_n. We
can then, here without repeating the details of the grammatical pro-
cesses involved in moving from the deep-structure to the surface-
structure presented above, represent dialogue (103) by (116).

(115)

$$D$$
$$S_1 \quad S_2 \quad S_n$$
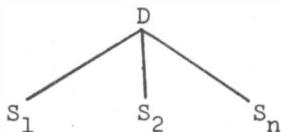
4.3. *INTONATION*

   Closely associated with the structure of the sentence and with the
interrelations of sentences in a discourse are intonational, or prosodic,
phenomena. In other words, intonation and its relation to syntax must
be dealt with if we wish to account for the structure of the sentence,
and thus for the speaker-hearer's competence.

   It is assumed that the speaker-hearer's ability to recognise the
relations between intonation and syntax and his ability to make use of
his recognition in generating his sentences are part of his competence,
and therefore must be accounted for. Therefore we propose that a device
be provided in the theory so that the grammatical function and the
structure of intonation can be specified in some explicit way.

Bagaimana kalau saya kembalikan saja buku ini?

Jangan sekarang.

Masih perlu?

Ya.

Besok boleh!
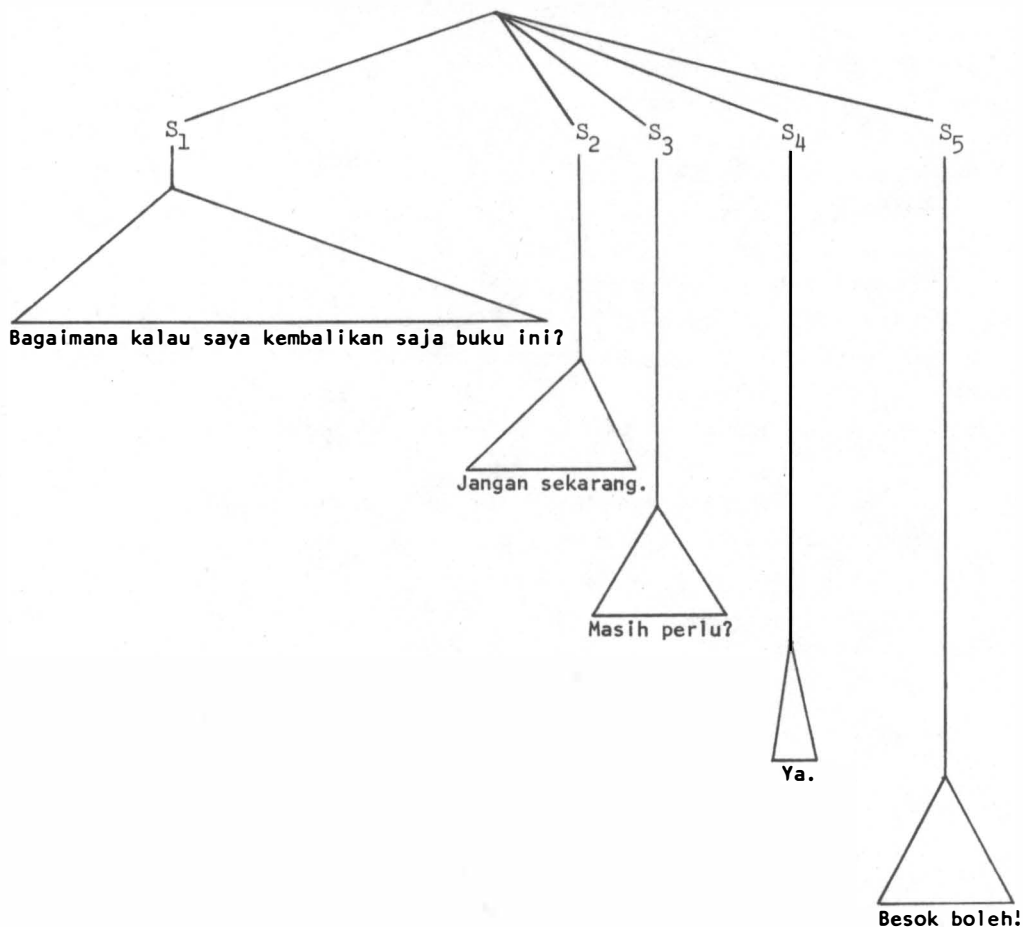
4.3.1. Intonation Defined

The phonological interpretation of the output of the syntactic com-
ponent of grammar may be viewed as having two types of representation:
segmental representation, and non-segmental (or, prosodic) representa-
tion. The former is manifested by sounds of speech on the performance
(that is, the actual speaking) level, and is handled by the segmental
phonological sub-component of the phonological component of the grammar.
The total phonological representation of the sentence minus its seg-
mental representation is its non-segmental (or, prosodic) representation.
This is what is referred to as intonation.[1]

The relation between the segmental representation and the non-seg-
mental representation is such that, in practice, one is impossible with-
out the other. Thus they may be called *simultaneous*. The theoretical

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[1] cf. Hockett's "intonation" and "remainder" as immediate constituents of the total
phonological representation (1955:43-51).

justification for separating and recognising the two sub-components
(segmental and non-segmental) of the phonological component is that
they differ as to the domains of the abstract entities at their outputs,
and that the non-segmental representation is relatable in some explicit
way to the syntactic component.

Intonation is handled by the intonational sub-component[1] of the
phonological component of the grammar, and is realised or expounded on
the performance level by such items as pitches, accents, pauses, and
the organisation of these items into meaningful intonation patterns,
which may be broken down into smaller constituents such as pause-groups,
whose number and distribution within the sentence under attention are
dependent on the structure of the sentence, that is on the syntactic
component.

It has long been recognised that intonation has two functions:
(1) grammatical and (2) emotional, that these functions co-occur (that
is, they are generally not mutually exclusive in their distribution
within any given utterance), and that the grammatical function is
primary, or basic, the emotional function secondary. See, for example,
Daneš (1960), who states that

> it is necessary to differentiate between the features [of
> intonation] that fulfil communicative [that is, grammatical,
> in our term] functions and those that have other functions,
> especially expressive [that is, emotional, in our term] ones.
> Even though the expressive, including the emotional, elements
> of intonation are quantitatively predominant and are, to a
> certain degree, present in every utterance, ... [it] is the
> features performing the communicative function that represent
> the basic phonic structure of the utterance; it is they that
> are operative as an organizing device; and for this reason they
> are of particular relevance to linguistic research (pp.35-36).

The statement that the grammatical function is primary, and that the
emotional function is secondary is justifiable on two grounds. First,
a sentence must have a grammatically functioning intonation, but it may
or may not have intonational features that signal emotions, speaker's
attitude, etc. What is often referred to as a sentence with a "colorless"
or "normal" intonation pattern,[2] or as a sentence with intonation con-
tours "completely colorless in meaning"[3] exemplifies such a sentence.
Second, given a grammatically meaningful sentence, the speaker-listener
can very simply modify his intonation pattern so as to express his

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[1]Another term for this sub-component is "prosodic" sub-component. See Vanderslice
(1968).

[2]Stockwell (1960:362).

[3]Pike (1963:20).

emotionality either by using a marked pitch register (see 4.3.2.1. below); that is, by increasing or decreasing the intervals between his pitch levels; or, by shifting his (sentence) accent so that the accent in the pause-group relatable to the category comment falls on the final, instead of on the penultimate, syllable. Compare, for example, (103) B1 with (103) B1a, in which the placement of the accent on the final syllable

(103) B1a **Jangan sekárang!**
           2-   31$_f$ #
           'Don't (do it) now!'

(i.e. -**rang** of **sekarang** *'now'*) signals the speaker's attitude of *insistence*. That is, (103) B1a means something like *'I insist that you not do it now'*. Compare further (103) B1, (103) B1a, and (103) B1b.

(103) B1b **Jangan sekárang!**
           2-   3 3$_s$ #

In (103) B1b the accent remains on the penult (i.e. -**ka-** of **sekarang** *'now'*). However, the terminal pitch movement is changed from 31$_f$ (in both (103) B1 and (103) B1a) to 33$_s$. This change signals the speaker's attitude of *mild insistence*. Thus, the meaning of (103) B1b is something like *'I'd like to persuade you not to do it now.'*

This volume is concerned with the grammatical function of intonation, and therefore will not discuss the emotional function of intonation in further detail.

4.3.2. Characterisation of IN Intonation

A characterisation of IN intonation requires a recognition of a hierarchy of four distinctive intonational units. These are, in descending order:
1. (total) intonation pattern
2. pause-group
3. contour, which is either pre-contour or major (or, primary) contour, and
4. intonational phonemes: pitch levels (PL), accent, and pause.

The organisation of these units is such that each of them, except the lowest, is specified in terms of the unit next below in the hierarchy. Thus, an intonation pattern consists of one or more pause-groups. A pause-group consists of either one (and only one) major contour, or of one pre-contour and one major contour. Both pre-contour and major contour are represented by PL's, but it is the major contour that contains accent. Thus, for example, (117), expounded by **adik saya** *'my brother'* as a response to, let us say, a question like **Siapa itu?** *'Who is that?'*,

exemplifies an intonation pattern which consists of one pause-group, which consists of one-pre-contour, represented by PL-2, and one primary contour, represented by pitch levels 3 and 1 followed by falling pitch ending ($_f$).

(117) Adik sáya.
      2-   3 1$_f$#
      brother I
      'my brother'

A postulation of units implies segmentation, which means specifications of the boundaries of these units. It has long been recognised that, given a stretch of speech, the investigator frequently, or perhaps even most of the time, cannot determine exactly and explicitly where the boundaries are. In other words, there is always a certain degree of indeterminacy in segmentation. At best he can only postulate that a given unit, say a pause-group (except the very first in an utterance) begins where the previous one ends, and terminates, if it is not the last one in the utterance, where the following pause-group begins. An initial pause-group begins with the commencement of "regulation"[1], that is articulatory activities of our sound generating mechanisms, and a final pause group ends with the termination of regulation.

It is assumed, following Pike (1967, esp. Ch. 14) that intonation may be viewed from three different but interrelated perspectives: (1) as particles, (2) as waves, and (3) as field. Viewed as particles, intonation is made up of such discrete units as pitch levels, pre-contours, primary contours, pause-groups, each of which is assumed to have a beginning and an end. This is the starting point in segmentation. Viewed as waves, intonation is represented by the units (particles) in certain arrangements or configurations so that these units "may be treated as a series of WAVES flowing into one another,

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[1]The term "regulation", used here as it is defined by Catford (1968), refers to "valve-like postures or movements which regulate the flow of air [in the vocal tract] and, in so doing, generate soundwaves" (p.311). Catford distinguishes two varieties of regulation: "phonation" and "articulation", and defines phonation as "all regulatory activities occuring in the larynx... [excluding] those laryngeal activities (glottal closure and vertical displacement of the larynx) which have an *initiatory* function in the production of *glottalic* sound" (p.311). Articulation is defined as including "glottal stop and all those regulatory activities which occur in the pharynx, mouth, and nose" (p.311).

    See also Catford (1964), where he states that phonatory features have three types of function in relation to language: (1) phonological, that is "correlated with a difference between grammatical or lexical forms", (2) paraphonological, that is "correlated directly (not *via* linguistic form) with contextual differences" such as the difference between *voice* and *whisper* in English, and (3) non-phonological, that is "directly related to the situation"; speaker's identity (p.35). In this study, we are concerned only with the first function.

fusing at their boundaries, with the ending point of the one unit and the beginning of the next frequently indeterminate" (p.546). A field view of intonation treats it as an item within or as part of a larger context, that is as part of the phonological component, and this in turn as a component of the total theoretical field of grammar.

4.3.2.1. *Pitch Levels*

An utterance, presumably in any language, is always pronounced by the speaker in certain melodic patterns which are perceived by the hearer as a sequence of different pitches. A pitch is the auditory correlate of the fundamental frequency of vocal cord vibration.

Not all of the pitches with which the speaker says his utterance are linguistically relevant; that is, signify functional differences. Those pitches that are linguistically irrelevant are called non-contrastive, and those that are linguistically relevant are called contrastive.

A contrastive pitch is a representation of a pitch level (PL). In any one language, pitch levels are quite small in number. English, for example, is said to have three or four pitch levels.[1] Furthermore, these pitch levels are relative, not fixed or mathematically definable. Their heights are specified only in terms of their relations to each other. Mid or neutral pitch level, for example, is the one which is higher than low pitch level, but lower than high pitch level. Nor are the intervals between any two adjacent pitch levels fixed. These vary from individual to individual depending on such factors as sex and age. Female individuals tend to exhibit larger intervals than male individuals. The pitch level intervals in children tend to be relatively larger than in adults. They even vary within one and the same individual, depending on such factors as the state of his emotions, that is whether he is happy, excited, or disappointed, etc.[2] Excitement tends to make the intervals relatively large, whereas emotions such as disappointment and disgust tend to make them relatively small.

A system of pitch levels within a language is called a register. If there are no strong emotions involved, the register is neutral or unmarked. If the intervals between pitch levels are large, the register is a wide register. If the intervals are small, the register is a narrow register. Both the wide and the narrow registers are marked.

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[1] Pike (1963), for example, postulates four pitch levels for (American) English. Hockett (1955), on the other hand, postulates three pitch levels and one *extra height*.

[2] For a study "with a view to investigating the attitude or emotional meanings conveyed by the various contours [of intonation]", see Uldall (1964).

The widening and the narrowing of the registers are emotionally, not grammatically, motivated, and are therefore not relatable to the syntactic structure of the utterance in which they occur.

In IN there are three contrastive pitch levels: high, neutral or mod, and low. Neutral or mid pitch level (PL2) is generally that PL at which a pause-group begins. High pitch level (PL3) is relatively higher than PL2. Low pitch level (PL1) is lower than both PL3 and PL2. These pitch levels may also be defined in terms of binary distinctive features opposing high and low as summarised in Table 6 below, where the columns represent pitch levels and the rows the features.

	TABLE 6 DISTINCTIVE FEATURE COMPOSITION OF BI PITCH LEVELS		
	PL1	PL2	PL3
High	–	–	+
Low	+	–	–

Thus, PL1 is [-high, +low], PL2 is [-high, -low], and PL3 is [+high, -low].

The evidence for the postulation of the three pitch levels in BI is obtained by using the conventional substitution frame techniques; that is, by substituting one pitch level for another in a slot of the frame while holding the rest of the frame constant. If a substitution of one pitch level for another in the frame carries a corresponding change in meaning, then the two pitch levels are contrastive. The frame used here is [23__], where [__] represents the slot for pitch level substitutions. By way of illustration, the frame is filled by kotak itu as in (118). The pitch on the last syllable (-tu of itu) is then varied, and we can see if, in so doing, we also have a syntactic functional difference. The results are transcribed in items (119), (120), (121), and displayed by the mingographic tracings in Figure (11), and Figure (12) A and B respectively.

(118) Kotak itu.
2-   3__
box   that
'That box.'

(119) Kotak ítu.
2-   31 #
That   box, as a response to, for example,

```
         Kotak mana?
         2-   3 1 #
         box   which
         'Which box?'
```

(120)   Kotak ítu.
         2-   32 /

That box, as a constituent of sentences like

```
         Kotak ítu maksud saya.
         2-   32/2  .11      #
         box   that mean   I
         'That box is the one I mean.'
```

(121)   Kotak ítu.
         2-   33 /

That box, as a segment of sentences like

```
         Kotak itú kótor.
         2-   33/ 231  #
         box   that dirty
         'That box is dirty.'
```

FIGURE 11

A mingographic tracing of kotak ítu.
                               2-   31ᶠ#

Time: 100 mm/sec.
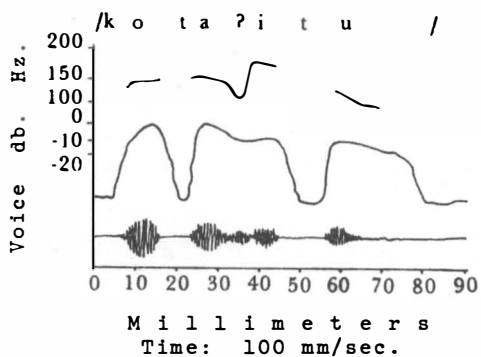
Notice that 231 indicates the meaning of *finality,* whereas 232 and 233
do not, that 231 and 232 are relatable to the category *comment,* whereas
233 is relatable to the category *topic,* or *subject,* and that 232 is
relatable to the category *focalised comment,* whereas the other two are
not. Thus, it can be concluded that a substitution of one for another
of the three pitch levels carry grammatical functional difference, and
hence the three pitch levels (PL1, PL2, and PL3) are contrastive in IN.

