intonation

IN RELATION TO SYNTAX IN BAHASA INDONESIA

AMRAN HALIM

PROYEK PENGEMBANGAN BAHASA DAN SASTRA INDONESIA DAN DAERAH
DEPARTEMEN PENDIDIKAN DAN KEBUDAYAAN

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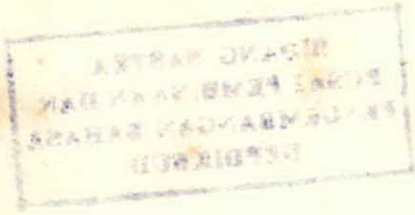

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PROYEK PERKEMBANGAN BAHASA DAN SASTRA INDONESIA DAN DAERAH
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CHAPTER I

INTRODUCTION

1.1 Aim

This thesis is a study of the structural relationships among sentences in discourse as shown by their intonation patterns. The relationships are signaled 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 thesis attempts to answer the following questions: (1) What are some of the major intonation patterns of Bahasa Indonesia? (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 Bahasa Indonesia? (4) How are the phenomena of intonation relatable to syntax in Bahasa Indonesia?

(1) A. **Ke mána?**[1]
2– 3 1_f#
to where: Where are you going?

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

B. **Ke sána.**
2– 3 1_f#
to there: I am going there.

Dialogue (1) is a normal means of exchanging greetings among friends. In this case, A is not exactly 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 Nání.**
2–33_r/ 2– 3 1_f#
I meet with Nani (i.e. a girl's name): I met Nani.

B. **Bagaimána dia?**
2– 3 2_f/ 211_f#
how she: How was she?

C. **Baik-baik saja.**
2– 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 signaled 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 occurence 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 signaled 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 signaled 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).[2] 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 it gradually moves lower and lower until

[2]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.

it 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 signaled 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.** *(I) want to drink coffee*
2– 3 1_f#

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 ápa?** *What (do you) want to drink?*
2– 31_f#

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 syllable 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 thesis, 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,"[3] 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[4] on Indonesian, or Bahasa Indonesia,[5] are concerned with grammatical analysis and/or lexicon.

Despite the fact that "the number of grammars and textbooks at different levels, devoted to BI is very large,"[6] "a satisfactory grammatical description both of Modern Malay (including Bahasa Indonesia) and Classical Malay is still lacking."[7]

The phonology of BI is the least explored, and within phonology the problem of intonation has hardly been investigated seriously beyond brief accounts of word accent.[8]

A brief survey of some of the earlier studies on BI non-segmental phonology is presented in Chapter II. Chapter III characterizes accent, and presents rules of

[3]For the term "context," see Halliday (1961, pp. 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 together *extratextual* features." See also Catford (1965, pp. 1–5).

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

[5]Hereinafter abbreviated BI.

[6]Teeuw (1961, p. 66).

[7]Roolvink (1965, p. 310).

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

accent placement in BI. The theoretical framework espoused in this thesis, 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

BI is the official and national language of Indonesia, of which the population is about 112,500,000.[9] It is the official language of the country[10] 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 taught is used. Until quite recently, in areas where the regional languages differ considerably from BI, as in Java, BI 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.[11] It is also the language by means of which interregional and inter-cultural communication is accomplished.[12]

[9]This figure is an estimate based on the Indonesian population census of 1961. See Indonesia (1963).

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

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

[12]Slametmuljana (1959), especially pp. 27–28.

A full account of the history, growth and development of BI is beyond the scope of this thesis. Suffice it to point out here that BI 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.[13]

It is generally agreed that Malay, and thus also BI, belongs to the language-group known as Malayo-Polynesian, or, to use a more current term, Austronesian,[14] which may be divided into four sub-groups: (1) Indonesian,[15] (2) Melanesian, (3) Polynesian, and (4) Micronesian. BI belongs to the Indonesian sub-group, which also includes the languages of Madagascar and Formosa. To be exact, BI belongs to the Southwest Indonesian sub-sub-group of the Indonesian sub-group of the Austronesian language group.

Observation of BI reveals that written BI differs from spoken BI 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 BI is manifested in a spelling system which is standardized, and, therefore, is more or less uniform throughout the country. Spoken BI, on the other

[13]For accounts of the history, growth and development of BI, 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, pp. 1–12).

[14]Capell (1962) notes that the term "Malayo–Polynesian" was introduced by W. von Humboldt in 1836, whereas the name "Austronesian" was proposed later by Otto Dempwolff [pp. 371–378]. 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).

[15]Since the term "Indonesian" is used to refer to this entire sub-group of the Austronesian language-group as well as to the language of Indonesia, it appears to be desirable to have a separate term to refer exclusively to the latter, and hence the use of the term "Bahasa Indonesia" in this thesis.

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 BI in this case are its regional dialects.

Secondly, written BI differs from spoken BI 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 BI sentence (6) may be optionally transformed into (6*a*), (6*b*) and (6*c*), but not into (6*d*) and (6*e*), etc.

(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 (7*a*) through (7*k*).

(7) **Mereká minum kópi kemarin.**
$2-\ 33_r\ /\ 2-\quad 3\,2_f\ /\ 211_f\ \#$
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 kopí 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.

(7i) **Kemarín mereká minum kópi.**
2– 33_r / 2– 3 1_f#
As for yesterday, they drank (some) coffee.

(7j) **Mereka kemarín minum kópi.**
2– 33_r/ 2– 3 1_f#
As for what they did yesterday, they drank coffee.

(7k) **Mereka mínum kemarín kopi.**
2– 3 2_f / 211_f / 211_f#
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 (8*a*) and (8*b*) are ungrammatical.

(8) **Mereká minum kópi di kamar.**
2– 33_r / 2– 32_f / 211_f #
they drink coffee in room:
As for them, they drank coffee in (the, their) room.

(8*a*) ***Di mereka minum kopi kamar.**

(8*b*) ***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 (9*a*) by deleting the verb **pergi** *go*, in both written and spoken BI, (10) may be transformed into (10*a*) only in spoken BI:

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

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

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

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

Without an appropirate context of situation, as in most cases in writing, (10*a*) is at best ambiguous, or, although the second part of (10): **Saya ayam dan Nani sayur** is syntactically well-formed, is semantically "incongruous." [16] **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 (10*a*) 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?

[16] Joos (1958).

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. 10*a*).

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

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

(14*b*) **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 BI 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.[17]

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)[18] and that of other speakers of the language.

BI as it is spoken in South Sumatra was chosen because the primary informants used in this study were from South Sumatra, and also because BI varies from place to place in such a way that to attempt to analyze the language as it is spoken in all of the regions of Indonesia would be far beyond the scope of this thesis. To analyze a hypothetical general BI 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

[17]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 characterizes 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 characterizes 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," characterizes 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.

[18]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.

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 thesis is an analysis of BI 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 then transcribed in the conventional BI spelling system. Accents and intonation were auditorily identified, noted and analyzed. 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 studied. 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 BI items (sentences, phrases, etc.) are presented in the current spelling system of BI because the main concern of this thesis is the intonation, and not the (segmental) phonology of BI. For a brief sketch of the (segmental) phonology of BI and of the relation between this and the spelling system, see Appendix C.

BI items are **underlined** whenever they are being discussed in the text of the thesis.