FIGURE 12

Mingographic tracings of:

(A)   Kotak ítu maksud saya·
      2-   32 /211   #
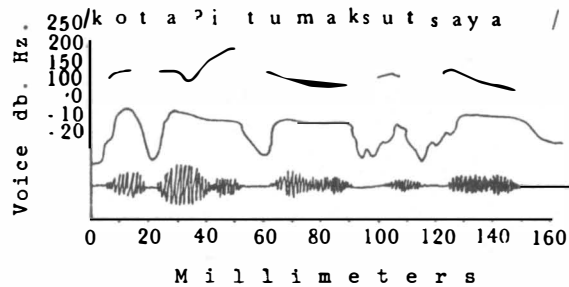
(B)   Kotak itú kótor.·
      2-   33 /231   #
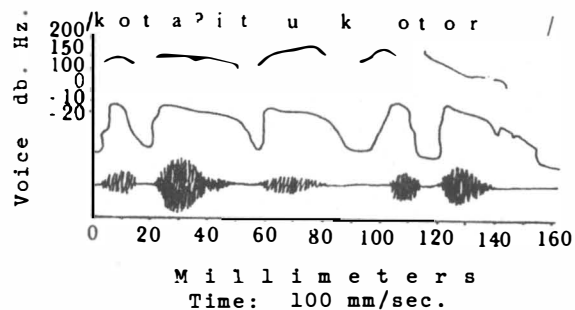
Now, since PL2 is the initial pitch level of a pause-group (by definition)[1], there are theoretically nine possible pitch patterns: 211, 212, 213, 221, 222, 223, 231, 232, and 233. Not all of these theoretically possible pitch patterns are actually realised in the phonetic representation of IN pause-groups. See Table 7, of which the figures were derived from the data described in Chapter I.

TABLE 7 PITCH PATTERNS AND THEIR OCCURRENCE		
Pitch Pattern	Occurrence Frequency	Percentage
211	93	15.1
212	3	0.5
213	1	0.2
221	3	0.5
222	29	4.7
223	0	0.0
231	169	27.4
232	57	9.3
233	261	42.4

Table 7 shows that of the nine theoretically possible pitch patterns, only four (211, 231, 232, and 233) occur with a reasonable degree of frequency. Of these four pitch patterns, 233 is the most frequent (42.4 percent), and 232 is the least frequent (9.3 percent). The low frequency of occurrence of 232 is accounted for by the fact that in the phonetic representation 232 becomes 231 if the pause that follows is realised by a relatively long silence, or if the initial syllable of the following pause-group is unaccentuated, and begins with a stop consonant.

It was indicated earlier that the pitch patterns 231, 232 and 233 are relatable to certain grammatical categories. So is the pitch pattern 211; it is relatable to the syntactic process we called earlier *retraction* (that is, the opposite of *focalisation*), by means of which

---

[1] Notice, however, that PL2 as the initial pitch level of a pause-group is not always realised in the phonetic representation of the pause-group. If the initial syllable of the first word in the pause-group is accentuated, then the pause-group tends to begin with PL3 because the accentuation at this point requires a sudden change of pitch from PL2 to PL3 within the same syllable, resulting in the dominance of the higher pitch level (i.e. PL3) over the lower pitch level (i.e. PL2). In this case, then PL2 is simply not realised.

a segment of the sentence is brought away from the focus. Compare, for
example (122) with (123) which is the outcome of retraction applied to
(122).

(122)   Orang itú guru   sáya.
        2-   33 / 2-   3 1 #
        man   that teacher I
        'That man is my teacher.'

(123)   Guru   sáya orang itu.
        2-   3 2 /2-11   #
        teacher I   man   that
        'My teacher is what that man is.'

The other five theoretically possible pitch patterns in Table 7 (212,
213, 213, 221, 222, and 223) are not syntactically motivated. The most
frequent of these is 222 (4.7 percent), which generally occurs when
there is *hesitation* involved on the part of the speaker.

From the point of view of *wave*, pitch patterns may be described as
pitch movements, which represent patterns of speech melody. A pitch
pattern differs from a pitch movement in that the former is treated as
being composed of its componential particles, or discrete units (that
is, pitch levels), whereas the latter is viewed as being manifested by
a configuration of waves of pitches. Thus, the pitch movement of 231,
for example, is specified by the statement that it begins with PL2,
which is retained up to the point where the pitch rises to PL3, after
which the pitch falls to PL1 and fades away.

Linguistic contrasts are expounded not by the initial part, that is
the pre-contour, but by its terminal part; that is, the pitch movement
from the syllable with accent to the end of the pause-group. The
initial part of the pitch movement is on PL2, and is relatively level.
The ups and downs of the pitch within the pre-contour are quantitatively
negligible and linguistically irrelevant.

The terminal part of the pitch movement is accounted for in terms
of two binary features: *fall* and *rise*[1]. The feature *fall* (F) refers
to the falling pitch movement beginning from the syllable containing
accent, either nuclear or non-nuclear, to the end of the pause-group.
A *rise* refers to the terminal rising pitch movement. Like a *fall*, a
rise (when it occurs alone) begins from the accentuated syllable to the
end of the pause group.

Table 8 shows the feature composition of the three simple intonation
contours: *falling, rising* and *sustained,* and the complex contour

---

[1]Vanderslice (1968) uses the terms "cadence" and "endglide" for these two features.

falling-rising. In the actual use of language, simple contours may
occur in combination, resulting in the complex intonation contour.
This, however, is non-syntactically motivated in IN, and therefore will
not be discussed further. Suffice it to point out that there are no
contrasts expounded by falling and falling-rising pitch movements,
apart from the fact that the former is syntactically motivated, whereas
the latter is conditioned by the speaker's state of emotions and atti-
tude.

	Falling	Rising	Sustained	Falling-rising
TABLE 8				
FEATURE COMPOSITION OF CONTOURS				
Fall	+	−	−	+
Rise	−	+	−	+

TABLE 8

FEATURE COMPOSITION OF CONTOURS

	Falling	Rising	Sustained	Falling-rising
Fall	+	−	−	+
Rise	−	+	−	+

The information obtained from the view of intonation as particles
(that is, as pitch patterns) and that obtained from the view of intona-
tion as waves (that is, as pitch movements) are mutually complementary,
not mutually exclusive. This must be reflected in the notation. The
reason is that the feature fall does not specify how far down the fall-
ing movement is, nor does the feature rise indicate the extent of the
rise. Nor do pitch patterns alone automatically indicate the direction
of pitch movements. While it is true that 231 as in (124) may generally
be regarded as a notational equivalent of accent+fall as in (125), the
combinatorial notation as in (125a) is used here for convenience in
describing, for example, the case of 233, where the terminal pitch
movement is 33, which in its phonetic realisation may be falling, rising,
or sustained if it is followed by a cessation of speech. Figure 13A
and B, and Figure 14 illustrate 233_f, 233_r, and 233_s respectively.

(124) Selamat pagi.
       2-   3 1 #
       'Good morning.'

(125) Selamat p$\overset{f}{\acute{a}}$gi.
       'Good morning.'

(125a) Selamat pági.
       2-   3 1$_f$#
       'Good morning.'

Since there is no evidence that rising and sustained contours are
contrastive in relation to IN syntax, it is assumed that these contours

are representations of the same underlying contour, which is called
rise because both contours are generally reacted to as rising. For the
same reason, 233_f and 233_r are regarded as manifestations of the same
underlying intonation contour symbolised by 233_r.

Thus, the earlier 231, 232, 233, and 211 are now notationally
represented by 231_f, 232_f, 233_r, and 211_f respectively.

4.3.2.2. *Accent*

Accent is closely associated with pitch[1]. It refers to that prosodic
feature which makes the syllable on which it falls relatively more
prominent than its neighbouring syllables within the same pause-group,
and which is perceived by the listener as *stress*.

IN accent is traditionally divided into two types: word-accent, and
sentence-accent (see Chapter II). However, it is postulated here that
there is only one type of accent in IN because of (1) the distribution
of the accent, and (2) defining features of the accent in IN.

4.3.2.2.1. *Distribution of Accent*

The traditional division of accents into word-accent and sentence-
accent is purely based on distributional criteria, motivated by IN
syntax. There is no lexical contrast between, for example, kótak and
koták *'box'*[2]. These two differ in that the former is unmarked, and the
latter is marked. A word in its citation form is unmarked. The term
citation form (and thus *unmarked words*) must be understood to mean that
the context of which it is the final item is so hypostatic that it is
always deleted in the surface structure. Thus, the underlying basis of
kótak as a *citation form* is something like (126), with saya mengatakan
'I'm saying' deleted.

(126) Sayá   mengatakan kótak.
       $2\text{-}33_r/2\text{-}$ $3\ 1_f\#$
       I   *say*   *box*
       'I am saying box.'

---

[1] cf. Bolinger (1958).

[2] This does not mean that the syllable on which the accent falls is random. Given
polysyllabic words like pembangunan *'development'*, for example, we have either (1)
pembangúnan or (2) pembangunán, but not (3) *pémbangunan or (4) pembángunan. While
it is true that there is no lexical contrast between (1) and (2), the placement of
accent in (3) and (4) makes them sound either artificial or foreign. Thus, Horne's
statement (1961:xxvi) about Javanese that "it makes no difference which syllable of
a Javanese word gets the loudest stress" does not apply to IN. It should be inter-
esting to see the consequences of Horne's statement even in Javanese.

FIGURE 13

Mingographic tracings of:
(A) 233_f and (B) 233_r.

/ k o t a ? i t u /

Voice db. Hz.

200
150
100
0
-10
-20

0 10 20 30 40 50 60 70 80 90

M i l l i m e t e r s

/k o t a ? i t u /

250
200
150
100
0
-10
-20

Voice db. Hz.

0 10 20 30 40 50 60 70 80 90 100

M i l l i m e t e r s
Time: 100 mm/sec.
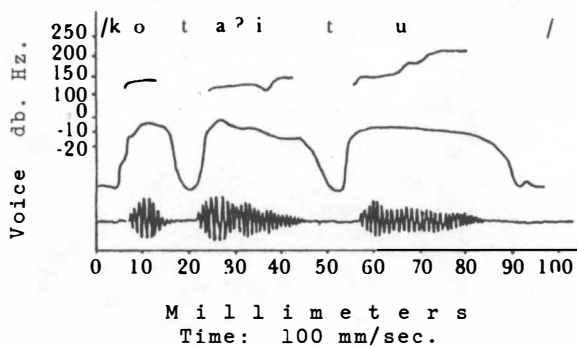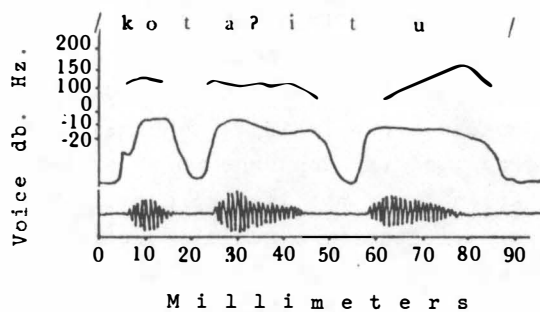
FIGURE 14

A mingographic tracing of 233_s.

/ k o t a ? i t u /

250
200
150
100
0
-10
-20

Voice db. Hz.

0 10 20 30 40 50 60 70 80 90 100

M i l l i m e t e r s
Time: 100 mm/sec.
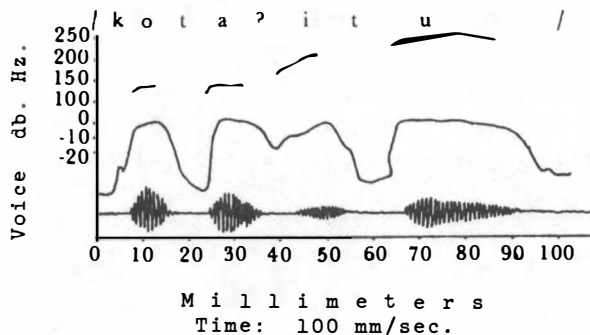
In other words, there is no word-accent as such in IN apart from its contextual relation with the sentence, either expressed or implied, of which the word under attention is a segment. It is with this meaning that *word-accent* is used (not as a technical term, but only as label used for convenience in our discussion) in the preceding chapter, where the distribution of *word-accent* is presented in detail.

With the syntactically motivated intonation in mind, it can be stated at this point that in general the accent falls on the penult of the last word of an unmarked pause-group (this is generally the final pause-group, or the only pause-group, of the sentence under attention), and that it falls on the final syllable of the last word of a marked pause-group; that is, pause-group delimited by a medial pause.

That the distribution of accent in words is of exactly the same pattern as the distribution of accent in units larger than words may be illustrated by the following:

(a)   Single-base words:

   tidak *'not'*
   ádil *'just'*

(b)   Polymorphic single-base words:

   ketidákan *'absence, lack'*
   keadílan *'justice'*

(c)   Polymorphic double-base words:

   ketidakadílan *'injustice'*
   perpecahbeláhan *'dissention'* (← pécah *'break'* and bélah *'crack'*)

(d)   Noun-phrase(NP) in unmarked pause-group:

   ketidakadilan peraturan baru ítu
   injustice   regulation new the
   'the injustice of the new regulation' as a deletion transform of,

let us say,

   Mereká menentang ketidakadilan peraturan baru ítu.
   $2- 33_r/2-$ 31_f#
   they   oppose   injustice   regulation new the
   'They are opposing the injustice of the new regulation.'

(e)   Noun-phrase (NP) in marked pause-group:

   ketidakadilan peraturan baru itú
   'the injustice of the new regulation' as a constituent of:
   Ketidakadilan peraturan baru itú menimbulkan perpecáhan.
   $2-$ $33_r/2-$ $3\ 1_f$ #
   injustice   regulation new the create   dissention
   'The injustice of the new regulation has created dissention.'

With each expansion, the accent shifts to the penultimate syllable of the new construction if the new construction is intonationally an unmarked pause-group, or to the final syllable if marked.

4.3.2.2.2. *Characterisation of Accent*

The second reason for postulating only one type of accent in IN is that the same criteria of characterisation apply to accents in words as well as in sentences (including the conventionally called *emphatic accent*).

Negatively speaking, there is no evidence for the notion that the defining features of IN accent are conditioned by factors like occurring in words as words versus occurrence in sentences, or by whether the accent is emphatic nor nonemphatic. In other words, there is no evidence to justify a differentiation of accents into what Alisjahbana calls "dynamic accent", "(voice) pitch accent", and "durational accent" (See Chapter II, 2.2.5.). Nor is there any evidence in support of the notion that within a given sentence there is one accent, called *primary accent*, which is stronger than other accent or accents in the same sentence. In IN, the intonation of simple sentences of the type subject+predicate like (127), for example, contain two accents: one falls on the final syllable of the last word of the constituent *subject*, and the other on the penult or on the final syllable of the last word of the constituent *predicate,* depending on whether the sentence is unmarked or marked. The difference in strength between these two accents is either none or, if any, very negligible. Thus, Vanderslice's statement about English also applies to IN:

> This notion, that a word is stressed more strongly at the
> nucleus of the sense group than if it occurs elsewhere, is
> one for which there has never been the slightest empirical
> evidence, and seems to result from the subjective impression
> of greater prominence on the nuclear syllable when, as is
> usually the case, the supporting cue of cadence is present.[1]

It is postulated here that there is only one type of accent in IN, and that the defining features of this accent are pitch and duration or length, and therefore the descriptive term "tonotemporal" is proposed for IN accent. A detailed justification for this postulation is presented in

(127) Doní sedang tídur.
       2-33$_r$/2-   3 1$_f$ #
       'Doni is sleeping.'

Chapter III. Suffice it to indicate at this point that pitch is contrastively perceived in terms of a three term scale: high (PL3), mid or neutral (PL2), and low (PL1). By duration is meant the extent

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[1] Vanderslice (1968:29).

of time required for the pronunciation of a speech sound, a syllable, and of a unit larger than the syllable.

An accentuated syllable is pitched relatively higher and pronounced relatively longer than other syllables or syllables within the same pause-group. PL2 is the neutral pitch level; that is, the pitch level on which the pause-group begins (unless, of course, the pause-group begins with an accentuated syllable). PL1 is lower than PL2, PL3 is higher than either PL1 or PL2. Therefore, the pitch of the accentuated syllable is a representation of PL3. That is to say that a pitch rise to PL3 is the primary cue or defining feature of IN accent. However, we must not *a priori* conclude that duration is a consistent concomitant of pitch. The reason is that there are cases (though quite few in number) in which the highest pitch and the longest duration are expounded by different syllables within the same word or the same pause-group.

Returning to example (127), we may recall that it contains two accents, one not necessarily stronger than the other. Therefore no differentiation is made between primary and non-primary accents in the traditional sense of the term of *primary accent*.

However, a differentiation is made between *nuclear accent* and *non-nuclear accent* in IN. By nuclear accent is meant the accent carried by the constituent *comment* (that is, by the penult of the last or the only word of the comment if unmarked, or by the final syllable of the comment if marked) of the sentence under attention. By non-nuclear accent is meant the accent expounded by the final syllable of the last (or the only) word of the constituent 'topic' of the sentence. Thus, the differentiation is syntactically motivated; that is, it is based on the need to account for the accentuation of IN in relation to IN syntax. It is not based either on the relative height of pitch or on the relative length of duration.

The nuclear accent is so called because it is central in the total intonation of a given sentence; it is obligatory. It differs from the non-nuclear accent in that the nuclear accent is retained by the constituent comment regardless of its position relative to that of the constituent topic, whereas, the non-nuclear accent is obligatory only when the topic precedes the comment, as in (127). A topic which is not focalised as in (128) is not accentuated. It is in this sense that the accent on -ni of Doni (which is the subject-as-topic of (127) is non-nuclear, whereas the accent on ti- of tidur *'sleep'* (which together with sedang *'in the process of, be engaged in'* is the predicate-as-comment of (127) is nuclear.

(128) Sedang tídur   Donl.
      2-   3 2$_f$ / 211$_f$#
      is   sleeping Doni
      'Doni is sleeping' (with unfocalised topic).