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," "analyzed into," "dominate"
←	"Derived from," "dominated by"
*	"Non-existent," "ungrammatical," "unacceptable"
**	"Reconstructed forms"

1.5.3 Abbreviations

BI	"Bahasa Indonesia" ('Indonesian (language)')
db.	"decibel"
f	(subscript): "falling (contour)"
Hz	"Hertz"
M	"Modality"
mm	"millimeter"
N	"Noun"
NP	"Noun phrase"
P	"Proposition"
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 BI NON-SEGMENTAL PHONOLOGY

2.1 General

It was pointed out in Chapter I that the intonation of BI 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 BI 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 characterized 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 quantity 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

[1] Verguin (1955), p. 522.

the practice of good writers" [p. 125], a view consistent with the general trend in eighteenth 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 ا ā, و ū, and ي ī, 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.**[2]

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

The following are Marsden's rules of BI word-accent placement [pp. 118–126]:

1. When the penultimate syllable of a "primitive word" (cf. the term "base word" in this thesis) 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,* **tūlī** *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* → **jadīkan** *to cause*

[2] **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], respectively.

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** (nominalizing suffix) or **-ī** (pluralizing 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.*
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** *your self;* **marī** *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-bunyiān** *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 nonlinguist '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 BI 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 summarized 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,[3] like Marsden, also limit their treatment

[3] Adam and Butler (1948), p. 6.

of BI 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 generalize 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,[4] and also Oplt,[5] 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 Silbe stärker betont [p. 37].

However, he does not pursue further just how those **emotionellen Faktoren** are related to BI 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.

[4] Kähler (1956), pp. 37–38.

[5] Oplt (1960), pp. 29–30.

Unlike Marsden, Kähler (and also Oplt and Wolff[6]) 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 thesis 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 caratères 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

[6]Wolff (1965), pp. 1–27.

> en malais moderne le mot racine ne comporte pas d'accent démarcatif. La durée, la force articulatoire, ni 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 BI 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 BI word-accent.

2.2.5 S. Takdir Alisjahbana

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

Alisjahbana, undoubtedly one of the leading scholars of modern BI, 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,[7]

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, pp. 23–30) postulates two types of accent: word-accent and sentence-accent. He asserts that BI 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 /ɔ/ 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/BI tend to retain the final syllable when they abbreviate names does not necessarily prove that

[7] Alisjahbana (1962), p. 12.

BI 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 ke 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 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 BI shows that the alternation between /a/ and /ə/ in BI words like **sadar/sedar** has nothing to do with the placement of BI word-accent. It simply shows that /a/ and /ə/ alternate in BI 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 BI. 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, BI senang *pleased;* Mk. lapeh, BI lepas *loose, liberated* (the corespondence between Mk. -eh and BI -as is irrelevánt at this point); but Mk. tali, BI tali *rope;* Mk. malam, BI 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 BI.

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 BI, a vowel, here a schwa, was inserted, resulting in *bəhāsā. Second, since [ṣ] does not occur in BI, it changed to [s], producing *bəhāsā. Third, vowel shortening (ā became a) resulted in *bəhasa, from which BI 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* 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 BI 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
3. 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 emphasize important part(s) of one's sentence.

It is obvious that Alisjahbana's contention that there are these kinds of accent in BI is not supported by instrumental studies, such as the one reported in this thesis, 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 BI, intensity is the least characteristic, the defining features of BI accent being pitch and duration. Thus, there is only one kind of accent.

Emotional meanings such as happy, sad, etc., are signaled 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 correspondence 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):[8]

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

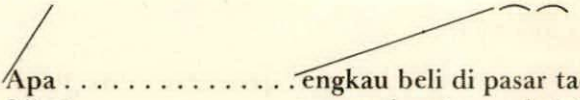
(19)

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

[8]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.

(*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):[9]

(20)



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

(*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 pattern, which is here

[9]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].

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 curent linguistics, adapted to the needs of BI. Thus, his working method is not different from that of earlier grammarians [p. 356].

Pané then proposes [p. 35] that BI 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 BI 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 psychological 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

communication 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 BI, 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 BI intonation. The most important of these is the fact that the character of Western music contrasts with that of BI: Western music is dynamic whereas BI 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 BI 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 BI 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 BI there is only one kind of accent, of which the defining feature is duration. He concludes that BI accent is temporal or durative. However, 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 BI 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 BI 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.

Pané 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 BI 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**) characterized by melody pattern (**rangkaan lagu**) and melody wave (**alunan lagu**), or a manifestation of rhythm (**wujud irama**) characterized 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 constituents (**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, symbolized 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) Sīrad / gūru.

Sirad teacher: Sirad is a teacher.

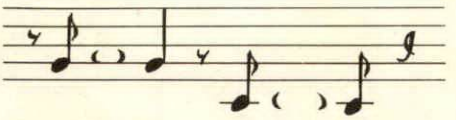
The lengthening as connecting wave of the final a of **sāya** (22) is the same as the length of the penult, which is accentuated [p. 97]. If so, then the length of the ya of **sāya** plus the lengthening as connecting wave is greater than that of **sā**. The question is, therefore, how does he justify assertion that the penult (**sā**) still carries the word-accent? Since Pané defines BI 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** (22) 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 corectly believes that intonation is closely related to grammar in BI. According to him, the grammatical counterparts of the two rhythmic immediate constituents discussed above are **subject** and **predicate** in predicative relation [p. 98 ff.]. 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 characterized 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)



Dī a ɣ 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)

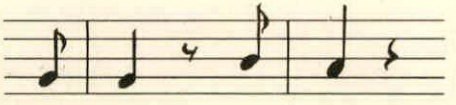
Di a gu ru [p. 102]

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)

i
Di a / pa [p. 109]
sia

he who: Who is he?

(28)

pa
a
sia / [p. 115]

a
di

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 BI, it lacks coherence. As Teeuw (1961) states:

> on account of its size, the lack of clarity of his hypotheses and the confused arangement, 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 BI. In fact, he explicitly states [p. 9] that intonation is the only criterion which gives the final decision whether or not a given BI 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 sentence which make up a unit larger than the sentence, such as a paragraph, is characterized 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 para-

graph 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 signaled by non-intonational devices or features such as semantic homogeneity or coherence, reference (including coreferentiality and pronominalization), 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 sentences (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 (29*a*) is not a (complete) sentence, but a question plus its answer such as (29*b*) is.

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

(29*b*) **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 defining feature of the sentence, and, therefore, his statement that questions are non-sentences. His differentiation between types and kinds of sentences 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 (30*a*) and (31*a*) below.

(30*a*) **Sibuk mereka.**
232_f / 211_f #

(31*a*) **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,[10] case relation to **sibuk** *busy* in both (30) and (31). The sentence (30) is generated by applying "focalization" 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 focalization and "topicalization" 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 focalization and topicalization need to be clarified since these two terms are of prime importance to the rest of this thesis, especially Chapter IV.[11] Focalization refers to the

[10]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 ralation is agentive. Whatever choice is made between these two relations is not crucial to the point we are making here.

[11]Fillmore (1968, p. 57) defines topicalization processes as "devices for isolating one constituent of a sentence as *topic*, of bringing one particular constituent of a sentencee into some kind of *focus*." This thesis deviates from Fillmore in that a topic may be or may not be focalized.

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 focalization. In BI, almost any constituent of a given sentence may be focalized; that is, undergo focalization.

(32) **Ibu memanggil Nani tadi.**
mother call Nani just now:
Mother called (i.e. summoned) Nani just now.

(33) **Nani dipanggil ibu tadi.**[12]
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.

Topicalization, 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 sentence contains two or more topics, some or all of these topics may be either focalized or unfocalized. An unfocalized 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.

[12]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 thesis.

Unlike focalization, which is marked by word-order, topicalization is marked by intonation. Negatively, topicalization is not marked by word-order. A focalized topic is marked by the contour symbolized by 233_r. An unfocalized topic is marked by the contour symbolized by 211_f. A topic contains an accent only when and if it is focalized. 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 in the comment is called *nuclear accent.* The comment 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).