Now, notice that if, instead of applying focalisation (or fronting) to subject-as-topic (i.e. Donl (i.e. sedang tidur *'is sleeping'*) as in (128), then we can see that

a. the nuclear accent is retained by tl- of tidur *'sleep'*,
b. the pitch pattern of sedang tidur changes from 231 to 232, but the terminal pitch movement remains unchanged,
c. the syllable -nl of Doni no longer expounds the non-nuclear accent,
d. the pitch pattern of Doni changes from 233 to 211, and
e. the terminal pitch movement of Doni is falling instead of rising.

Compare also the following pairs of sentences, one with the topic focalised, and the other with the comment focalised.

(129a) Mereka di siní kemárin. (Topic focalised.)
      2-   33$_r$/2-3 1$_f$ #
      they here   yesterday
      'As for their being here, it was yesterday.'

(129b) Kemárin mereka di sini. (Topic unfocalised.)
      2-3 2$_f$ / 2 11$_f$ #
      'It was yesterday that they were here.'

(130a) Saudara berangkát naik ápa? (Topic focalised.)
      2-   33$_r$/2- 31$_f$#
      you   leave   embark what
      'Speaking of your departure, how (i.e. by what means of transportation) *are you leaving?'*

(130b) Naik ápa saudara berangkat?
      2-. 32$_f$ / 2 11$_f$
      'How are you leaving?'

The differentiation between nuclear and non-nuclear accents will be illustrated further below.

4.3.2.3. *Pauses*

By pause is meant the junctural phenomenon which potentially marks the terminal boundary of the preceding intonational immediate constituent, which is called, for lack of a better term, pause-group. This terminal boundary is also the terminal boundary of the total intonation of the sentence under attention if the pause-group is final. If the pause-group is non-final, the pause potentially marks the terminal boundary of the preceding pause-group, and also marks the initial

boundary of the following pause-group. The pause after a final pause-group is called *final pause*. If the pause-group under attention is not final, the pause that follows is called *tentative pause*[1]. The former is notationally symbolised by a single bar (/), the latter by a double-cross (#). The final sentence in a discourse ends coterminously with the discourse itself. Therefore, the final pause of the last sentence is also the final pause of the discourse itself.

The pause potentially marks the terminal boundary of a pause-group, because a pause, except when it is a final pause, as a theoretical entity may or may not be realised by cessation of speech; that is, by cessation or absence of regulation (phonation and articulation) in the actual use of the language by the speaker. Whether or not it is realised presumably depends on the relative speed of speaking. The faster the speech the less likely for the pause to be realised by cessation of speech. The rate of speech is in turn determined by such factors as the individual speaker's habit of speaking, his emotions, and the occasion in which he speaks. Some speakers habitually speak faster than others under relatively the same conditions. Female speakers are said to speak faster than male speakers. Emotions like excitement tend to increase the speaker's characteristic rate of speaking. On the other hand, deliberate and careful attitude tends to decrease it. Hesitation[2], while not necessarily increasing or decreasing the rate of speaking, tends to make the speaker pause wherever hesitation occurs. Finally, the occasion on which one speaks also appears to condition the speed of speaking. In this case, the speed of speaking probably depends on the degree of formality of the occasion. The more formal the occasion the less likely for the speaker to speak fast.

Thus, it is assumed that in the case of a pause that is not discourse final, whether it is realised by cessation of speech or not is non-syntactically conditioned, and will not be discussed further since it lies beyond the scope of this volume. It is also assumed that when a pause is not realised by cessation of speech, the listener can still identify one psychologically on the basis of phonological or syntactic-semantic cues, or both. Phonetically, a pause may be identified without a silent interval:

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[1] The terms "final pause" and "tentative pause" are adopted from Pike (1963).

[2] Cessation of speech due to hesitation is excluded from consideration because they are syntactically irrelevant. For types of hesitation in English, see Maclay and Osgood (1959).

> Instead of a gap in the speech, a complete cessation, there
> may be a lengthening of the last sound or two of the preceding
> word. This length takes up the same time as the physical
> pause would have done; ... the elongation for the equivalent
> of pause is accompanied by a considerable weakening of the
> strength of the sounds, and it is this weakness of sound plus
> the length which can substitute for the physical pause in the
> tentative pause phoneme.[1]

A phonetically unrealised pause is still presumably identifiable on the basis of the information supplied by the syntactic and the semantic components. Syntactically, a cessation of speech as a realisation of the tentative pause optionally occurs between the topic and the comment as in (131), and/or between any two sub-constituents of the topic as in (132). When no cessation occurs, native listeners will still know that a cessation could have occured at those points, and may therefore "hear" the tentative pause sans benefit of any phonetic cue.

(131) Guru sayá baik sekáli.
2-   33$_r$/ 2-   3 1$_f$ #
teacher my nice very
'My teacher is very nice.'

(132) Mereká kemarín tidak dátang.
2- 33$_r$ / 2- 33$_r$ / 2-   3 1$_f$ #
they yesterday not come
'Speaking of them, as for yesterday, they did not come.'

Tentative pauses, when they are realised as silent intervals in the actual speech, vary in length. In general, the duration of tentative pauses is shorter than sentence-final pauses which are not also discourse-final pauses. Sentence-final pauses which are not also discourse-final pauses will be referred to as *discourse medial pauses*.

There are no ways of specifying the duration of sentence final pauses which are also discourse final pauses because it cannot be predicted when or whether another discourse, if any, is going to begin. We can perhaps at best say that if a discourse ends with leave-taking greetings, the following discourse with the same discourse participants will likely begin when these same participants come into contact again, either directly (that is, face to face) or indirectly through such media as telephones.

Table 9 shows the duration range of tentative pauses and that of final pauses (that is, discourse medial pauses). The duration of sentence tentative pauses ranges from 3 to 100 milliseconds, and that of discourse medial pauses ranges from 11 to 200 milliseconds. More

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[1]Pike (1963:31). cf. Pané's alun penghubung *'connecting wave'* described in Chapter II).

significant, however, is the fact that 90.8 percent of the sentence
tentative pauses range from 3 to 50 milliseconds, and that 88.6 percent
of the discourse medial pauses range from 51 to 200 milliseconds. In
general, then, sentence tentative pauses are shorter than discourse
medial pauses.

TABLE 9 DURATION OF PAUSES		
Duration (msec.)	Tentative Pause (%)	Final Pause (Discourse Medial) (%)
3-10	24.5	0.0
11-20	25.2	2.9
21-30	18.4	2.9
31-40	14.1	2.9
41-50	8.6	2.9
51-60	5.5	8.6
61-70	2.5	11.4
71-80	0.0	20.0
81-90	0.6	8.6
91-100	0.6	20.0
101-200	0.0	20.0

4.3.2.4. *Contours*

By contour is meant the configurational entity made up of pitch pat-
tern, pitch movement, and one (and only one per contour) accent. This
accent may be nullified, depending on whether it is a nuclear accent or
a non-nuclear accent.

In its underlying form, a contour consists of a *pre-contour* and *a
primary contour*. The former differs from the latter in two ways:
First, a contour must contain a primary contour (except the contour
symbolised by 211_f) but it may or may not contain a pre-contour in its
phonetic representation. When it does, however, the pre-contour always
precedes the primary contour. Second, only the primary contour can
contain an accent.

A pre-contour, when realised, starts with the beginning pitch level
of the total contour (i.e. pre-contour plus primary contour), that is,
with PL2, and ends where the pitch rises to PL3. In other words, a

realised pre-contour is manifested by a relatively level PL2. Further-
more, a pre-contour is realised only when and if the first syllable of
the total contour is unaccentuated, and the total contour contains a
primary contour. The pre-contour, when realised, is expounded by at
least one syllable. The maximum number of syllables which may expound
a pre-contour appears to be limited by non-syntactic factors: First,
it appears to be limited by the articulatory possibilities of man. The
larger the number of syllables expounding the pre-contour, and there-
fore the longer it is, the more apt it is for the speaker to pause for
inhalation. Second, the length of the pre-contour (and therefore also
the length of the total contour) also appears to be limited by semantic
considerations. The longer the contour the more likely it is for the
meaning to be unclear. By way of illustration, (133) exemplifies a
contour with the pre-contour expounded by fourteen syllables. Figure
(15) is a mingographic tracing of (133).

(133) Anak adik kawan guru kepala saya iní.
       2-   33$_r$/
       child brother friend teacher head I this
       'The child of the brother of the friend of this head teacher
       (i.e. principal) *of mine.'*

Now, if the first syllable of the total contour is accentuated, the
pre-contour is not realised. If the precontour is not realised, then
the total contour consists of a primary contour only. Compare, for
example the second contours of (134) and (135). In (134) the contour
relatable to the comment buku apa *'what book'* consists of a pre-contour
carried by buku *'book'*, which begins and ends

(134) Itú buku ápa?
       233$_r$/2-   31$_f$#
       that book what
       'As for that (one), what book is it?'

(135) Itú búku.
       233$_r$/231$_f$#
       that book
       'As for that (one), it is a book.'

with PL2, and a primary contour carried by ápa *'what'*. On the other
hand, the second contour of (135) begins with the accent on the first
syllable of búku *'book'*. Consequently, it contains a primary contour
only, and no pre-contour. In other words, the pre-contour is not
realised. Thus the underlying búku with the contour 231$_f$ is phonetically
expounded by the contour 31$_f$. Figure (16) displays mingographic
tracings of (134) and (135).

FIGURE 15

A mingographic tracing of
anak adik kawan guru kepala saya ini
2-   33r/

Millimeters

Time: 100 mm/sec.
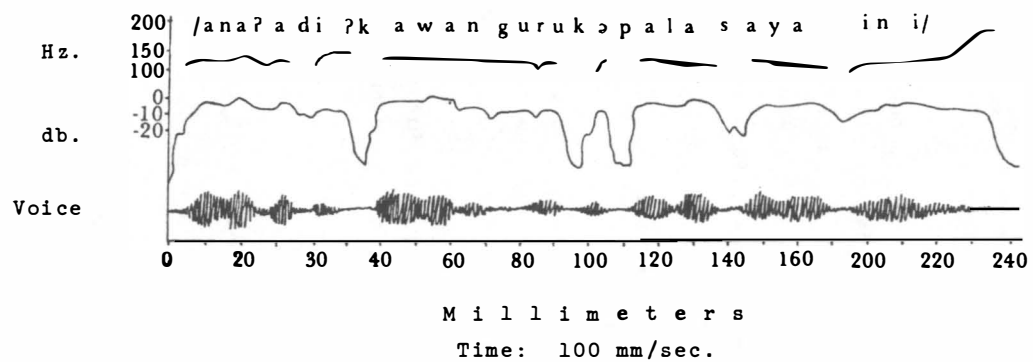
FIGURE 16

Mingographic tracings of

(A) Itú buku ápa?
     233ᵣ/2-   31f#
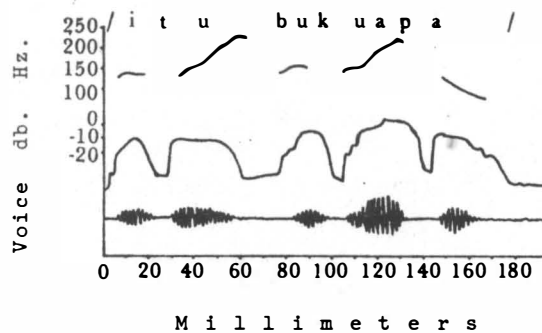
(B) Itú búku.
     233ᵣ/231f#

Time: 100 mm/sec.
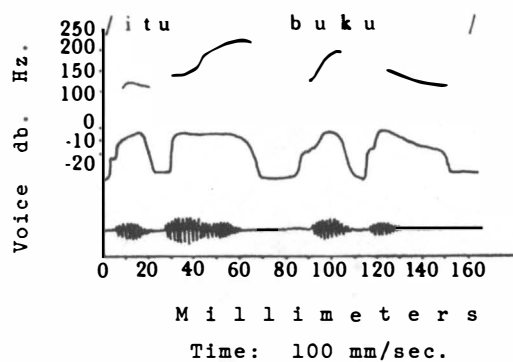
A primary contour begins where the preceding precontour, if any, ends; that is, at the point where the pitch rises to PL3 (see Figure 15). Since PL3 is the primary cue or defining feature of IN accent, a primary contour begins with its accentuated syllable. The primary contour ends with the final pitch level and the terminal pitch movement of the contour, thus with 33_r, 32_f, or with 31_f.

It has been shown (4.3.2.2.) that the category topic is unaccentuated when it is not focalised. This means that the contour relatable to the topic of the sentence under attention contains no primary contour. And because there is no primary contour, there is no pre-contour. Contours of this type are referred to as *reduced contours*. A reduced contour, then, begins with PL2, and gradually lowers to PL1 and stays on relatively level PL1 until it reaches its terminal pitch; that is, the end of the contour. In short, it is represented by 211_f as illustrated by itu *'that'* of (136), of which the phonetic realisation is displayed by Figure 17.

(136) **Buku ápa itu?**
       2- 32_f / 211_f#
       book what that
       'What book is that?'

FIGURE 17

A mingographic tracing of
Buku ápa itu?
2- 32_f/211_f#

/b u k u   a p a   i t u   /

Voice db. Hz.

250
200
150
100
0
-10
-20

0   20   40   60   80   100   120   140   160   180

M i l l i m e t e r s
Time: 100 mm/sec.
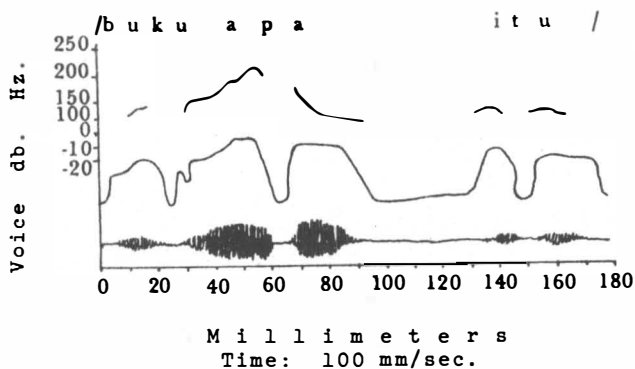
4.3.2.5. *Pause-groups*

A pause-group consists of one contour, which is in turn made up of a pre-contour and a major or primary contour, and the pause following the contour. It has been indicated (4.3.2.3.) that the term 'pause' in this study does not include cessation of speech due to hesitation, or cessation of speech due to the need for inhalation on the part of the speaker. Therefore, the term 'pause-group' excludes segments of intonation delimited by non-syntactically relevant cessation.

A pause-group begins with the initial pitch of its contour, and ends with the pause following the contour. Because a pause may or may not be phonetically realised (see 4.3.2.3.), the pause-group may or may not be realised in its phonetic representation. If realised, the pause-group ends with cessation of speech. If not realised, the pause-group can be identified by the listener on the basis of phonological cues, and also on the basis of the information supplied by syntax (cf. 4.3.2.3. above).

In its underlying form, the intonation pattern of a given sentence consists of two (at least two) or more pause groups of which the last one in the sequence terminates with a final pause, and the rest with tentative pause(s).

The number and the position[1] of the pause-groups within a given intonation pattern are determined by the syntactic structure of the sentence whose intonation pattern is under attention. The placement of accent[2] within each of these pause-groups is dependent on the position of the pause-groups relative to each other. Suffice it to point out, by way of illustration, at this stage of our discussion that the intonation pattern of such sentences as (137) contains two pause-groups relatable to the two (surface) syntactic constituents: (1) focalised Subject-as-topic (kopi ini *'this coffee'*), and (2) comment (masih panàs *'still hot'*).

(137) Kopi ini masih pánas.
       2-   33$_r$/ 2-   3 1$_f$#
       coffee this still hot
       'As for this coffee, it is still hot.'

If the Subject-as-topic of (137) is defocalised (that is, not focalised) as in (138), the same number of underlying pause-groups remains. Notice, however, that the pause-groups of (137) and their

___

[1] cf. Halliday's "tonality", which refers to "the distribution into tone groups - the number and location of the tone group boundaries [within an IP]" (1967:18).

[2] cf. Halliday's "tonicity" which is defined as "the placing of tonic syllable ... - the location, in each tone group, of the pretonic and tonic sections" (1967:18).

corresponding pause-groups in (138) differ in their contours: kopi ini *'this coffee'* expounds 233_r in (137), but 211_f in (138), whereas masih panas *'still hot'* expounds 231_f in (137), but 232_f in (138). The change in contour is accounted for by the change of the sequential positions of the two pause-groups.

(138) Masih pánas kopi ini.
      2-   3 2_f / 2 11_f #
      'This coffee is still hot.'

That an intonation pattern may contain more than two pause-groups may be illustrated by such sentences as (139), in which there are four pause-groups, and these are relatable to four syntactic constituents. These are (1) focalised Subject-as-(primary) $topic_1$ (Doni), (2) focalised Modal-as-$topic_2$ (kemarin *'yesterday'*), (3) focalised Locative-as-$topic_3$ (di sekolah *'at school'*), and (4) comment (main bola *'played ball'*), respectively. The position of these pause-groups changes, and

(139) Doní kemarín di sekoláh main bóla.
      $2\text{-}33_r$/2- 33_r / 2- 33_r / 2-   3 1_f#
      Doni yesterday at school play ball
      'As for Doni, as for yesterday, while at school, he played ball.'

therefore their contours change accordingly, if retraction is applied to all of the topics as in (140), to $topic_1$ only as in (141), to $topic_2$ only as in (142), to $topic_3$ only as in (143), to $topic_1$ and $topic_2$ as in (144), to $topic_1$ and $topic_3$ as in (145), and to $topic_2$ and $topic_3$ as in (146).