(35) **Anak perempuan itú / kelakuannyá báik.**
child female that behavior her good:
As for that girl, her behavior is good.

(36) **Kalau sayá / tidak akan saya 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 are 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 realized 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 (35*a*) through (38*a*) respectively.

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

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

(37*a*) **Tempo hari di Palembáng diá agak sákit.**
$2-\quad 33_r/\ 2-\quad 33_r\ /\ 2\,33_r/\ 2-\quad 3\,1_f\#$

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

2.3 Conclusion

We have seen that these earlier works are inadequate for the following reasons:

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

2. Most of them do not handle BI intonation beyond superficial and brief accounts of BI word accent.
3. Postulation of BI 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 BI intonation as reported in this thesis is needed.

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

CHAPTER III

WORD ACCENT

3.1 Characterization of Accent

This chapter characterizes _____ word-accent. It also presents rules of accent placement.

The word accent in BI 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 characterized 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.

3.1.1.1 Pitch

Pitch is the auditory correlate of the fundamental frequency of vocal cord vibration, which may be characterized 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

[1]The term "pitch level," which is also relative in nature and characterizable 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.

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 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 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

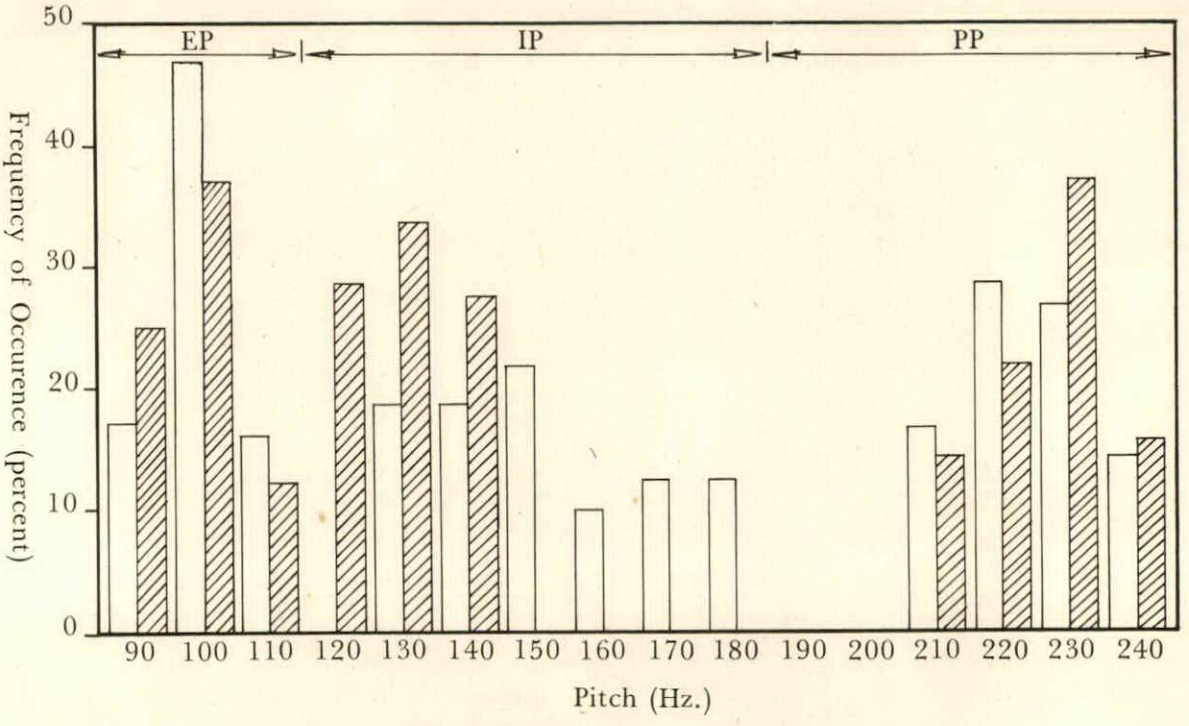


Fig. 1. Ranges of the initial pitch (IP), the peak of pitch (PP), and the end pitch (EP). (Shaded columns represent marked forms).

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 generalization 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 hypothesized that the word accent is characterizable in terms of pitch. This hypothesis seems to be evidenced by the perfectly regular occurrence of the peak of pitch on 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

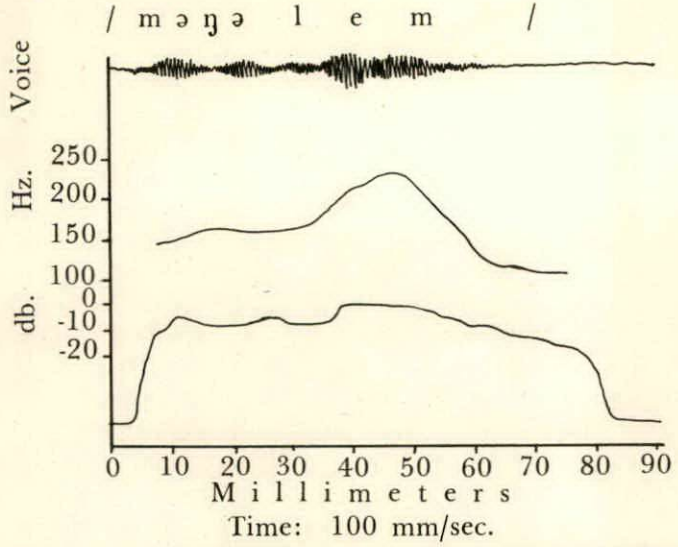


Fig. 2. An illustration of the case in which the initial pitch is higher than the end pitch.

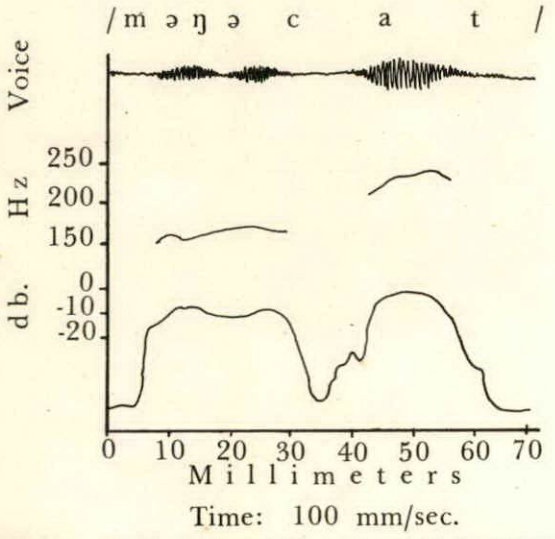


Fig. 3. An illustration of the case in which the initial pitch is lower than the end pitch.