(140) Main bola Doni kemarin di sekolah.
      2-   3 2_f/ 211_f/ 211_f 211_f #
      'Playing ball was what Doni did yesterday while at school.'

(141) Kemarín di sekoláh main bóla Doni.
      2- ˙33_r/ 2- 33_r/ 2-   3 2_f/ 211_f#
      'As for yesterday, while at school, playing ball was what Doni did.'

(142) Doní di sekoláh main bóla kemarin.
      'As for Doni, while at school, playing ball was what he did yesterday.'

(143) Doní kemarín main bóla di sekolah.
      $2\text{-}33_r$/2- 33_r/ 2-   3 2_f/ 211_f #
      'As for Doni, as for yesterday, he played ball while at school.'

(144) Di sekoláh main bóla Doni kemarin.
      2- 33_r/ 2-   3 2_f/ 211_f/ 211_f #
      'While at school, playing ball was what Doni did yesterday.'

(145) Kemarín main bóla Doni di sekolah.
     2- 33$_r$/ 2-   3 2$_f$/ 211$_f$/ 211$_f$ #
     'As for yesterday, playing ball was what Doni did while at school.'

(146) Doní main bóla kemarin di sekolah.
     2-33$_r$/2-   3 2$_f$/ 211$_f$ / 211$_f$ #
     'As for Doni, playing ball was what he did at school yesterday.'

A differentiation is made between unrealised pause-groups and deleted pause-groups. Unrealised pause-groups are those pause-groups which, for non-syntactic reasons (4.3.2.3.), are not phonetically represented. A pause-group is said to be unrealised if its delimiting pause is not represented by cessation of speech. Thus, for example, (140) may be phonetically represented by (147), where the whole intonation pattern of the sentence consists of only one phonetic pause-group. That is, there is only one pause, which is a final pause, and the pitch of the primary contour gradually falls down to PL1, beginning with the syllable -la of bola *'ball'* and then remains (of course with some non-

(147) Main bóla Doni kemarin di sekolah.
     2-   3 1$_f$ #
     'Playing ball was what Doni did yesterday while at school.'

distinctive pitch variations along the way) on PL1 until it reaches the end of the contour. Three of the (underlying) pause-groups of (140) are not phonetically represented in (147). Unrealised pause-groups following a primary contour might be regarded as resulting in *phonetic post-contour.*

Deleted pause-groups, on the other hand, are syntactically accountable. That is, a pause-group is deleted if the syntactic constituent to which it is relatable is deleted. It has been shown (dialogue (103)) that any syntactic constituent, except the comment, of a IN sentence may be deleted on the terminal surface structure level if this constituent has been mentioned earlier in the discourse of which the sentence is a segment, or if the constituent is *understood*, that is, for example, the referent of the constituent is specified by the non-linguistic context in which the discourse under attention takes place. Thus, the first pause-group of (139) is deleted if topic$_1$ (Doni) is deleted because, let us say, it has been mentioned earlier. This changes (139) to (148). If the discourse is about what Doni did yesterday, then both Doni and kemarin *'yesterday'* may be deleted, resulting in (149). If the discourse is about what Doni has done at school, then both Doni and di sekolah *'at school'* may be deleted, producing (150). And if the discourse of which (149) is a segment takes place at Doni's school,

then (151) is generated by applying deletion to Doni, kemarin *'yesterday'*, and di sekolah *'at school'*.

(148)   Kemarín di sekoláh main bóla.
        2- 33_r / 2- 33_r / 2-   3 1 #
        'As for yesterday, while at school, he played ball.'

(149)   Di sekoláh main bóla.
        2- 33_r / 2- 31_f #
        'While at school, he played ball.'

(150)   Kemarín main bóla.
        2- 33_r / 2- 21_f #
        'As for yesterday, he played ball.'

(151)   Main bóla.
        2- 31_f #
        'He played ball.'

4.4.   INTONATION AND SYNTAX

Let us now return to the earlier contention (4.3.) that the phenomena of intonation and its relation to syntax constitute another gap (the other gap being the treatment of interrelations of sentences in discourse) in current transformational theory. It is assumed that the speaker-hearer's linguistic competence includes his ability to recognise the relations between intonation and syntax, and his ability to utilise this recognition in generating his sentences. Therefore, the phenomena of intonation and its relation to syntax must be accounted for.

Chomsky and Halle (1968) exclude intonational phenomena from their consideration because:

> we have nothing to add to the study of the phonetics of intonation and have not yet attempted to deal with the still quite open question of the systematic role of pitch contours or levels within the general framework of syntactic and phonological theory as we so far understand it (p.ix).

Furthermore, according to Chomsky and Halle, the intonational structure of such English sentences as (152), represented here by (153), does not correspond to its syntactic surface structure (that is, to the three noun phrases bracketed), and is "a matter of performance limitations rather than of grammatical structure", and therefore does "not belong to grammar - to the theory of competence - at all" (p.372).

(152)   *'This is [the cat that caught [the rat that stole [the cheese]]]'*

(153)   *'This is the cat / that caught the rat / that stole the cheese#'*

On the other hand, Stockwell (1960) recognises that intonation and its relation to syntax must be accounted for on some level of abstraction when he states that:

> Chomsky's rules do not at present generate intonation patterns as elements in terminal strings, nor do they show the optional and obligatory choices of intonation patterns that are available with any given sequence of formatives (p.360).

Note, furthermore, Lieberman (1967), who analyses intonation in terms of two features: (1) breath-group, and (2) prominence. He states that:

> people actually produce, perceive, and use some aspects of intonation as a linguistically referenced signal in terms of these features. The features thus characterize some aspects of human linguistic competence (p.1).

and that:

> intonation has a central, rather than a peripheral, status and that it must be the product of an innate, rather than an acquired, mechanism. Thus it should have a similar status in all languages (p.2).

However, Lieberman appears to consider the use of intonation primarily as a performance phenomenon; that is, as a device for disambiguation:

> It is only when the speaker is trying to disambiguate the sentence that he will consistently segment smaller constituents by means of intonation.... It is only when ambiguity arises that intonation becomes important. A speaker will normally not bother to divide a sentence into breath-groups because it is usually not necessary (pp.124-125).

It seems obvious that the difficulty of current transformational grammar in treating intonational phenomena is due to the fact that it does not take into account sentences and their interrelations in discourse. It has been shown earlier that such intonational phenomena as the placement of nuclear accent, which indicates the novel point of information in a given sentence, depends on its context. That is, for example, on the preceding sentence or sentences within the same discourse. Thus, Vanderslice (1968) states:

> the chief barrier to a recognition of the patterning of prosodic features is that it typically manifests itself in discourse segments of greater than sentence length. The difficulty of coping with supra-sentential phenomena within the framework of transformational theory has long been recognised (pp.4-5).

It is therefore necessary to set up a device within the theory so that intonation and its relation to syntax can be specified in some explicit way. This device, which is called "prosodic component" by Vanderslice, is here referred to as the intonational sub-component of the phonological

component. It accounts for the relations between intonational
phenomena and syntax by providing rules which specify the intonational
patterns of sentences in discourse.

There are two relations that concern us in this volume: (1)
intonation and sentence mode, and (2) intonation and topic-comment
constructions.

4.4.1. Intonation and Sentence Mode

Under the heading of sentence mode are declarative, narrative,
optative, negative, imperative, interrogative, etc.[1] The present study
is limited to three sentence modes: (1) declarative, (2) interrogative,
and (3) imperative, illustrated by (154), (155), and (156) respectively.

(154) Mereká sudah berángkat.
       2- $33_r/2-$ 3 1_f #
       they   already leave
       'As for them, they have left.'

(155) Mereká sudah ke mána?
       2- 33_r / 2-   3 1_f#
       they   already to where
       'As for them, where have they gone?'

(156) Saudará berangkátlah!
       2- $33_r/2-$ 3 1_f #
       you   leave (imp.)
       'As for you, please leave (i.e. take off).'

Syntactically, the mode of a given sentence is indicated by its
comment, which contains the novel point of information about the topic
of the sentence. Since the syntactic constituent comment is relatable
to the pause-group containing a nuclear accent (hereinafter will be
referred to as *nuclear pause-group*), we may say that the mode of a
sentence is intonationally relatable to the nuclear pause-group.

It was indicated in Chapter II that there is no evidence in support
of the contention of such scholars as Alisjahbana (2.2.5.), Pané (2.2.6.),
and Fokker (2.2.7.) that in IN there is a one-to-one correspondence
between intonation (that is, nuclear pause-groups) and sentence modes.
Notice, for example, that in items (154), (155), and (156) the same
intonation pattern occurs with declarative, interrogative, and impera-
tive modes respectively.

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[1]See, for example, Nida (1963:168-169).

4.4.1.1. *Declarative Mode*

Declarative sentences with one or more topics present (that is, not deleted) have three syntactically specifiable intonation patterns:

(1) One or more pause-groups whose contour is 233_r, followed by one pause-group whose contour is 231_f. This may be symbolised as: $233_r/ \ldots (233_r/) \, 231_f\#$

(2) One pause-group whose contour is 232_f, followed by one or more pause-groups whose contour is 211_f. This may be symbolised as: $232_f/(211_f/) \ldots 211_f\#$

(3) One or more pause-groups whose contour is 233_r, followed by one pause-group whose contour is 232_f, which is in turn followed by one or more pause-groups whose contour is 211_f. This may be symbolised as: $233_r/ \ldots (233_r/) \, 232_f/ \, (211_f/) \ldots 211_f\#$

The intonation pattern symbolised by $233_r/ \ldots (233_r/) \, 231_f\#$, hereinafter will be referred to as IP_1, is relatable to such sentences as (157) and (158), where the topics are focalised. IP_1 specifies that if focalised, the topic (or, each of the topics if there are two or more) is intonationally 233_r followed by a tentative pause, and the accent, which is non-nuclear, falls on the final syllable of the pause-group. The comment is intonationally 231_f followed by a final pause

(157) Rumáh máhal.
      2 33_r / $231_f\#$
      house expensive
      'As for houses, they are expensive.'

(158) Rumáh sekaráng máhal.
      2 33_r / 2 33_r / $231_f\#$
      house now   expensive
      'As for houses, as of now, they are expensive.'

(or, a discourse medial pause), and the accent, which is nuclear, falls on the penult of the pause-group.

If the topic of (157) and the topics of (158) are not focalised, the results are (159) and (160) respectively. The concomitant intonation changes are therefore relatable to the transformation processes

(159) Máhal rumah. (Topic retracted)
      232_f / 211_f #
      'As for houses, they are expensive.'

(160) Máhal rumah sekarang. (Topic retracted.)
      232_f / 211_f / 211_f #
      'As for houses, as of now, they are expensive.'

involved in changing (157) to (159), and (158) to (160). Thus, the

intonation pattern symbolised by $232_f/(211_f/)$ ... $211_f\#$ is a syntactically conditioned variant of IP_1. For the same reason, the intonation pattern symbolised by $233_r/$ ... $(233_r/) \, 232_f/ \, (211_f/)$ ... $211_f\#$, and

(161) Sekaráng máhal rumah. (Topic$_1$ retracted.)
       2- 33$_r$ / 232$_f$ / 211$_f$ #
       'As of now, houses are expensive.'

exemplified by (161), is a syntactically conditioned variant of IP_1. For comments on the intonational differences between (158), (160) and (161), see the earlier discussion in relation to (135) and (136), to (137) and (138), and to (139) through (146).

4.4.1.2. *Interrogative Mode*

There are two types of interrogative (or, question) sentences, depending on the kind of answer expected or required. The first type is manifested by interrogative sentences that require or expect the addressee to either conform or deny the question. This type is traditionally called *yes-no questions*. The second type is manifested by interrogative sentences that require or expect the addressee to supply the questioner with information other than confirmation or denial. This type is sometimes called *information questions*.

Yes-no questions in IN are generated in one of three ways: (1) by using the question indicator apa with or without the interrogative suffix -kah, (2) by using the interrogative -kah[1], and (3) by using intonation.

First, the question indicator apa is positioned either immediately before the item representing the point in question, or at the very end of the sentence. For example:

(162) Apa rumáh sekaráng máhal?
       2-   33$_r$ / 2-   33$_r$ / 231$_f$ #
       QI house   now   expensive
       'Speaking of houses, are they expensive now?'

(163) Rumáh apa sekaráng máhal?
       2-33$_r$ / 2-   33$_r$ / 231$_f$ #
       house QI now   expensive
       'As of this moment, are houses expensive?'

---

[1]The choice between apa, apakah and -kah appears to be conditioned by the degree of formality and familiarity of the conditions under which a discourse takes place, rather than by any syntactic considerations. The less formal and the more familiar the conditions, the more likely for apa to occur. This seems to be the case with the present data, which is made up of discourses under informal and familiar conditions. Therefore, only apa (that is, without -kah) will be considered in most of the examples.

(164) Rumáh sekaráng apa máhal?
       2-33$_r$ / 2-   33$_r$ / 2-   3 1$_f$#
       house now   QI   expensive
       'As for houses, as of now, are they really expensive?'

(165) Rumáh sekaráng máhal apa?
       2-33$_r$ / 2-   33$_r$ / 232$_f$ / 211$_f$#
       house now   expensive QI
       'As for houses, as of now, are they expensive?'

In any case, notice that the question indicator apa is never accentuated. Compare, for example, the question indicator (QI) apa in (166) with the question word (QW) apa in (167).

(166) Orang itú sedang mínum apa?
       2-   33$_r$ / 2-   3 2$_f$ / 211$_f$#
       man   that PROG.   drink QI
       'Is that man drinking?'

(167) Orang itú sedang minum ápa?
       2-   33$_r$ / 2-   31$_f$#
       man   that PROG.   drink what
       'What is that man drinking?'

Second, the interrogative suffix -kah, when not suffixed to apa, is suffixed to the constituent comment, never to the topic or topics of the sentence. Thus, while (168) is well-formed, (169) and (170) are not.

(168) Rumáh sekaráng mahálkah?
       2-33$_r$ / 2-   33$_r$ / 2-3 1$_f$ #
       house now   expensive
       'As for houses, as of now, are they really expensive?'
       ((168) is an equivalent of (164))

(169) *Rumahkáh sekaráng máhal?
        2- 33$_r$ / 2-   33$_r$ / 231$_f$ #

(170) *Rumáh sekarangkáh máhal?
        2-33$_r$ / 2-   33$_r$ / 231$_f$#

Of course, (168) is not to be confused with (171) because in

(171) Rumáhkah sekarang mahal?
       2 3 2$_f$ / 211$_f$ / 211$_f$ #

the latter rumah 'house' is the comment, and sekarang 'now' as well as mahal 'expensive' are the (unfocalised) topics, whereas in (168) mahal 'expensive' is the comment, and rumah 'house' and sekarang 'now' are the (focalised) topics. The meaning of (171) is roughly 'As of now, are houses the things that are expensive?'

Third, some yes-no questions are signalled by intonation. The syntactic structure of the sentence under attention is kept as in its declarative mode; its interrogativity is signalled by its intonation pattern (IP_2), which may be symbolised as: $233_r/$ ... $(233_r/)$ $2_f31_f\#$. (Note that the final fall is preceded by another fall, which occurs on the penult).

Consider, for example, (172), which is a deletion transform of such sentences as (173). The intonation pattern of (172) consists of one pause-group containing a contour which is made up of a pre-contour and

(172)   Jam   tujuh   pagí?
           2- $_f31_f\#$
           o'clock seven morning
           'At seven o'clock in the morning?'

(173)   Datangnyá   jam   tujuh   pagí?
           2- 33_r / 2- $_f31_f\#$
           arrival his o'clock seven morning
   'As for his arrival, is it at seven o'clock in the morning?'

a primary contour. The pre-contour (PL2) is expounded by jam tujuh *'seven o'clock'*. The primary contour is expounded by pagi *'morning'*. The (nuclear) accent falls on the final syllable (-gi) rather than on the penult (pa-) of the last word of the pause-group (pagi). However, the pitch falls slightly (almost but not quite reaching PL1) on the syllable preceding the accentuated syllable. That is, the pitch falls slightly (on pa- of pagi *'morning'*) before it abruptly rises to PL3 and terminally falls again to PL1 on -gi of pagi. Thus the primary contour is 31 with *double falls*, one before the rise, and the other after the rise to PL3. This is symbolised by $_f31_f$. Figure 18 displays a mingographic tracing of (172). Furthermore, there is another difference between IP_1 and IP_2. We may recall that with IP_1, if the topics of say (164) is retracted, the resulting intonation pattern is as in (173). That is, both topics (rumah *'house'* and sekarang *'now'*) expound reduced pause-groups. On the other hand, if the topic of (173), which is datangnya *'his arrival'*, is retracted, the resulting intonation pattern is not (174), but (175). That is, the *double-fall* terminal contour is expounded by both the topic and the comment.

(173)   Apa máhal rumah sekarang?
           2-   3 2_f / 211_f / 211_f #
           QI *expensive house now*
           'As for houses, as of now, are they really expensive?'