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 umarked, 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 characterizable 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 ----------

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

TABLE 1

RELATION BETWEEN WORD ACCENT AND PEAK OF PITCH

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	40.0	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

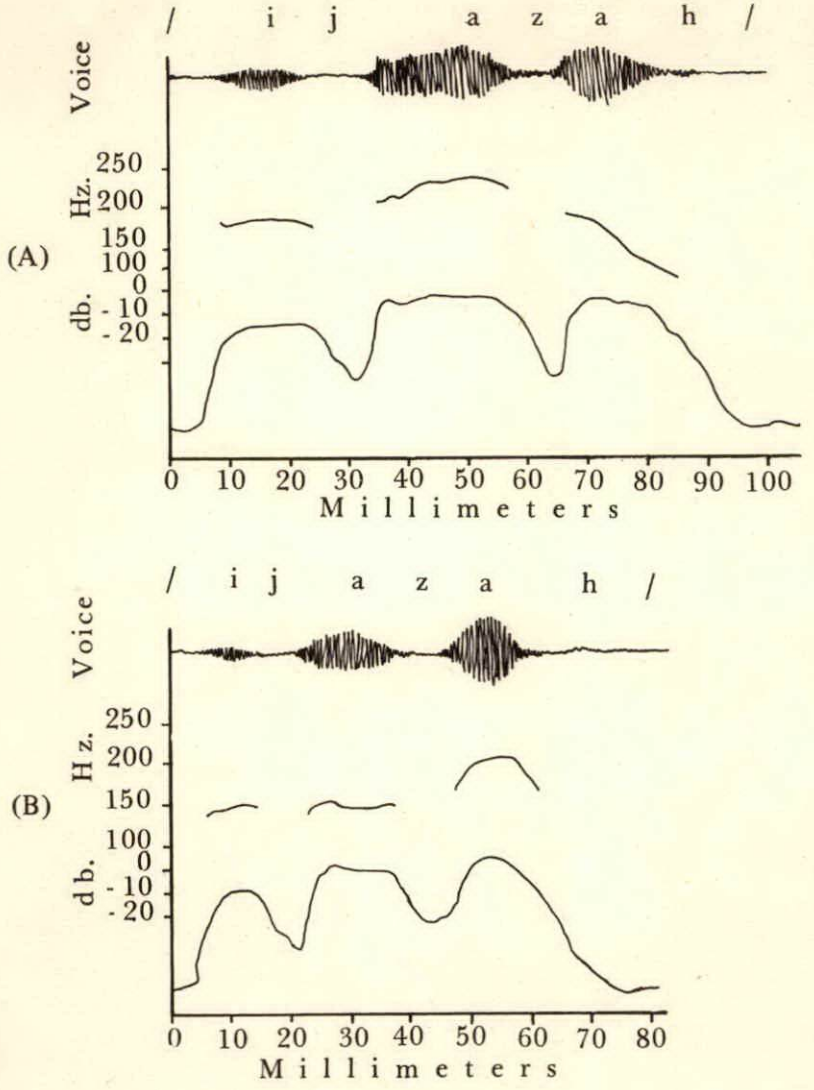


Fig. 4. Mingographic tracings of *(A)* **ijázah** and *(B)* **ijazáh** *diploma.*

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 characterized by the peak of duration of the word.

The duration of final vowels tends 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 characterized 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 characterizes word accent (3.1.1.1), and the longest duration. Of the 71 unmarked words less than half (31 percent) are characterized 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 generalization by stating that BI word accent is primarily characterized 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

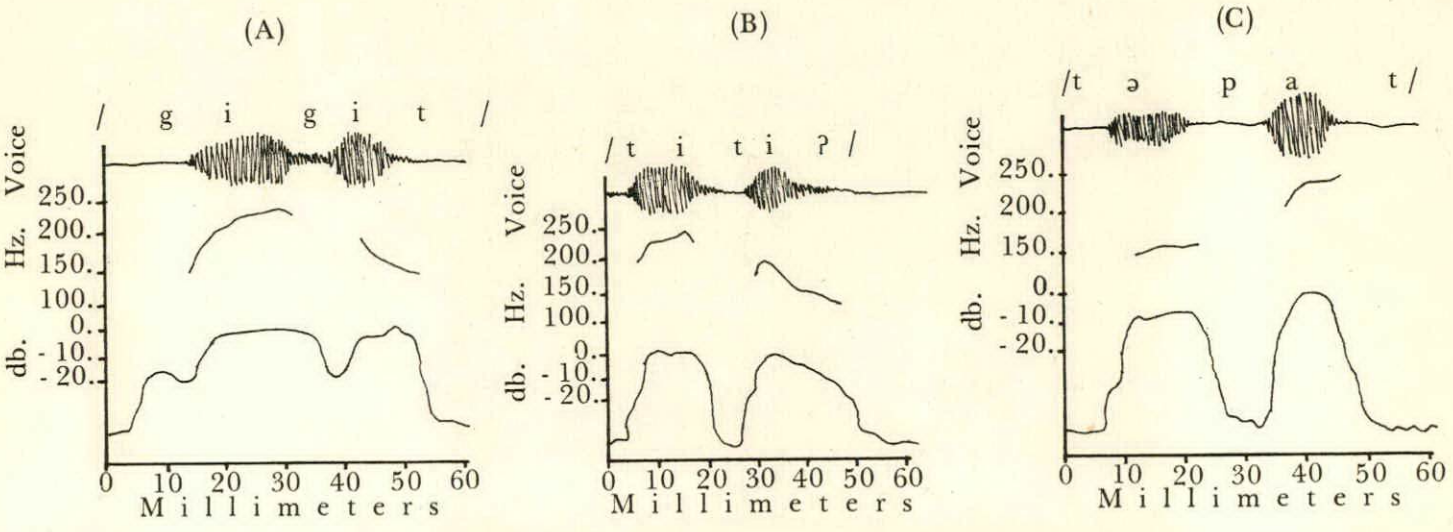


Fig. 5. Mingographic tracings of *(A)* **gigit** *to bite, (B)* **titik** *dot,* and *(C)* **tepát** *accurate.*

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 summarizes 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 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.

TABLE 3

RELATION BETWEEN WORD ACCENT AND LONGEST DURATION

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

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,[3] for example, (accentual minimal) pair 8; **jémput** and **jempút**, and pair 15: **menjémput** and **menjempút** *to pick up, fetch.*[4] 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 generalize at this point that Indonesian word accent is characterized 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.

[3] See Figures 6 and 7.

[4] **jemput** is a base and **menjemput** is a non-base.

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.

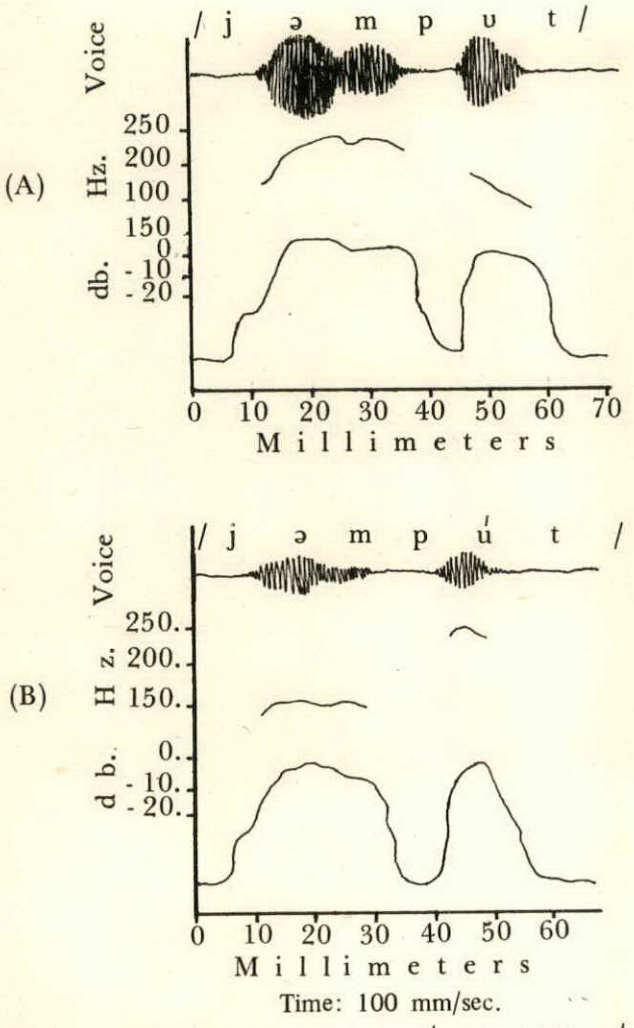


Fig. 6. Mingographic tracings of (A) **jémput** and (B) **jempút** *to pick up, to fetch.* (Base).