(174)   *Jam tujuh pagí datangnya?
         2- $_f32_f$/211_f #

FIGURE 18

Mingographic tracing of
Jam tujuh pagí?
$2- \quad _f31_f^\#$

Millimeters
Time: 100 mm/sec.
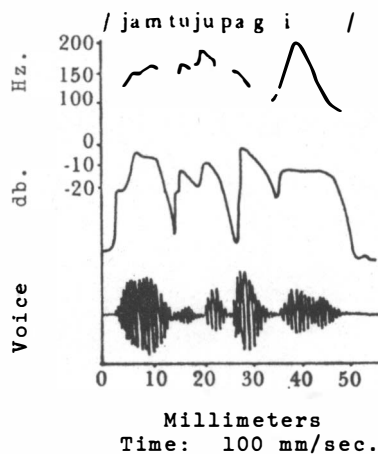
(175) Jam tujuh pagí datangnyá?
$2- \qquad _f32_f/2- \quad _f31_f^\#$

This intonation pattern (IP$_2$), of which the nuclear pause-group con-
tains the primary contour symbolised by $_f31_f$, is the only intonation
pattern which is exclusively relatable to the interrogative mode.

The second type of interrogative sentences require the use of such
question words (QW) as apa *'what'*, siapa *'who'*, di mana *'at where'*,
berapa *'how much/many'*, kepan *'when'*, etc., depending on the point in
question. Since these question words seek new point of information, it
is logical that they fill (either alone or with other items) the slot
of the comment of the sentence under attention. Consequently, they
expound the nuclear pause-group of the intonation pattern. The follow-
ing are some examples.

(176) Itú ápa?
$233_r/231_f^\#$
that what
'As for that, what is it?'

(177) Itú buku ápa?
$233_r/2- \quad 31_f^\#$
that book what
'As for that, what book is it?'

110

(178) Itú siápa?
$233_r/2 \quad 31_f\#$
that who
'As for that, who is it?'

(179) Itú buku siápa?
$233_r/2- \qquad 31_f\#$
that book who
'As for that, whose book is it?'

(180) Rumahnyá di mána?
$2- \quad 33_r / 2- \quad 3 \, 1_f\#$
house his at where
'As for his house, where is it?'

(181) Anak saudará berápa?
$2- \qquad\quad 33_r/2-31_f \ \#$
child you how many
'As for your children, how many are there?'

(182) Datangnyá kápan?
$2- \quad 33_r/ \ 231_f \ \#$
arrival his when
'As for his arrival, when is it?'

Notice that the intonation pattern of information questions is consistently IP_1. The rule that unfocalised topics expound pause-groups with reduced contours ($233_r \rightarrow 211_f$) applies to (176) through (182).

Thus, there is no evidence in support of assertions of such scholars as Alisjahbana that the intonation pattern of IN interrogative sentences is rising rather than falling.[1] In IN rising intonation patterns are syntactically irrelevant. They do signal the speaker's emotional and attitudinal involvement. That is, they signal, for example, that the speaker is personally interested in making a good contact with the addressee. Thus, rising intonation patterns are found not only in interrogative, but also in declarative as well as in imperative sentences in IN. Consider, for example, the following:

(183) Ibú ada di rúmah.
$233_r/2- \qquad 3 \, 3_s \ \#$
Mother is at home
'As for mother, she is at home.'

(184) Ibú ada di rúmah?
$233_r/2- \qquad 3 \, 3_r \ \#$
'As for mother, is she at home?'

---

[1] cf. the findings of Fries (1964) concerning the intonation pattern of (American) English yes-no questions.

(185) Mau ke mána?
      2-   3 3$_s$#
      want to   where
      'As for you, where are you going?'

(186) Silahkan másuk!
      2-   3 3$_s$ #
      'Please come in!'

4.4.1.3. *Imperative Mode*

The imperative mode is generated either with or without the imperative suffix -lah. In either case, the nuclear accent falls on the final syllable of the verb-base to which the imperative suffix -lah may be suffixed. Apart from that, the intonation pattern is IP$_1$. For example, note the following:

(187) Pergí!
      2-31$_f$#
      'Go!'

(188) Pergílah!
      2- 3 1$_f$#
      'Go!'

(189) Buku itú bacálah!
      2-   33$_r$/ 2-3 1$_f$ #
      book that read
      'As for that book, read it!'

(190) Bacálah buku itu! (Topic unfocalised)
      2- 3 2$_f$ / 211$_f$ #
      'As for that book, read it!'

Notice that intonation alone does not automatically indicate the imperativity of the sentence. There must be some lexical information. That is, the imperative mode is achieved only if the base to which -lah may be suffixed is a word with the feature [+verb]. Thus, while makánlah (← makan *'eat'* + -lah) is imperative, rumahlah (← rumah *'house'* + -lah) is not. It can be concluded, then, that there is no evidence that there is a one-to-one correspondence between intonation patterns and sentence modes. The nuclear contour 31$_f$ is found to occur in declarative, interrogative as well as in imperative sentences. The only nuclear contour that is exclusively relatable to one specific mode (i.e. interrogative) is the contour $_f$31$_f$.

4.4.2. Intonation and Topic-Comment Relations

It is assumed that the phenomena of topic versus comment are syntactic surface structure phenomena, which can be accounted for by taking into consideration information from the semantic component and from the interrelations between the sentence under attention and its preceding sentence or sentences within the same discourse.
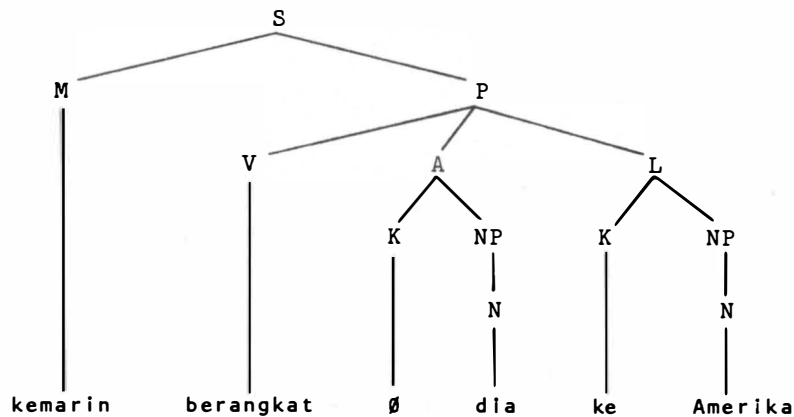
The treatment of the phenomena of topic versus comment comes after subject-fronting and obligatory preposition-deletion transformations have been completed, but before the eventual actual phonetic representation is achieved. This is precisely the point in the generative-transformational process where, in IN, the intonational sub-component of the phonological component is activated. That is, it is at this point that intonation is especially relevant and therefore relatable to the syntactic structure of the sentence. For, in IN, the relations between topic and comment are signalled by intonation, and not by such syntactic devices as word-order. The word-order of a given sentence may remain constant, while the topic-comment relations change. Consider, for example, (191), whose deep structure is represented by (192). Notice that (191) is generated by applying subject-fronting to the Agentive case (dia *'he'*), by deletion of all case-markers (prepositions) except the preposition ke *'to'* of the Locative case (Amerika *'America'*), and by defocalisation of the Modality (kemarin *'yesterday'*). Which constituent of (191) functions as topic, and which as comment are dependent on the context. That is, either on the preceding sentence or sentences, or on the non-linguistic environments in which the discourse of which (191) is a segment takes place. The relations between

(191) Dia berangkat ke Amerika kemarin.
       he   leave   to America yesterday
       'He left for America yesterday.'

the topic and the comment are specified by means of intonation. It has been indicated earlier that topics are specified by the contour 233_r if they precede the comment, but by the contour 211_f if they follow the comment. The comment is intonationally signalled by the (nuclear) contour 231_f if it follows the topic(s), but by 232_f if it precedes the topics. Consider the following examples, which are generated from the same deep structure as (191).

(192)

```
                              S
                 _____/ _____
                M                          P
                |              _____/ | _____
                |             V            A              L
                |             |          /   \          /   \
                |             |         K     NP        K     NP
                |             |         |     |         |     |
                |             |         |     N         |     N
                |             |         |     |         |     |
             kemarin      berangkat    Ø    dia        ke   Amerika
```

(193) Diá berangkat ke Ameríka kemarin.
       233$_r$/2-   3 2$_f$/ 211$_f$ #
       'Speaking of him, as for yesterday, he left for America.'

(194) Dia berangkát ke Ameríka kemarin.
       2-   33$_r$/ 2-   3 2$_f$/ 211$_f$ #
       'Speaking of departures, as for yesterday, it was to America.'

(195) Dia berangkat ke Ameríka kemarin.
       2-   3 2$_r$/ 211$_f$ #
       'As for yesterday, he left for America.'

(196) Dia berangkat ke Ameriká kemárin.
       2-   33$_r$/2-3 1$_f$ #
       'As for his departure to America, it was yesterday.'

Notice that (193) through (196) have different topic-comment rela-
tions, but they are of identical syntactic organisation (that is, word-
order).[1] In (193), dia *'he'* and kemarin *'yesterday'* are the topics;
the former is focalised, but the latter is unfocalised. The item (193)
is likely to occur if the discourse of which it is a segment is about,
let us say, what everybody did yesterday. In (194), the topics are
dia berangkat *'he left'* and kemarin *'yesterday'*. The discourse of
which (194) is a segment is about what everybody did yesterday, and
his departure is either known from an earlier discourse or just men-
tioned in the same discourse. Now compare (195) with (196). In (195)

---

[1]According to Lieberman (1967:113), however, such English sentences as *the cat fell/
off the roof,* and *the cat / fell off the roof* are "stylistic variants that are pro-
duced by placing breath-groups on some of the constituents of the derived phrase-
marker". From the point of view of the present study, the two sentences cited are
not merely stylistic variants. They contrast in their topic-comment relations.
The cat fell / off the roof means something like *as for the fall of the cat, it was
off the roof*. That is, *the cat fell/* is the topic, and *off the roof* is the comment
of the sentence. On the other hand, *the cat/fell off the roof* means something like
as for the cat, it fell off the roof. That is, *the cat/* is the topic, and *fell off
the roof* is the comment of the sentence.

kemarin *'yesterday'* is the (unfocalised) topic (that is, the discourse is about yesterday's activity), and dia berangkat ke Amerika *'he left for America'* is the comment. On the other hand, in (196) it is dia berangkat ke Amerika that is the topic. That is, for example, everybody has heard and talked about it. Kemarin contains the new point of information, and thus functions as the comment.

Any representation of any one (or, more than one) constituent of the deep structure, except verbs with the feature [+transitive], may function as topic. The following are some examples.

(197) [Agentive-as-Subject]-as-Topic:
Ibú sedang bekérja.
$233_r/2-$ $3 \; 1_f \;\#$
mother PROG. *work*
'As for mother, she is working.'

(198) [Objective-as-Subject]-as-Topic:
Anjingnyá dipukulínya.
$2- \quad 33_r / 2- \quad 3 \; 1_f \;\#$
dog his PAS. *hit him*
'As for his dog, he beat it up.'

(199) Verb-as-Topic:
Bekerjá dia súka.
$2- \; 33_r / 2- \quad 3 \; 1_f\#$
work   he   *like*
'As for working, he likes it.'

(200) Modality-as-Topic:
Kemarín di síni.
$2- \; 33_r / 2- \quad 3 \; 1_f\#$
yesterday at here
'As for yesterday, it (that is, *whatever the discourse is about*) was here.'

(201) Locative-as-Topic:
Di Palembáng sering hújan.
$2- \qquad 33_r / 2- \qquad 3 \; 1_f \;\#$
in Palembang often   rain
'Speaking of Palembang, it often rains here.'

(202) Instrumental-as-Topic:
Dengan mobíl hanya satu jám.
$2- \qquad 33_r / 2- \qquad\qquad 31_f\#$
with   car   only   one   hour
'If by car, it takes only one hour.'

(203) [Subject and Verb]-as-Topic:

      Dia berangkát kemárin.
      2- 33_r/ 2-3 1_f #
      he   leave   yesterday
      'As for his departure, it was yesterday.'

(204) [Subject and Modality]-as-Topic:

      Dia kemarín bekérja.
      2- 33_r/ 2-3 1_f#
      he   yesterday work
      'As for what he did yesterday, he worked.'

(205) [Subject, Verb, and Object]-as-Topic:

      Dia membaca bukú kemárin.
      2- 33_r/2-3 1_f#
      he read   book yesterday
      'As for his reading a book, it was yesterday.'

(206) [Subject, Verb, Object, and Modality]-as-Topic:

      Dia membaca buku kemarín di sekólah.
      2- 33_r/ 2-   3 1_f #
      he read   book yesterday at school
      'As for his reading a book yesterday, it was at school.'

(207) [Subject, Verb, Object, and Locative]-as-Topic:

      Dia membaca buku di sekoláh kemárin.
      2- 33_r/ 2-3 1_f #
      he read   book at school   yesterday
      'As for his reading a book at school, it was yesterday.'

(208) (Imbedded) sentence-as-Topic:

      Doni bisa membacá menyenangkan kámi.
      2- 33_r/2-   3 1_f#
      Doni can read   please   we
      'As·for Doni's ability to read, it pleases us.'

    Notice that a verb with the feature [+transitive] together with its object, but not the verb alone, may function as topic. Thus, while (209) is grammatical, (210) is not.

(209) Membuat kué múdah.
      2- 33_r/231_f #
      make   cake easy
      'As for making a cake, it is easy.'

(210) *Membuát kue múdah.
       2- 33_r / 2-   3 1_f #

    Items (197) through (209) are examples of sentences with single topics. A B1 sentence may have multiple (that is, two or more) topics.

The relations between the topics of the same sentence are either co-ordinate or sub-ordinate. Co-ordinate topics are of equal rank or status. That is, they are independent of one another; each of them manifests one constituent of the deep structure. The order in which they occur in a sentence is a matter of primacy. The more important a topic (in the mind of the speaker), the earlier it occurs in the sequence. Sentences with co-ordinate topics are illustrated by the following.

(211) Subject and Modality as Topics:

Diá kemarín datang ke síni.
$233_r/2-$ $33_r/$ 2-   3 1_f#
he yesterday come   to here
'Speaking of him, as for yesterday, he came here.'

(212) Subject and Locative as Topics:

Diá ke siní kemárin.
$233_r/2-$ $33_r/2$-3 1_f #
he to here yesterday
'Speaking of him, as for his coming here, it was yesterday.'

(213) Subject and Verb as Topics:

Diá makán súdah.
$233_r/2$-$33_r/$ 231_f #
he eat   already
'Speaking of him, as for eating, he did (or, he already has).'

(214) Subject and Object as Topics:

Diá bukú sudah béli.
$233_r/2$-$33_r/2$-   3 1_f#
he book already buy
'Speaking of him, as for books, he has bought them.'

(215) Subject, Modality, and Locative as Topics:

Diá kemarín ke siní sendirían.
$233_r/2$- $33_r/2$- $33_r/2$- 31_f #
he yesterday to here alone
'Speaking of him, as for yesterday, when he came here, he was all by himself.'

(216) Subject, Locative, and Verb as Topics:

Diá di siní makán súdah.
$233_r/2$- 33_r / 2-33_r / 231_f #
he at here eat   already
'Speaking of him, while he was here, as for eating, he did (or, he already has).'

Unlike topics in co-ordinate relations, topics in sub-ordinate

relations (generally two in number within one sentence) are not
independent of each other. One is always an aspect or a part of, and
thus sub-ordinated to, the other. Consider the following examples.

(217) Rokók harganyá máhal.
$2-33_r$/ $2-$ 33_r/231_f #
cigarettes price its expensive
'Speaking of cigarettes, as for their price, it is expensive.'

(218) Rumah itú pintunyá báru.
$2-$ 33_r/ $2-$ 33_r/231_f#
house that door its new
'Speaking of that house, as for its doors, they are new.'

(219) Indonesiá Ibu kotanyá Jakárta.
$2-$ 33_r/$2-$ 33_r/ $2-$ 31_f #
Indonesia mother city its Jakarta
'Speaking of Indonesia, as for its capital city, it is Jakarta.'

In (217), harganya *'its price'* is an aspect, not a part, of rokok
'cigarettes'. Now, if the sub-ordinated topic is an aspect of the more
inclusive topic, then the sub-ordinated topic may be deleted without
basically changing the meaning of the sentence. Thus, (220) is an
equivalent of (217). The pair (221) and (222) is another example.

(220) Rokók máhal.
$2-33_r$/ 231_f #
cigarettes expensive
'As for cigarettes, they are expensive.'

(221) Buku Itú warnanyá mérah.
$2-$ 33_r/$2-$ 33_r/231_f #
book that colour its red
'Speaking of that book, as for its colour, it is red.'

(222) Buku Itú mérah.
$2-$ 33_r/231_f #
book that red
'As for that book, it is red.'

If, however, the sub-ordinated topic is a part, rather than an
aspect, of the more inclusive topic, the subordinated topic cannot be
deleted without changing the meaning of the sentence, or at least
without resulting in ambiguity. However, topics in sub-ordinate
relations may be combined into a possessive construction. Thus, (223)
and (224) are equivalents of (218) and (219) respectively.

(223) Pintu rumah Itú báru.
$2-$ 33_r / 231_f#
door   house that new
'As for the doors of that house, they are new.'

(224) Ibu kota Indonesiá Jakárta.
  2- 33_r / 2- 3 1_f#
  mother city Indonesia Jakarta
  'As for the capital city of Indonesia, it is Jakarta.'

It can be concluded, then, that the phenomena of topics versus comment and their relations in IN sentences can be accounted for only by means of intonation; that is, by the intonational (or, prosodic) sub-component of the phonological component.

CHAPTER V

SUMMARY AND CONCLUSION

It was stated in Chapter I that this thesis aims at presenting a partial solution to the problem of intonation in relation to syntax in Indonesian. It excludes non-syntactically motivated intonation (that is, intonation as a device for expression of attitudinal and emotional meaning). Specifically, this study attempts:

1. to characterise IN intonation in terms of such features as pitch-levels, contours, accent placement, pauses, and pause-groups, and

2. to specify the place of intonation in relation to syntax.

Chapter II surveys earlier works on IN non-segmental phonology. It was shown that almost all of the earlier works are inadequate because they deal only with word-accent and its distribution. Those that do deal with intonation (that is, beyond word-accent) are very superficial, and assume that there is a one-to-one correspondence between intonation patterns and such sentence-modes as declarative, interrogative, and imperative. We have seen (Chapter IV) that there is no evidence in support of this assumption. The contour symbolised by 231_f, for example, is found to be expounded by delcarative, inter-rogative as well as imperative sentences.

Chapter III characterises IN accent, and presents rules of accent placement. It was concluded that IN accent might be termed 'tonotem-poral' because its defining features are pitch and duration. The accent placement was accounted for by recognising the features 'un-marked' versus 'marked', 'base', versus 'non-base', and 'monosyllabicity' versus 'polysyllabicity'.

It was hypothesised in Chapter IV that the varieties of intonation can be accounted for by taking into consideration the following:

119

1. the syntactic structure of a given sentence, and its context (linguistic, or non-linguistic), and

2. the interrelations between the intonation (or, prosodic) sub-component of the phonological component and the syntactic component.

It was assumed that the speaker-hearer's (linguistic) competence includes not only his ability to recognise and generate idealised syntactically well-formed sentences (that is, sentences out of context), but also his ability to recognise the interrelations of sentences in discourse, and the motivation for certain syntactic processes such as deletion and inversion, as well as his ability to make use of this recognition in generating his sentences.

It was shown that the eventual syntactic surface structure of a given sentence depends not only on its deep structure but also on the structure of the preceding sentence or sentences within the same discourse. Deletion of such constituents of the sentence as the Agentive and the Objective cases may also depend on the non-linguistic environments in which the discourse of which the sentence under attention is a segment takes place. For example, the presence of the referent of the Agentive as addressee results in sentences like (225) rather than (226). Sentences like (227) and (229) rather than (228) and (230), respectively, are generated if the referent of the Objective case is present.

(225) Mau ápa?
  2- 31_f#
  want what
  'What do you want?'

(226) Saudará mau ápa?
  2- 33_r/2- 31_f#
  you   want what
  'What do you want?'

(227) Kamí mau mengúndang.
  2-33_r/2-   3 1_f #
  we   want invite
  'We would like to invite you.'

(228) Kamí mau mengundang saudára.
  2-33_r/2-   3 1_f#
  we   want invite   you
  'We would like to invite you.'

(229) Dia belum báca.
  2-   3 1_f#
  he not yet read
  'He has not read (it).'

(230) Buku iní dia belum báca.
     2- 33_r/2-   3 1_f#
book this he not yet read
'As for this book, he has not read it.'

Pike's concepts of 'particle', 'wave', and 'field' were found useful. Viewed as particles, intonation is characterised in terms of discrete units or features, with boundaries clearly defined. These are the underlying units or features of intonation. Viewed as waves, intonation is characterised as units with fuzzy and overlapping boundaries. This view allows for a description of the surface structure of intonation. The field perspective allows for a description of interrelations of the components of grammar; it allows, specifically, the interrelations between intonation and syntax.

Viewed as particles, IN intonation was characterised in terms of a hierarchy of units. These are, in descending order,

1. intonation patterns,
2. pause-groups,
3. contours, and
4. pitch levels, pauses, and accent.

An intonation pattern consists of one or more pause-groups. The number of pause-groups within one intonation pattern is to a certain extent dependent on the syntactic structure of the expounding sentence. On the other hand, these pause-groups are relatable to the categories 'topic' and 'comment', which in IN are not marked by such syntactic devices as word-order.

A pause-group may be either 'tentative' or 'final', depending on the pause which delimits it. A sentence final pause-group which is not also a discourse final pause-group is called 'discourse medial' pause-group. A pause is either 'tentative' or 'final'. A sentence final pause which is not also a discourse final pause is called a 'discourse medial' pause. In general, tentative pauses are shorter than discourse medial pauses. There is no way of specifying the length of discourse final pauses. A pause-group, furthermore, is characterised by its contour. The contour consists of an optional pre-contour and an obligatory primary (or, main) contour. It is the primary contour that contains accent (if there is an accent) and distinctive terminal pitch movement. Four contours were recognised: 231_f, 232_f, 233_r, and 211_f, where the initial digit 2 represents the pre-contour.

It was shown that three pitch levels needed to be recognised:

1. low pitch level (PL1),
2. mid or neutral pitch level (PL2), and
3. high pitch level (PL3).

These pitch levels are relative rather than absolute. PL2 is that
pitch level on which a pause-group, in its underlying or abstract form,
starts. It is relatively lower than PL3, but relatively higher than
PL1. PL3 is relatively but distinctively higher than both PL2 and PL1,
which is in turn relatively lower than both PL2 and PL3.

There is no word-accent as such in IN. That is, neither the strength
nor the placement of accent within a word carries any lexical difference.
The term word-accent is justified only to the extent that a given
polysyllabic word would sound *foreign* if the accent were misplaced.

The placement of accent is a function of the structure of the
intonation pattern in which the accent occurs. The accent falls on
the final syllable of a word if the word is the last one in a non-final
pause-group which is relatable to the category *focalised topic*. If,
on the other hand, the pause-group is relatable to an unfocalised topic,
then its accent is reduced or nullified. The accent falls on an affix
of a given base-word if this affix is contrasted with another correspon-
ding affix of another base within the same sentence, as in (231).
Otherwise (that is, in pause-groups relatable to the category *comment*),

(231) Orang itú tidak teŕtarik tapi ménarik.
       2-   33$_r$/2-   3 2$_f$ / 2-   3 1$_f$ #
       man   the not   interested but   interesting
       'As for that man, he is not interested, but interesting.'

the accent falls on the penult of the last word of the exponent of the
pause-group under attention. The accent remains regardless of the
position of the comment of a sentence relative to the topic or topics.
For this reason, pause-groups of this type are called *nuclear pause-
groups,* and their accents *'nuclear accents'.*

Accent placement rules in IN imply that accents in non-final words
in constructions larger than words are reduced or nullified. For
example, consider the following:

(232) rumah tángga *'household'* (← rúmah *'house'* + tángga *'ladder'*).

(233) papan túlis *'blackboard'* (← pápan *'board'* + túlis *'to write'*).

(234) Dewan Perwakilan Rákyat *'parliament'* (← déwan *'council'* +
       perwakílan *'representation, representative'* + rákyat *'people'*).

Finally, it was demonstrated that pause-groups, specifically the
contours of the pause-groups, within an intonation pattern are relatable
to the categories 'topic' and 'comment' which are not syntactically
marked by such devices as word-order. Thus, 231$_f$ is relatable to
unmarked comment; that is, comment preceded by focalised topic or
topics. The contour 232$_f$ is relatable to comment not preceded by topic

or topics. The contour 233_r is relatable to focalised topic, and 211_f is relatable to unfocalised topic.

It was indicated earlier that this thesis does not deal with non-syntactically motivated intonation. Nor does this volume deal with other grammatically relevant phenomena of intonation such as the intonation of vocatives as in (235) and (236), the intonation of the tags, kan or bukan *'isn't it right?'* as in (237) and (238), and the intonation of the attention-getting particle ya as in (239) and (240)[1]. These are related problems of intonation which await further studies.

(235)   Itú rumah siápa Ní?
       233_r/2- 32_f/233_r#
       that house who   Ni (← Ani)
       'As for that one, whose house is it, Ni?'

(236)   Itú Ní bukan mobílnya.
       233_r/233_r/2- 3 1_f #
       that Ni not   car his
       'As for that one, Ni, it is not his car.'

(237)   Diá kán mau berangkát?
       233_r/233_s/2- $_f31_f$#
       he   QT   want leave
       'As for him, isn't it right that he is going to leave?'

(238)   Mereká baru dátang bukán?
       2 33_r/2- 3 2_f /2 33_r#
       they   just   come   QT
       'As for them, they have just arrived, right?'

(239)   Jangan lupa dátang yá?
       2- 3 2_f / 233_r#
       don't forget come okay
       'Don't forget to come, okay?'

(240)   Kamí yá kemarin itú yá sibuk semúa.
       2 33_r/233_r/2- 33_r/233_r/2- 31_f#
       we   ya yesterday   ya busy all
       'As for us (you know), yesterday (you know), we were all busy.'[2]

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[1] The intonational notations in examples (235) through (240) are very tentative. They are merely intended as illustrative notations.

[2] cf. this use of ya in IN with the use of ne in Japanese, as in Watakushi wa ne kinō ne hon o ne gakkō de no yomimashita *'I (watakushi wa) read (yomimashita) the book (hon o) at school (gakkō de) yesterday'* (kinō). I am indebted to Mr. Hirofumi Ando for this Japanese example.

WORDS SUBJECTED TO MINGOGRAPH INTONATION ANALYZER

The following words were subjected to a Mingograph intonation analyzer.

1. sah   /sah/   *'legal'*
2. cat   /cat/   *'paint'*
3. pot   /pot/   *'(flower) pot'*
4. map   /map/   *'(office) file'*
5. wang   /waŋ/   *'money'*
6. bab   /bap/   *'chapter'*
7. gigi   /gígi/   *'tooth'*
8. gigit   /gígit/   *'to bite'*
9. kuku   /kúku/   *'nail'*
10. kutub   /kútup/   *'Pole'*
11. tepat   /tə́pat/   *'exact'*
12. taplak   /tə́pla?/   *'table-cloth'*
13. demam   /də́mam/   *'fever'*
14. jemput   /jə́mput/   *'to fetch'*
15. ijazah   /ijə́zah/   *'diploma'*
16. kepada   /kəpáda/   *'to'*
17. sebentar /səbə́ntar/   *'a short while'*
18. keluarga /kəluə́rga/   *'family'*
19. istimewa /istiméwa/   *'special'*
20. puteri   /putə́ri/   *'daughter'*
21. gigi   /gigí/   *'tooth'*
22. gigit   /gigít/   *'to bite'*
23. kuku   /kukú/   *'nail'*
24. kutub   /kutúp/   *'Pole'*

25.	tepat /tpat/	'exact'
26.	tepat /təpát/	'exact'
27.	taplak /taplá?/	'table-cloth'
28.	demam /dmam/	'fever'
29.	demam /dəmám/	'fever'
30.	jemput /jmput/	'to fetch'
31.	jemput /jəmpút/	'to fetch'
32.	ijazah /ijazáh/	'diploma'
33.	kepada /kpáda/	'to'
34.	kepada /kəpadá/	'to'
35.	kepada /kpadá/	'to'
36.	sebentar /sbntar/	'a short while'
37.	sebentar /səbəntár/	'a short while'
38.	kelurga /kluárga/	'family'
39.	keluarga /kəluargá/	'family'
40.	keluarga /kluargá/	'family'
41.	istimewa /istimewá/	'special'
42.	puteri /pútri/	'daughter'
43.	puteri /putərí/	'daughter'
44.	puteri /putrí/	'daughter'
45.	mengecat /məŋəcát/	'to paint'
46.	pengecatan /pəŋəcátan/	'(the process of) painting'
47.	mengesahkan /məŋəsáhkan/	'to legalise'
48.	mengelem /məŋəlém/	'to glue'
49.	pengepasan /pəŋəpásan/	'(the process of) fitting'
50.	pengepasannya /pəŋəpasánɲa/	'(the process of) fitting it'
51.	mengecat /mŋcat/	'to paint'
52.	mengecat /məŋəcát/	'to paint'
53.	pengecatan /pŋcátan/	'(the process of) painting'
54.	pengecatan /pəŋəcatán/	'(the process of) painting'
55.	pengecatan /pŋcatán/	'(the process of) painting'
56.	mengesahkan /mŋsáhkan/	'to legalise
57.	mengesahkan /məŋəsahkán/	'to legalise'
58.	mengesahkan /mŋsahkán/	'to legalise'
59.	mengelem /mŋlem/	'to glue'
60.	mengelem /məŋəlém/	'to glue'
61.	pengepasan /pŋpásan/	'(the process of) fitting'
62.	pengepasan /pəŋəpasán/	'(the process of) fitting'
63.	pengepasan /pŋpasán/	'(the process of) fitting'
64.	pengepasannya /pŋpasánɲa/	'(the process of) fitting it'
65.	pengepasannya /pəŋəpasanɲá/	'(the process of) fitting it'
66.	pengepasannya /pŋpasanɲá/	'(the process of) fitting it'

67.	menjemput /mənjámput/	'to fetch'
68.	penjemputan /pənjəmpútan/	'(the process of) fetching'
69.	penjemputannya /pənjəmputánɲa/	'(the process of) fetching it'
70.	keistimewaan /kəistimewáʔan/	'specialty'
71.	keistimewaannya /kəistimewaʔánɲa/	'his specialty'
72.	berceritera /bərcəritára/	'to tell a story'
73.	menjemput /mnjmput/	'to fetch'
74.	menjemput /mənjəmpút/	'to fetch'
75.	penjemputan /pnjmpútan/	'(the process of) fetching'
76.	penjemputan /pənjəmpután/	'(the process of) fetching'
77.	penjemputan /pnjmpután/	'(the process of) fetching'
78.	penjemputannya /pnjmputánɲa/	'(the process of) fetching it'
79.	penjemputannya /pənjəmputanɲá/	'(the process of) fetching it'
80.	penjemputannya /pnjmputanɲá/	'(the process of) fetching it'
81.	keistimewaan /kistimewáʔan/	'specialty'
82.	keistimewaan /kəistimewáʔan/	'specialty'
83.	keistimewaan /kəistimewaʔán/	'specialty'
84.	keistimewaan /kistimewaʔán/	'specialty'
85.	keistimewaannya /kistimewaʔánɲa/	'his specialty'
86.	keistimewaannya /kəistimewaʔanɲá/	'his specialty'
87.	keistimewaannya /kistimewaʔanɲá/	'his specialty'
88.	berceritera /brcrítra/	'to tell a story'
89.	berceritera /bərcəritərá/	'to tell a story'
90.	berceritera /brcritrá/	'to tell a story'
91.	ibu /ibú/	'mother'
92.	kota /kóta/	'city'
93.	kotak /kótaʔ/	'box'
94.	ibuk /íbuʔ/	'mother'
95.	ibu kota /ibu kóta/	'capital (city)'
96.	ilmu /ílmu/	'science'
97.	bahasa /bahása/	'language'
98.	ilmu bahasa /ilmu bahása/	'linguistics'
99.	tangga /táŋga/	'ladder'
100.	tetangga /tətáŋga/	'neighbour'
101.	tetangga /ttáŋga/	'neighbour'
102.	pipi /pípi/	'cheek'
103.	pipit /pípit/	'sparrow'
104.	pipi-pipi /pipi pípi/	'cheeks'
105.	kata káta/	'word'
106.	katak /kátaʔ/	'frog'
107.	kata-kata /kata káta/	'words'
108.	biro pusat statistik /biro pusat statístik/	'central bureau of statistics'

109.	daerah tingkat satu	/daerah tiŋkat sátu/	*'province'*
110.	pikuk	/píku?/	*'noisy'*
111.	peka	/péka/	*'sensitive'*
112.	pekak	/pə́ka?/	*'deaf'*
113.	paku	/páku/	*'nail'*
114.	pukul	/púkul/	*'to strike'*
115.	pokok	/póko?/	*'capital'*
116.	timbul	/tímbul/	*'to emerge'*
117.	tembak	/témba?/	*'to shoot'*
118.	tembus	/témbus/	*'to be penetrated'*
119.	tambak	/támba?/	*'pond'*
120.	tumbuk	/túmbu?/	*'to pound'*
121.	tombak	/tómba?/	*'spear'*
122.	pipit	/pípit/	*'sparrow'*
123.	titik	/títi?/	*'dot'*
124.	pipit-pipit	/pipit pípit/	*'sparrow'*
125.	kuku	/kúku/	*'nail'*
126.	kuku-kuku	/kuku kúku/	*'nails'*
127.	demokrasi	/demokrási/	*'democracy'*
128.	fakultas	/fakúltas/	*'faculty, college'*
129.	nasionalisasi	/nasionalisási/	*'nationalisation'*
130.	aktivitas	/aktifitás/	*'activity'*
131.	kepenuhan	/kəpənúhan/	*'too full'*
132.	kepenuhan	/kpnúhan/	*'too full'*
133.	kebetulan	/kəbətúlan/	*'coincidental'*
134.	kebetulan	/kbtúlan/	*'coincidental'*
135.	kekecilan	/kəkəcílan/	*'too small'*
136.	kekecilan	/kkcílan/	*'too small'*
137.	pekerjaan	/pəkərjá?an/	*'job'*
138.	pekerjaan	/pkrjá?an/	*'job'*
139.	seperempatnya	/səpərəmpátɲa/	*'one fourth of them'*
140.	seperempatnya	/sprmpátɲa/	*'one fourth of them'*

ACCENTUAL MINIMAL PAIRS

1. gígi ∿ gigí   'tooth'
2. gígit ∿ gigít   'to bite'
3. kúku ∿ kukú   '(finger) nail'
4. kútub ∿ kutúb   'Pole'
5. tépat ∿ tepát   'accurate, exact'
6. táplak ∿ taplák   'tablecloth'
7. démam ∿ demám   'fever'
8. jémput ∿ jempút   'to fetch'
9. ijázah ∿ ijazáh   'diploma'
10. kepáda ∿ kepadá   'to'
11. sebéntar ∿ sebentár   'a short while'
12. keluárga ∿ keluargá   'family'
13. istiméwa ∿ istimewá   'special'
14. putéri ∿ puterí   'daughter'
15. menjémput ∿ menjempút   'to fetch'
16. penjempútan ∿ penjempután   '(process of fetching)'
17. penjemputánnya ∿ penjemputannyá   '(process of) fetching him
                                               (her, it, them)
18. keistimewáan ∿ keistimewaán   'specialty'
19. keistīmewaánnya ∿ keistimewaannyá   'his specialty'
20. berceritéra ∿ berceriterá   'to tell a story'

A BRIEF SKETCH OF THE SEGMENTAL
PHONOLOGY OF INDONESIAN

1. PHONEMES

IN as it is spoken in South Sumatra has six vowels, three diphthongs, and twenty-three consonants.[1] The vowels and the consonants are presented in terms of their distinctive feature compositions in Table 10. Chomskian distinctive features[2] are adopted here.