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

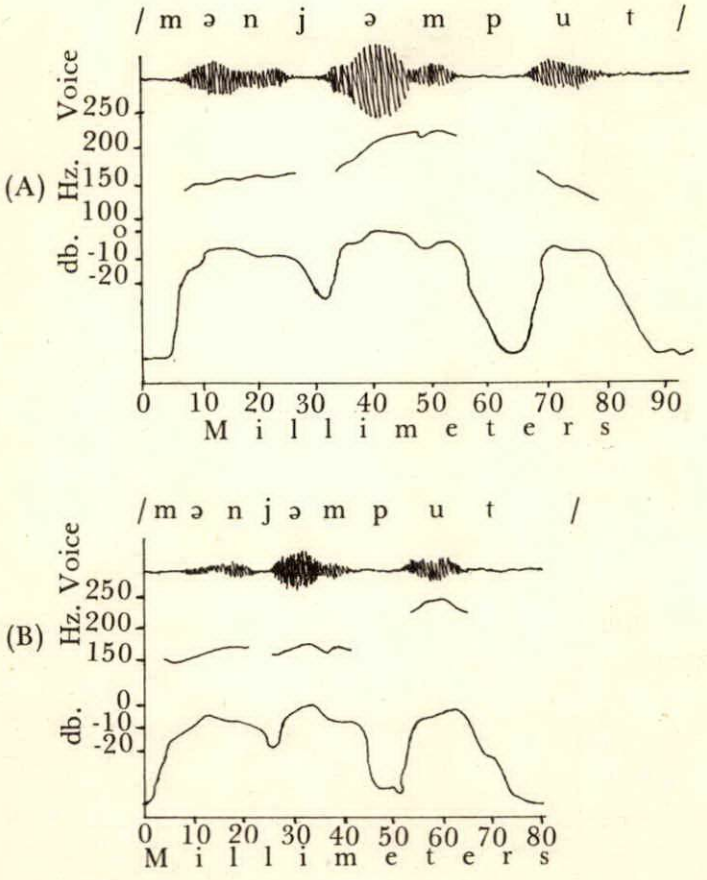


Fig. 7. Mingographic tracings of (A) **menjémput** and (B) **menjemput** *to fetch.*

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. 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 precent on their penultimate vowels, and 12.1 percent on both the final and the penultimate 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.

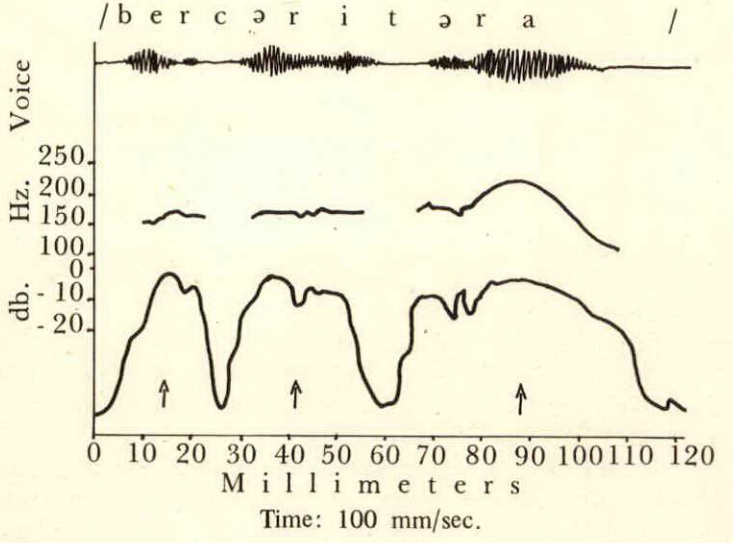


Fig. 8.

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 characterizes 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, symbolized 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, symbolized 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, symbolized by PI·PP, (4) the peak of intensity occurs on the vowel following the one on which the highest pitch occurs, symbolized by PP-PI,[5] and (5) the peak of intensity occurs on one or more than one vowel preceding the one on which the highest pitch occurs, symbolized by PI-PP.[6]

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

[5]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.

[6]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.

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 bahásа**, which illustrates the PI-PP type.

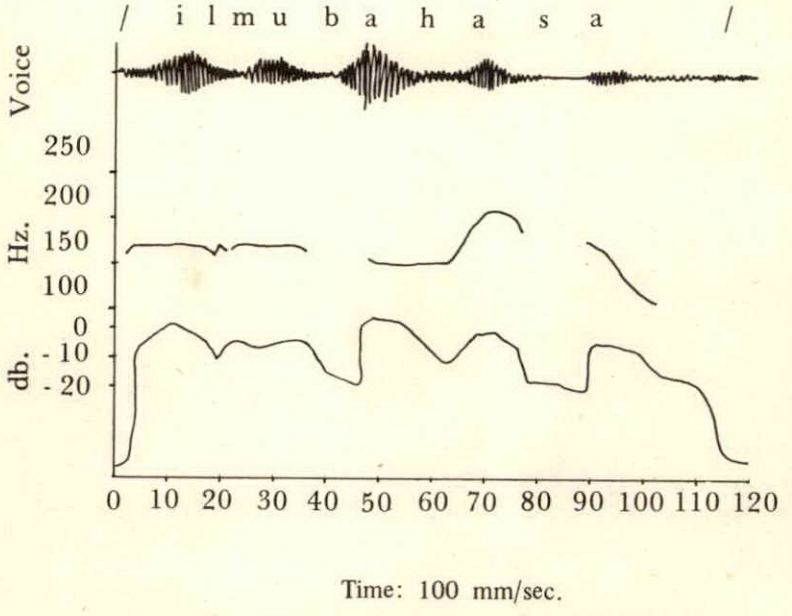


Fig. 9. A mingographic tracing of **ilmu bahasa** *linguistics.*

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 generalization 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.

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 percent 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 correlation between accent and intensity. Thus it can be generalized 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			Vinal 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 summarizes 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 characterizes word accent and that there is a definite increase of pitch in relation to accent in all of the cases. It was generalized in 3.1.1.2 that Indonesian word accent is also generally characterized 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.

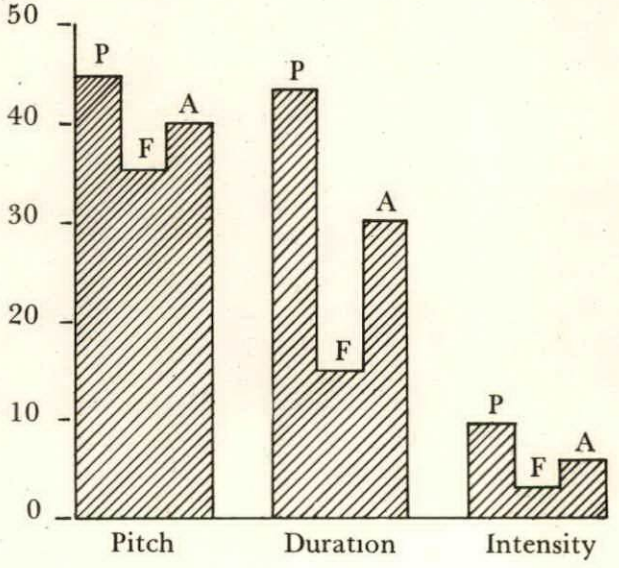


Fig. 10. Mean increase of pitch, duration and intensity of penultimate (P) and final (F) vowels in relation to accent. A represents the average increase.

Thus, Indonesian word accent is characterized by pitch and duration, and therefore, it may be called "tonotemporal."