1.1. *VOWELS*

The six vowels are: /i/, /u/, /e/, /ə/, /o/ and /a/. Each of these vowels, except /ə/ and /a/, is phonetically represented by two allophonic variants: one with the feature [+tense] and the other with the feature [-tense]. The latter variant is conditioned by its occurrence in final closed syllables, that is, syllables whose final segments are consonants. These phenomena are accounted for by rule (P1), which may be called vowel laxing rule.

$$(P1) \quad V \rightarrow [\text{-tense}] \; / \; (C) \; \underline{\hspace{1cm}} \; C\#$$

where V stands for any vowel and C for any consonant.

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[1] IN as it is spoken in Java appears to have eight, instead of six, vowels. For example, Dardjowidjojo (1966:30-31) posits three front vowels: /i, I, e/, two central vowels: /ə, a/, and three back vowels: /u, o, ɔ/. However, he does not present the criteria for his decision explicitly. Nor is his evidence very convincing. Samsuri (1960), who, like Dardjowidjojo, is a Javanese speaker of IN, also posits eight vowels. It is interesting to note, furthermore, that Dardjowidjojo himself and Macdonald (1967) state that "there are six vowels ... [in IN]" (p.22), and that "Javanese ... has eight vowels ... It is easy to understand how a Javanese speaker, accustomed to distinguishing eight vowels in his own language, will tend to do so in Bahasa Indonesia also" (p.23).

[2] Chomsky and Halle (1968), esp. Chapters III, VII and VIII.

TABLE 10

DISTINCTIVE FEATURE COMPOSITION OF INDONESIAN PHONEMES

	i	u	o	a	e	ə	y	w	l	r	h	ʔ	p	b	f	m	t	d	c	j	s	z	n	š	ɲ	k	g	x	ŋ
Syllabic	+	+	+	+	+	+	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
Consonantal	−	−	−	−	−	−	−	−	+	+	−	−	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+	+
Sonorant	+	+	+	+	+	+	+	+	+	+	−	−	−	−	−	+	−	−	−	−	−	−	+	−	+	−	−	−	+
High	+	+	−	−	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+	+	+
Back	−	+	+	+	−	−	−	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	+	+	+	+
Low	−	−	−	+	−	−	−	−	−	−	+	+	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−	−
Anterior	−	−	−	−	−	−	−	−	+	+	−	−	+	+	+	+	+	+	−	−	+	+	+	−	−	−	−	−	−
Coronal	−	−	−	−	−	−	−	−	+	+	−	−	−	−	−	−	+	+	+	+	+	+	+	+	+	−	−	−	−
Round	−	+	+	−	−	−	−	+																					
Tense	+	+	+	−	+	−	−	−																					
Continuant									+	−	+	−	−	−	+	−	−	−	−	−	+	+	−	+	−	−	−	+	−
Voice									+	+	−	−	−	+	−	+	−	+	−	+	−	+	+	−	+	−	+	−	+
Nasal									−	−	−	−	−	−	−	+	−	−	−	−	−	−	+	−	+	−	−	−	+

(Pl) applies to all the six vowels except /ə/ and /a/ because these last two vowels are already [-tense].

Distributionally, each of the six vowels can occur in word-initial, -medial as well as -final positions. The following are some examples. (The symbol ~ superscribed above a vowel symbol is used to indicate that the vowel is nasalised).

/i/   /ikan/ *'fish'* [ikan];   /tiba/ *'arrive'* [tiba];
      /dari/ *'from'* [dari];   /sakit/ *'sick'* [sakɪt].

/u/   /ukir/ *'to engrave'* [ukɪr]; /duri/ *'thorn'* [duri];
      /paku/ *'nail'* [paku];   /takut/ *'afraid'* [takʊt].

/e/   /ekor/ *'tail'* [ekɔr];   /bela/ *'to defend'* [bela];
      /cabe/ *'red pepper'* [cabe]; /cape?/ *'tired'* ['cape?].

/ə/   /emas/ *'gold'* [əmãs];   /belah/ *'side'* [bəlah];
      /tante/ *'aunt'* [tantə];   /ruwet/ *'complicated'* [ruwət].

/o/   /obat/ *'medicine'* [obat];   /tola / *'to push'* [tola?];
      /toko/ *'store'* [toko];   /toko / *'to pound'* [tokɔ?].

/a/   /air/ *'water'* [aɪr];   /tari/ *'dance'* [tari];
      /pula/ *'also'* [pula];   /pulaŋ/ *'to go home'* [pulaŋ].

1.1.1. Vowel Nasalisation

Vowels are nasalised in IN in the position after (never before) nasal consonants (/m, n, ɲ, ŋ/). For example: /kami/ *'we, excl.'* [kamĩ]; /ana?/ *'child'* [anã?]; /baɲa?/ *'much, many'* [baɲã?]; /baŋun/ *'to wake up'* [baŋũn]. This phenomenon is accounted for by rule (P2a):

$$(P2a) \quad V \rightarrow \tilde{V} \; / \; N \underline{\quad} X$$

where V stands for any vowel, N for any nasal consonant, and X is either null or non-null.

The effect of the nasalisation is maintained across syllable boundaries under the following conditions:

1. The syllable to which P2a applies is an open syllable (that is, the X of P2a is null), and

2. The following syllable begins with a vowel, or with any one of the following: /y/, /w/, /h/, /?/.

Below are some examples:[1]

/ni-at/ *'intention'* [nĩ-ãt]; /ma-in/ *'to play'* [mã-ĩn]; /ma-ut/ *'death'* [mã-ũt]; /ŋe-oŋ/ *'to meow'* [ŋẽ-ɔ̃ŋ]; /mã-yã-pa-da/ *'world'* [mã-yã-pa-da]; /ma-yor/ *'major'* [mã-yɔ̃r]; /me-na-war/ *'to haggle'* [mẽ-nã-wãr]; /me-wah/ *'luxurious'* [mẽ-wãh]; /ma-hal/ *'expensive'* [mã-hãl]; /mə-mi-ha?/ *'to*

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[1]The 'dash' symbol (-) is used to indicate syllable boundaries.

take sides' [mə̃-mī̃-hã̃?]; /ma-?af/ *'to forgive'* [mã-?ã̃f]; /na-?im/ *'Naim (boy's name)'* [nã̃-?ī̃m].

Nasalization across syllable boundaries is generalised in (P2b), which must be applied after (P2a):[1]

$$(P2b) \quad V \rightarrow \tilde{V} / N\tilde{V} \text{—} \left(\begin{bmatrix} \text{syllabic} \\ - \text{ consonantal} \end{bmatrix} \right) \text{\_\_\_\_\_} X$$

1.1.2. Schwa Deletion

Except in slow and deliberate speech, /ə/ tends to be deleted in its phonetic representation in non-final syllables. This deletion, then, is optional. Thus, for example, /ənam/ *'six'* is represented by either [ənam] or [nam]; /əmpat/ *'four'* by [əmpat] or [mpat]; /sənja/ *'twilight'* by [sənja] or [snja].

The following rule (P3) accounts for the deletion of /ə/ in its phonetic representation:

$$(P3) \quad /e/ \rightarrow \emptyset / X \text{\_\_\_\_\_} Y$$

where $\emptyset$ stands for 'zero', X is either null or non-null, and Y is non-null and at least stands for a final syllable.

(P3) is recursive, that is it is applied as many times as there are /ə/'s in non-final syllables of a word. In this case, it is first applied to the right-most /ə/ before the final syllable of the word-base[2], then to the one preceding the right-most /ə/, and so on successively away from the end of the word. For example, /səpərdəlapan/ *'one eighth'*, which is a non-base made up of the prefixes /sə-/ *'one'* and /pər-/ *'over (to designate, in writing, the line between the numerator and the denominator)*, and the base /dəlapan/ *'eight'*, is optionally phonetically represented by [sprdlapan] after three applications of (P3) as follows:

Deep structure: /səpərdəlapan/

First application of (P3) produces [səpərdlapan].

Second application produces [səprdlapan].

Third application produces [sprdlapan].

Thus, the phonetic representation: [sprdlapan].

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[1]The lexicon will have to provide for specific rules to account for the (non-phonologically conditioned) exceptions to (P2b) such as: /mə-ya-kin-kan/ *'to convince'* [mə̃-ya-kin-kan] and /mə-wa-jip-kan/ *'to require'* [mə-wa-jɩp-kan], which are phonetically not *[mə̃-ya-kɩn-kan] and *[mẽ-wã-jɩp-kan] respectively, as we would expect from (P2b).
Furthermore, the nasalised vowels in words like [ã̃?ã̃], [ə̃?ə̃], or [ũ?ũ] *'yes'* and [ã̃] or [ə̃] *'hah? (what did you say?)'* constitute another special case.
The non-nasalised vowels after /h/ in words like /məŋ-hu-kum/ *'to punish'* [mə̃ŋ-hu-kum] and /məŋ-hi-sap/ *'to suck'* [mə̃ŋ-hi-sap] are not exceptions. (P2b) does not apply to them simply because these words do not satisfy the condition that the syllable preceding the /h/ be an open syllable.

[2]A base is mono-morphic; a non-base is made up of at least one base and one affix. (For a discussion of 'base' versus 'non-base', see Chapter III).

(P3) does not apply to the /ə/'s in words like /tantəɲa/ *'his/her aunt'*, which consists of the base /tantə/ *'aunt'* and the pronominal suffix /-ɲa/ *'his, her'*, because the /ə/ is in the final syllable of the base, and /tantəɲa/ is a non-base.

1.2. *DIPHTHONGS*

There are three diphthongs in IN: /ay/, /aw/ and /oy/. Diphthongs are in contrast with sequences of two vowels in two ways: (a) the second segment of a diphthong has the feature /-syllabic, -consonantal/, whereas that of a sequence of two vowels has the feature /+syllabic, -consonantal/, and (b) a diphthong is part of one syllable, and (at least in IN) the second segment serves as the 'coda' of the syllable in which it occurs, whereas a sequence of two vowels must belong to a sequence of two different syllables of which the vowels are the nuclei.

Abercrombie (1967) defines and characterises the phonetic representation of a diphthong as follows: "... a vowel of continually changing quality is a diphthong; ... A diphthong may be described and identified in terms of its beginning and ending points, using the categories of monophthongs ..., with the assumption that the articulators, in their movement, take the shortest path between these points. ...[The two segments of a diphthong] occupy only one syllable" (p.60).

One of the segments of a diphthong is more prominent than the other. If the first is more prominent than the second, the diphthong is a 'falling' diphthong; otherwise, it is a 'rising' diphthong. IN diphthongs are of the former type.

Distributionally, IN diphthongs occur only in the final syllable of a word-base.

The following are some examples in which /ay/, /aw/, and /oy/ contrast with /ai/, /au/, and /oi/, respectively.

(a) /cukay/ *'customs duty'* versus /cukai/ *'to put vinegar into something'* (← /cuka/ *'vinegar'* + /i/ *'transitive verbalising suffix to put (base) into, to apply (base) to (object)'*.

(b) /harimaw/ *'tiger'* versus /hari mau/ *'Hari (a boy's name) wants (something).'*

(c) /səkoy/ *'a kind of wheat'* versus /bodohi/ phonetically: [bodoi] *'to fool (somebody)* (← /bodoh/[1] *'foolish, stupid'* + /i/ as in example (a) above.

1.3. *CONSONANTS*

There are twenty-three consonants, including two 'semivowels', in IN: see Table 10.

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[1]For the deletion of /h/ of /bodohi/ in its phonetic representation: [bodoi], see rule (P5) below.

136

The voiceless stops /p/, /t/ and /k/ contrast with the voiced stops /b/, /d/ and /g/, respectively, in word-initial and-medial positions. They never contrast in final positions, where phonetically they are represented by [p], [t] and [k], respectively. For example: /paku/ *'nail'*, /baku/ *'raw (material)'*; /təpat/ *'accurate'*, /təbat/ *'pond'*; /tari/ *'dance'*, /dari/ *'from'*; /pətaŋ/ *'afternoon'*, /pədaŋ/ *'sword'*; /kaya/ *'rich'*, /gaya/ *'style'*; /laku/ *'conduct'*, /lagu/ *'tune'*.

The glottal stop /ʔ/ contrasts with /k/ in medial and final positions. For example: /suʔun/ *'rice noodle'*, /sukun/ *'breadfruit'*; /baliʔ/ *'to return, go home'*, /balik/ *'to turn (something) over'*. Glottal stop is non-contrastive in initial position.

Phonetically, the release of the seven stops is never abrupt so that there is no sudden burst of air-flow at the end of their articulation.

The affricates /c/ and /j/ contrast in initial and medial positions. They never occur in final position. For example: /cari/ *'to look for'*, /jari/ *'finger'*; /acar/ *'pickle'*, /ajar/ *'to teach'*. Recent loan words containing final affricates appear in IN with final stops, as in /risət/ *'research'*.

The labial fricative /f/ contrasts with the voiceless bi-labial stop /p/ as in /fas/ *'vase'*, /pas/ *'precise'*; /efek/ *'effect'*, /epek/ *'to flirt'*; /taraf/ *'phrase'*, /sarap/ *'garbage'*. However, they are in free variation in certain non-phonologically conditioned cases as in /fikir/ or /pikir/ *'to think'*, /nafas/ or /napas/ *'breath'*, and /huruf/ or /hurup/ *'letter'*. The condition appears to be historical rather than anything else. Recent loan words containing [f] tend to retain it.

The alveolar fricatives /s/ and /z/ contrast in initial and medial positions. For example: /seni/ *'art'*, /zeni/ *'(army) engineers'*; /asap/ *'smoke'*, /azap/ *'punishment'*.

/z/ and /j/, which do not appear to be in contrast in some dialects of IN[1], are in contrast in South Sumatra. For example: /zamzam/ *'holy water (from Mecca's sacred well)'*, /jamjam/ *'clocks, watches'*.

The alveo-palatal fricative /š/ contrasts with /s/ in initial position as in /šarat/ *'requirement'* and /sarat/ *'loaded'*, it is in free variation with /s/ in medial position as in /mašarakat/ or /masarakat/ *'society'*; /š/ never occurs in final position.

The velar fricative /x/ contrasts with /k/ in initial, medial and final positions. For example: /xas/ *'special'*, /kas/ *'money supply, safe'*; /taxta/ *'throne'*, /akta/ *'official document'*; /tox/ *'yet'*, /kətok/ *'to knock'*. However, /x/ and /k/ are in free variation in certain lexical items such as /xabar/ or /kabar/ *'news'*, and /texnik/ or /teknik/ *'technique'*. In final position, it is in free variation

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[1]See, for example, Dardjowidjojo (1966:32-33).

with /h/ as in /ax/ or /ah/ *'oh'*. Yet it contrasts with /h/ such as in the pair: /axir/ *'end'* and /mahir/ *'fluent'*. Still with another set of lexical items, /x/ is in free variation with /g/ such as in /sosyoloxi/ or /sosyologi/ *'sociology'*.

Of the four nasals, /m/, /n/, /ɲ/ and /ŋ/ occur in initial, medial and final positions. /n/ never occurs in final position. For example: /mata/ *'eye'*, /kami/ *'we, excl.'*, /alam/ *'nature'*; /nila/ *'indigo'*, /sana/ *'there'*, /aman/ *'secure'*; /ɲamuʔ/ *'mosquito'*, /haɲa/ *'only'*; /ŋaŋa/ *'agape'*, /deŋan/ *'with'*, /dataŋ/ *'to come'*.

/l/ is phonetically represented by [l] (*'light'*), except for one case in which *'dark'* [ɬ] occurs: [aɬah] *'God'*. The [ɬ] is pronounced with the blade (instead of the tip) of the tongue placed against the alveo-palate and velarised.

The lexicon, which is not our concern here, must provide for non-general rules to characterise and account for the partial and lexically conditioned free variability between:
(a) /p/ and /f/;
(b) /x/ and /k/;
(c) /x/ and /h/;
(d) /x/ and /g/, as well as for the [ɬ] of [aɬah].

1.3.1. Voicing of /h/ and /ʔ/

Rule (P4) accounts for the voicing of /h/ and /ʔ/ in intervocalic position such as in /bihun/ *'thin noodle'*, /beha/ *'brassiere'*, /bahasa/ *'language'*, and in such words as /maʔaf/ *'to forgive'*, /suʔun/ *'rice noodle'*, and /taʔun/ *'cholera'*.

$$\text{(P4)} \quad [-\text{voice}] \rightarrow [+\text{voice}] \: / \: V \begin{bmatrix} -\text{ syllabic} \\ -\text{ consonantal} \end{bmatrix} V$$

where V stands for any vowel.

(P4) is prevented from applying to /y/ and /w/, which are also [-syllabic, -consonantal], by the fact they are by definition already [+voice].

The phonetic realisation of voiced [ʔ] is momentary laryngeal constriction with creaky voice.

1.3.2. Deletion of /h/

Rule (P5) accounts for the fact that /h/ in intervocalic position (that is, between V_1 and V_2), or in initial position of a disyllabic base may be optionally deleted in its phonetic representation under one of the following three conditions:

Condition 1: V_1 is preceded by a non-sonorant consonant;
                V_1 is /a/, and V_2 is either /u/ or /i/.
For example, /h/ may be optionally deleted in such items as: /tahu/ *'to know'*, /tahun/ *'year'*, /bahu/ *'shoulder'*, /sahut/ *'to respond'*, /pahit/ *'bitter'*, /dahi/ *'forehead'*, /jahit/ *'to sew'*, and /sahit/ *'martyr'*. On the other hand, /h/ cannot be deleted in items such as: /nahu/ *'grammar'*, /yahudi/ *'Jew'*, /mahir/ *'fluent'*, /lahir/ *'to be born'*, /rahim/ *'womb'*, and /wahit/ *'one'*.
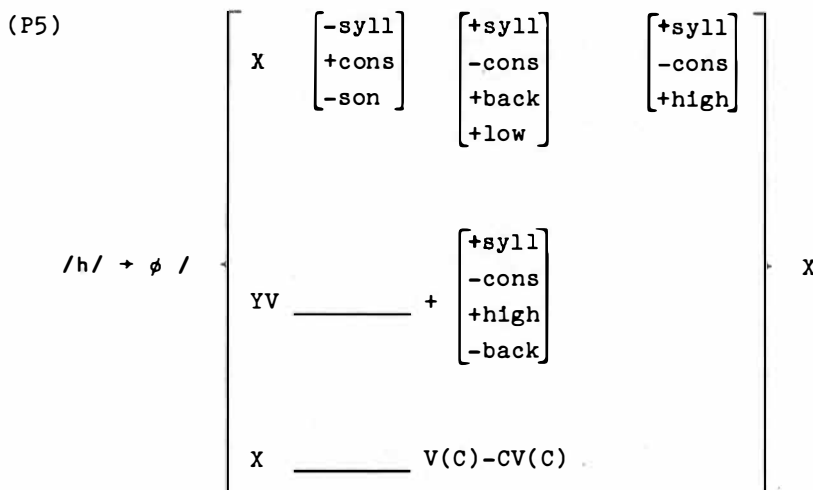
Condition 2: V_2 is preceded by a morpheme boundary (+);
                V_1 is any vowel, and V_2 is /i/.
For example, /h/ may be optionally deleted in words consisting of at least a base and the suffix /-i/ as follows: /ləbihi/ *'to exceed'* (← /ləbih/ *'more'* + /-i/ 'causative'), /lelehi/ *'to trickle onto (s.t.)'* (← /leleh/ *'to trickle'* + /-i/ 'locative, causative'), /nikahi/ *'to marry (s.o.)'* (← /nikah/ *'marriage'* + /-i/ 'locative'), /tambahi/ *'to increase'* (← /tambah/ *'to add'* + /-i/ 'causative'), and /bodohi/ *'to be fooled'* (← /bodoh/ *'stupid, foolish'* + /-i/ 'causative').

Condition 3:   The /h/ occurs as the onset of the penult of base-words.
For example, /h/ in items such as the following may be optionally deleted: /hituŋ/ *'to count'*, /hutan/ *'forest'*, /hotel/ *'hotel'*, /hati/ *'heart'*, /həmbus/ *'to blow'*, and /hemat/ *'thrifty'*, /bahasa/ *'language'*, /cahaya/ *'light'*, /baharu/ *'new'*, /sahaya/ *'I'*, /sahaja/ *'just'*.

    What happens in the last five examples is, first, the /h/ is lost, resulting in /baasa/, /caaya/, /baaru/, /saaya/ and /saaja/, respectively. Then the /aa/'s, which are phonetically long vowels ([ā]), are reduced to 'plain' /a/'s because IN does not have long vowels, as distinctively opposed to short vowels. Thus, the outcome: /basa/, /caya/, /baru/, /saya/ and /saja/, respectively. The loss of /h/ and the subsequent changes involved have already been reflected in the spelling of the last three examples, but not in the first two. Thus: bahasa /bahasa/ or /basa/ *'language'*, cahaya /cahaya/ or /caya/ *'light'*, baru /baru/ *'new'*, saya /saya/ *'I'*, and saja /saja/ *'just'*.

    Condition 1 automatically implies that /h/ cannot be deleted in the phonetic representation if V_1 is not /a/ as in: /fiha?/ *'side'*, /jihat/ *'holy war'*, /sehat/ *'healthy'*, /dəham/ *'cough'*, /tuhan/ *'God'*, and /rohani/ *'spirit'*. Nor can /h/ be deleted if $V_1 = V_2$ except in cases of words like /bahasa/ as we discussed under Condition 3 above) as in: /sihir/ *'black magic'*, /bahan/ *'materia'*, /mahal/ *'expensive'*, /leher/ *'neck'*, /pohon/ *'tree'*, and /luhur/ *'glorious'*.

$$(P5) \quad /h/ \rightarrow \emptyset \ / \ \begin{bmatrix} X & \begin{bmatrix} -syll \\ +cons \\ -son \end{bmatrix} & \begin{bmatrix} +syll \\ -cons \\ +back \\ +low \end{bmatrix} & \begin{bmatrix} +syll \\ -cons \\ +high \end{bmatrix} \\ \\ YV \underline{\quad\quad} + \begin{bmatrix} +syll \\ -cons \\ +high \\ -back \end{bmatrix} \\ \\ X \underline{\quad\quad} V(C)\text{-}CV(C) \end{bmatrix} X$$

where ∅ stands for 'zero', V for any vowel, C for any consonant, X is either null or non-null, and Y is non-null.

Condition 3 of (P5) also implies that /h/ cannot be deleted in mono-syllabic base initial position as in /hak/ *'right'*, /hal/ *'matter'*, and /hem/ *'shirt'*. Nor can we delete /h/ in initial position of a base of more than two syllables as in: /hakekat/ *'truth'*, /halaman/ *'yard'*, /halilintar/ *'flash of lightning'*, and /hikayat/ *'tale'*.

Finally, (P5) does not apply to the /h/ of /tahu/ *'bean-cake'* which is clearly different from /tahu/ *'to know'* because of the diachronic fact that it is derived from a different source, that is [taufu] *'bean-cake'*, a loan-word from Chinese.

1.3.3. Consonant Clusters

A consonant cluster is a group of consonants which, together, functions as either the 'onset' or the 'coda' of a syllable. The term does not refer to 'consonant sequences', consonants juxtaposed together as a result of the deletion of /ə/ (see 1.1.2. above).

Typical canonical forms of IN (base) words contain no consonant clusters. Exceptions are those of recently borrowed words such as the following:

Consonant Cluster	Example
pr-	/prak-tek/ *'practice'*
tr-	/tra-di-si/ *'tradition'*
kr-	/kre-a-si/ *'creation'*
ps-	/psi-ko-lo-gi/ *'psychology'*
fr-	/in-fra/ *'infra (structure)'*
ks-	/eks-pres/ *'express'*

Consonant Cluster	Example
-ks	/teks/ *'text'*
sp-	/spen/ *'hair-pin'*
st-	/sta-si-un/ *'station'*
sk-	/ska-la/ *'scale'*
spr-	/af-sprak/ *'appointment'*
str-	/struk-tur/ *'structure'*
skr-	/skrip-si/ *'thesis'*

2. SYLLABLE STRUCTURE

The structure (or, the CV-pattern) of a syllable is composed of its 'onset', 'peak' ('nucleus') and 'coda'[1], or, to use Abercrombie's terms, "releasing consonant" (C), "syllabic element" (V) and "arresting consonant" (C)[2].

Abercrombie's notation to represent syllable structures is adopted here. The symbol C means either onset or coda, V refers to the nucleus of the syllable, and O is used to mean "absence of a (releasing or arresting) consonant". Thus, for example, the syllables of /ka-bar/ *'news'* are represented by CVO-CVC.

There are four major types of syllable structures in IN: (a) CVO; (b) CVC; (c) OVC, and (d) OVO.

The following are some examples of IN monosyllabic words and their CV-patterns:

CV-Pattern	Example
CVO	/di/ *'at'*; /kə/ *'to'*
CVC	/dan/ *'and'*; /teh/ *'tea'*
OVC	/es/ *'ice'*; /om/ *'uncle'*
OVO	/o/ *'oh'*

Scholars of Austronesian linguistics generally agree that the majority of Austronesian (thus, also IN) base words are disyllabic[3]. For this reason, the CV-patterns of IN disyllabic (base) words will be discussed in sufficient detail.

Table 11 is a matrix of the CV-patterns of IN disyllabic words. The vertical axis represents the first syllable, the horizontal the second syllable. Each of the cells represents one type of CV-pattern. The symbol + means that the CV-pattern type represented by the cell under attention occurs. The symbol - means that the CV-pattern represented by the cell under attention does not occur.

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[1] Charles F. Hockett (1955:52).

[2] Abercrombie (1967:73 et sqq.).

[3] See, for example, Gonda (1950).

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                    TABLE 11
        MATRIX OF THE SYLLABLE STRUCTURES
           OF IN DISYLLABIC BASE WORDS
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	Second Syllable			
	CVO	CVC	OVC	OVO
CVO	+	+	+	+
CVC	+	+	−	−
OVC	+	+	−	−
OVO	+	+	+	+

Table 11 shows that there are twelve different types of CV-patterns of IN disyllabic base words. The following are some examples:

CV-Pattern	Example
1. CVO-CVO	/lu-pa/ 'to forget'
2. CVO-CVC	/ma-kan/ 'to eat'
3. CVO-OVC	/ka-in/ 'cloth'
4. CVO-OVO	/ma-u/ 'to want, will'
5. CVC-CVO	/ta-da/ 'sign'
6. CVC-CVC	/lom-pat/ 'to jump'
7. OVC-CVO	/aŋ-ka/ 'figure'
8. OVC-CVC	/ar-wah/ 'soul'
9. OVO-CVO	/i-ni/ 'this'
10. OVO-CVC	/a-na?/ 'child'
11. OVO-OVC	/a-ir/ 'water'
12. OVO-OVO	/i-a/ 'he, she'

Now let us look at CV-Patterns (5): CVC-CVO, (6): CVC-CVC, (7): OVC-CVO, and (8): OVC-CVC to see if the arresting consonant of the first syllable and the releasing consonant of the second syllable have any common distinctive features which can be generalised.

Of the first five hundred disyllabic base words of the CV-pattern types (5), (6), (7) and (8) in the data, 349 items (70 percent) contain sequences of nasals plus their corresponding homorganic non-nasal consonants, except /l/ and /r/, and the rest (30 percent) contain the following sequences:

Sequence	Percent	Example
/p-t/	1	/sap-tu/ *'Saturday'*
/t-w/	1	/jat-wal/ *'schedule'*
/k-t/	2	/wak-tu/ *'time'*
/k-s/	2	/sak-si/ *'witness'*
/k-l/	0.5	/ik-lan/ *'advertisement'*
/s-t/	4	/mus-ti/ *'must'*
/m-r/	1	/lum-rah/ *'common, usual'*
/l-p/	1	/təl-pun/ *'telephone'*
/l-m/	1	/il-mu/ *'science'*
/r-m/	0.5	/ter-mos/ *'thermos'*
/r-b/	0.5	/pər-ban/ *'bandage'*
/r-t/	2	/kər-tas/ *'paper'*
/r-d/	1	/kər-dil/ *'dwarfish'*
/r-j/	5	/kər-ja/ *'work'*
/r-s/	0.5	/pər-sen/ *'percent, present (gift)'*
/r-n/	1	/pər-nah/ *'ever'*
/r-l/	2	/pər-lu/ *'necessary'*
/r-w/	0.5	/ar-wah/ *'soul'*
/h-w/	0.5	/bah-wa/ *'that'*
/r-k/	1	/bər-kas/ *'file'*
/r-g/	2	/har-ga/ *'price'*

The sequences of nasals plus their corresponding homorganic non-nasal consonants are generalised by rule (P6).

(P6)

$$N \rightarrow \begin{bmatrix} \alpha \text{ anterior} \\ \beta \text{ coronal} \end{bmatrix} / \underline{\hspace{1cm}} - \begin{bmatrix} - \text{ syllabic} \\ + \text{ consonantal} \\ \alpha \text{ anterior} \\ \beta \text{ coronal} \end{bmatrix}$$

where N stands for any nasal consonant.

Thus (P6) predicts the N in the following sequences:

Sequence	Percent	Example
/m-p/	8	/lom-pat/ *'to jump'*
/m-b/	3	/am-bil/ *'to take'*
/n-t/	18	/nan-ti/ *'later'*
/n-d/	8	/un-daŋ/ *'to invite'*
/n-c/	2	/in-ci/ *'inch'*
/n-j/	2	/pin-jam/ *'to borrow'*
/n-s/	1	/pin-sil/ *'pencil'*
/ŋ-k/	4	/aŋ-kat/ *'to lift'*
/ŋ-g/	24	/əɲ-ga?/ *'no, not'*

3. GRAPHOLOGY

There is no one-to-one correspondence between phonemes and graphemes (units of graphology, that is 'letters' of the spelling system) in IN. For example, both /e/ and /ə/ are graphologically represented by e: kemah *'tent'* is /kemah/ and kemas *'to get ready'* is /kəmas/. The grapheme k represents both /k/ and /ʔ/: pak is either /pak/ *'carton'* or /paʔ/ *'father'*. Furthermore, /ʔ/ between two like vowels is graphologically 'zero'; that is, it is not represented at all: maaf is /maʔaf/ *'to forgive'*.

The correspondence between IN phonemes and graphemes are presented in a tabular form as follows:

Phoneme	Grapheme	Example
/i/	i	/ikan/ *'fish'* ikan
/u/	u	/batu/ *'stone'* batu
/e/	e	/seraʔ/ *'to scatter'* serak
/ə/	e	/səraʔ/ *'sore (throat)'*
/o/	o	/obat/ *'medicine'* obat
/a/	a	/apa/ *'what'* apa
/ay/	aɪ	/səray/ *'citronella grass'* serai
/aw/	au	/kərbaw/ *'water buffalo'* kerbau
/oy/	oɪ	/səkoy/ *'a kind of wheat'* sekoi
/y/	y	/saya/ *'I'* saya
/w/	w	/kawan/ *'friend'* kawan
/l/	l	/palu/ *'hammer'* palu
/p/	p	/lupa/ *'to forget'* lupa
		/atap/ *'roof'* atap
	b	/kutup/ *'Pole (North/South)'* kutub
/b/	b	/buka/ *'to open'* buka
/f/	f	/taraf/ *'phrase'* taraf
	v	/visa/ *'visa'* visa
/m/	m	/malam/ *'night'* malam
/t/	t	/tadi/ *'just now'* tadi
		/dapat/ *'be able'* dapat
		/maksut/ *'intention'* maksud
/d/	d	/dari/ *'from'* dari
/c/	c	/cari/ *'to look for'* cari
/j/	j	/jari/ *'finger'* jari
/s/	s	/sari/ *'essence'* sari
		/iris/ *'to slice'* iris
		/azis/ *'Aziz (boy's name)'* Aziz
/z/	z	/zaman/ *'era'* zaman
/r/	r	/lapar/ *'hungry'* lapar

Phoneme	Grapheme	Example
/n/	n	/nona/ *'Miss'* nona
/š/	sy	/šarat/ *'requirement'* syarat
/ɲ/	ny	/ɲoɲa/ *'Mrs.'* nyonya
	'zero'	/maʔaf/ *'to forgive'* maaf
/ʔ/		/paʔ/ *'father'* pak
/k/	k	/kapaʔ/ *'axe'* kapak
		/pak/ *'carton'* pak
	g	/gudək/, /gudəg/ *'spiced rice'* gudeg
/g/		/giraŋ/ *'happy'* girang
/x/	kh	/ixlas/ *'sincere'* ikhlas
/ŋ/	ng	/taŋan/ *'hand, arm'* tangan
/h/	h	/patah/ *'broken'* 'pataḥ

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