3.2 Distribution of Word Accent

In order to satisfactorily account for the distribution or placement of word accent of BI, two categories of BI words need to be recognized. 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,[7] 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-** (passivizing prefix) + **cat** *paint*)

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

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

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

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

(44) **pengecatannyálah** *it is the painting of it (that I'm talking about* (← **pengecátan** *(process of) painting* (42) + **-nya** *its* + **-lah** (emphasizing 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 monosyllabic falls on the penult, except when the final syllable is the base itself, in which case the accent falls on the final syllable.

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

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) **beribu** *to have a mother* (← **ber-** *to have* + **ibu** *mother* (46)

(63) **sepersembilan** *one ninth* (← **se-** *one* + **per-** *over* + **sembilan** *nine* (50))

(64) **daya tembak** *firing power* (← **daya** *power* + **tembak** *to shoot* (49))

(65) **keistimewaan** *specialty* (← **ke- . . . -an** (nominalizing simulfix) + **istimewa** *special* (54))

(66) **tembakan** *shot* (← **tembak** *to shoot* + **-an** (nominalizing suffix))

(67) **tembakannya** *his shot* (← **tembakan** *shot* (66) + **-nya** *his*)

(68) **tembakannyalah** *it is his shot (that I'm talking about)* (← **tembakannya** *his shot* (67) + **-lah** (emphasizing suffix))

(69) **ketidakadilan** *injustice* (← **ke- . . . -an** (nominalizing simulfix) + **tidak** *not* + **adil** *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 wórd 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 monosyllabic 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) **dipertahankannyálah** *(it/they) was/were then defended by him/them* (← **di-** (passivizing prefix) + **per- . . . -kan** (verbalizing simulfix) + **-nya** *him* + **-lah** (emphasizing 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 signaled.

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– 33_r / 2–3 1_f#
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) tantényа *his/her aunt*

3.2.2.3 Grammatical Contrasts

One type of grammatical contrasts that is commonly signaled 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 signaled by accent (shifting) is "aspectual"[8] contrast. Here, the accent is not necessarily shifted to the final syllable as in signaling emphasis above. The accent may also be shifted to a prefix syllable. Compare, for example. (92) and (93) in the sentence (94):

[8]The term "aspectual" is used here with the meaning of "aspect," "voice," and "mode" as defined by Nida (1963), pp. 167–169.

(92) **ménanam** *to plant* (← **menánam**)

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

(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.

Mereká .... 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:

(*a*1) The word occurs as the last (or as the only) word in a marked pause-group,

(*a*2) 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 BI, 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 BI?

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 way assigns structural descriptions to sentences"[2]. This set of rules makes up the form of the grammar, which may be broken down into three components[3]: a syntactic component, a semantic component and a phonological 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 subcomponent 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 recognized by Pike (1947) 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."[4] It is also recognized by Halliday (1967) when he says that "in describing English intonation, we let the grammar decide how delicate we should be" [p. 9], and

[1]Chomsky (1965), p. 4.

[2]Chomsky (1965), p. 9.

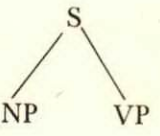
[3]Note, however, that Chomsky's three components and their order of operation have recently been challenged. See, for example, Lakoff and Ross (1967); McCawley (1968); Bierwisch (1968). Note also that Pike (1967) has long maintained that from the point of view of "wave" and "field" the components interlock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

[4]Pike (1967), p. 573.

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,[5] and that "what is needed is a conception 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

(99)

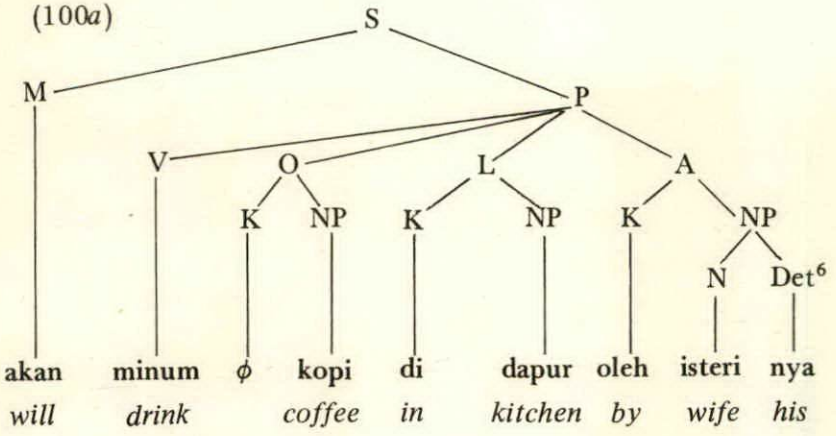


a modification in which the deep structure of the sentence (S) consists of **proposition** (P), which dominates a verb (V) and one or more case categories in labeled case relation to P, and **modality** (M). Each of the case categories dominates a case marker and a noun phrase (NP). Labeled case relations 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 realizations of the same underlying element (that is, case marker), symbolized by K (for **Kasus**). Thus, for example, the deep structure of (100) is represented by (100*a*).

[5]Cf. Becker (1967), pp. 2–3.

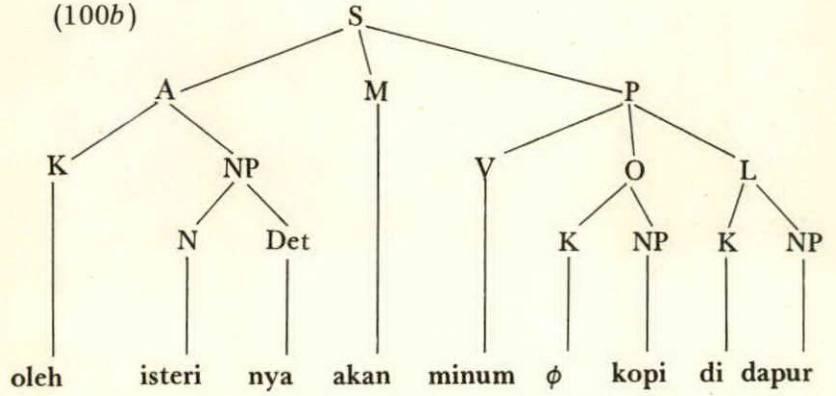
(100) **Isterinya akan minum kopi di dapur.**
His wife is going to drink (some) coffee in the kitchen.

(100*a*)



Subject-fronting transformation changes (100*a*) to (100*b*). As in English, A(gentive) becomes the (surface) subject if there is an A. This subject is *unmarked.*

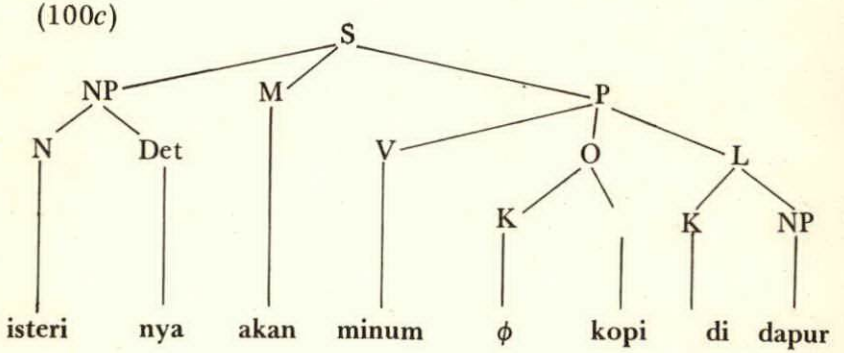
(100*b*)



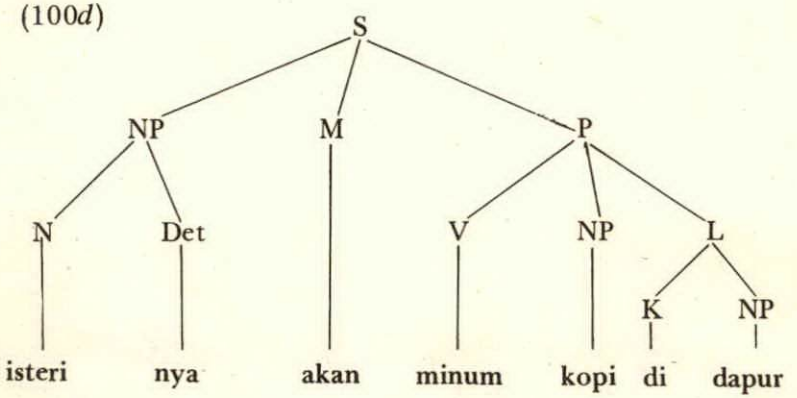
[6]Notice that the order Det(erminer)–N(oun) in Fillmore's work is here changed into N–Det. This change is motivated by the fact that modification constructions in BI are of the post-modification type: the modifier follows the "head." The change does not alter the validity of Fillmore's argument in any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

Subject-preposition deletion changes (100*b*) to (100*c*), and object-preposition deletion[7] generates (100*d*), which is the surface structure of (100), of which the deep structure is (100*a*).

(100*c*)



(100*d*)



[7]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).

The surface structure (100*d*) then becomes the input of the phonological component. The output is the (systematic) phonemic representation in terms of distinctive feature compositions (100*e*), where, for convenience, the feature compositions are abbreviated into phonemic symbols. The eventual phonetic interpretation is represented by (100*f*).

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

(100*f*) [istri ɲá̰ mĩnũm kopi di dá̰pur].

It has long been recognized 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,[8] 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.

[8]Stennes (1961), p. 9.

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 organizations 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 characterized 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 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 sentence (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 dialogue between Jimmy and his mother might be called an "included" discourse; that is, within that between the mother and her guest.

The same situation may also illustrate the case in which the discourse 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 transformationalists 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,"[9] and views a grammar "as a device of some sort for producing the sentences of the language under analysis,"[10] 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.[11]

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.[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) [underlining is mine]. The

[9]Chomsky (1964*a*), p. 13.

[10]Chomsky (1964*a*), p. 11.

[11]Chomsky (1964*b*), p. 9. Cf. Chomsky (1965), pp. 8–9, and Lees (1964), pp. XVII, XXIX–XXX.

[12]Chomsky (1966), p. 12.

> 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.[13]

That transformational grammar does not handle interrelations of sentences in connected speech is recognized 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 focalization 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 recognize 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.[14] For example, under what condition or conditions is the

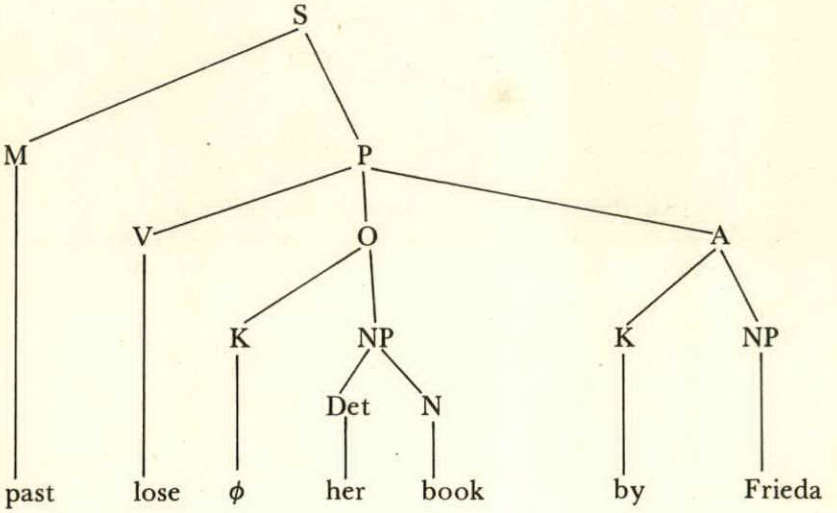
[13] Katz and Fodor (1964), p. 484.

[14] At this point this thesis 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.

(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 focalization? 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 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 illustrates how contexts provide for information necessary in accounting for deletion and focalization transformations. Dialogue (103) is another example.

(103) A1. **Bagaimana kalau saya kembalikan sája buku**
2– $32_f/211_f$
how if I return just book

ini?
#
this:

What about if I just return this book (to the library)?

B1. **Jangan sekárang!**
2– 31_f #

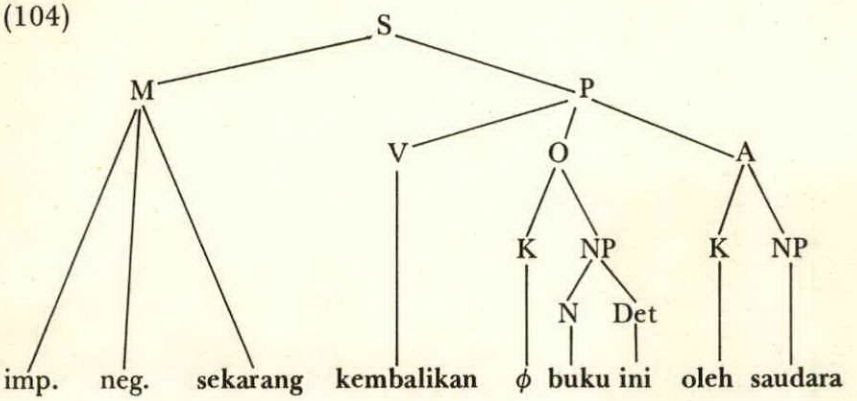
A2. **Masih perlú?**
2– $_f31_f$#
still need: Do you still need it?

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 B1 and grammatical processes involved in generating it can be accounted for only in relation to A1. The deep structure of B1 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 B1; that is, what B is interested in is

(104)



the book. Thus, this produces, after all obligatory preposition-deletion and agentive-deletion transformations 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): A1.

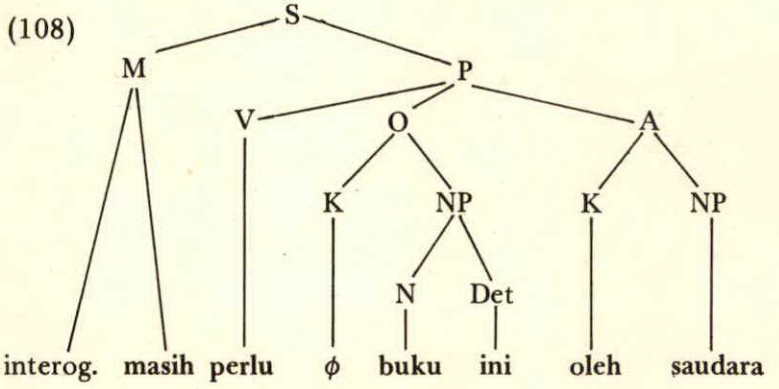
Now, **buku ini** has been mentioned in (103): A1, and therefore is no longer novel information in (103): B1. For this reason, it may be optionally deleted, changing (105) to

(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): B1.

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 addresse (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?

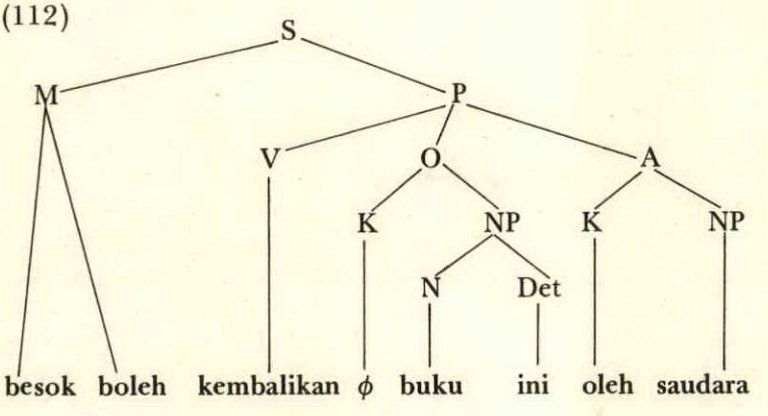
(111) **Apakah masih perlu?**
do still need:
Do you still need it?

Finally, the interrogative indicator **apakah** is deleted, and the interrogativeness of the sentence is now signaled 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 BI. 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)



(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 BI. 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 pronominalization in BI is realized 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.[15] 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 BI, by deleting second-person pronouns in the surface structure. The presence of the addressee generally eliminates the otherwise possible ambiguity of BI sentences where the second-person pronouns have been deleted.

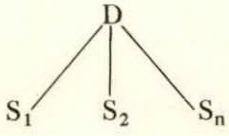
The relevance of contexts[16] (linguistic or otherwise) to the structure of the sentence has been demonstrated. The condition or conditions under which the choice of grammatical processes is made by the speaker-hearer in arriving at the surface structure of his sentence may be specified in terms of its 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

[15]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).

[16]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, pp. 56–57).

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 labeled 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 processes involved in moving from the deep-structure to the surface-structure presented above, represent dialogue (103) by (116).

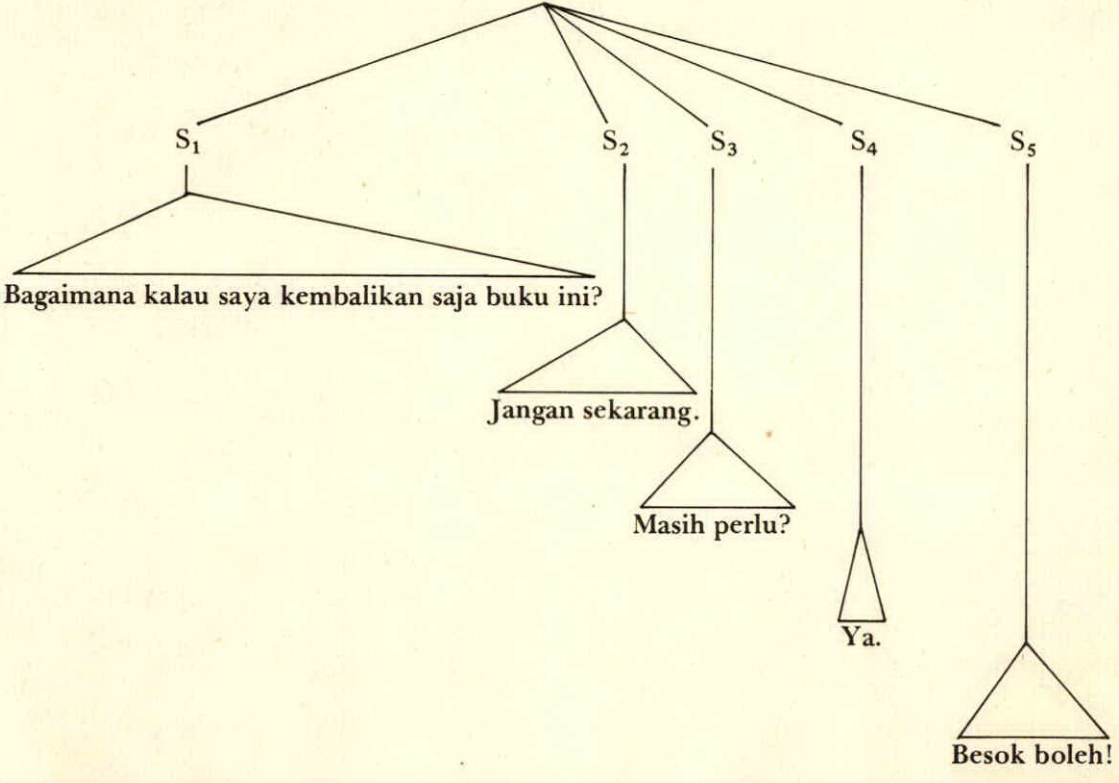
(115)



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 recognize 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.


S1
S2
S3
S4
S5
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 component of grammar may be viewed as having two types of representation: segmental representation, and non-segmental (or, prosodic) representation. 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 segmental representation is its non-segmental (or, prosodic) representation. This is what is referred to as intonation.[17]

The relation between the segmental representation and the non-segmental representation is such that, in practice, one is impossible without the other. Thus they may be called *simultaneous.* The theoretical justification for separating and recognizing 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[18] of the phonological component of the grammar, and is realized or expounded on the performance level by such items as pitches, accents, pauses, and the organization 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 recognized that intonation has two functions: (1) grammatical and (2) emotional, that these

[17]Cf. Hockett's "intonation" and "remainder" as immediate constituents of the total phonological representation (1955, pp. 43–51).

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

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,[19] or as a sentence with intonation contours "completely colorless in meaning"[20] 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 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): B1*a*, in which the placement of the accent on the final syllable

[19] Stockwell (1960), p. 362.

[20] Pike (1963), p. 20.

(103): B1*a* **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): B1*a* means something like *I insist that you not do it now*. Compare further (103): B1, (103): B1*a*, and (103): B1*b*.

(103): B1*b* **Jangan sekárang!**
2– 3 3_s #

In (103): B1*b* 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): B1*a*) to 33_s. This change signals the speaker's attitude of *mild insistence*. Thus, the meaning of (103): B1*b* is something like *I'd like to persuade you not to do it now*.

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

4.3.2 Characterization of BI Intonation

A characterization of BI 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 organization 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 recognized 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,"[21] that is articulatory activities of our sound

[21] 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 thesis, whe are concerned only with the first function.

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, 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.[22] 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.[23] 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. 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 BI there are three contrastive pitch levels: high, neutral or mid, 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

[22] 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*.

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

opposing high and low as summarized 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 ˈitu.**
2– 31 #
That box, as a response to, for example,
Kotak mana?
2– 3 1 #
box which : Which box?

(120) **Kotak ˈitu.**
2– 32 /
That box, as a constituent of sentences like
Kotak ˈitu maksud saya.
2– 32 / 2 11 #
box that mean I :
That box is the one I mean.

(121) **Kotak ˈitu.**
2– 33/
That box, as a segment of sentences like
Kotak itú kótor.
2– 33/ 231 #
box that dirty : That box is dirty.

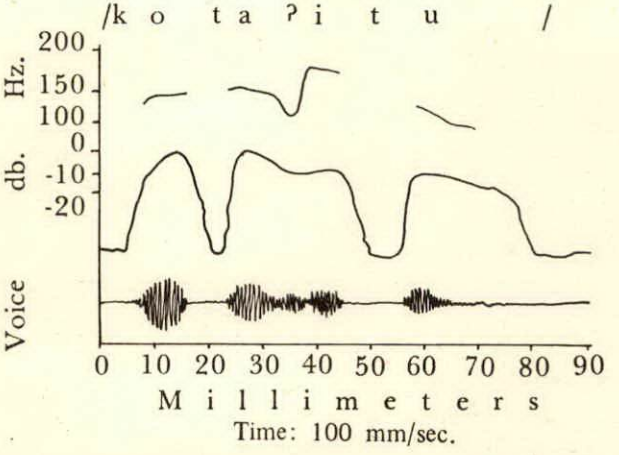
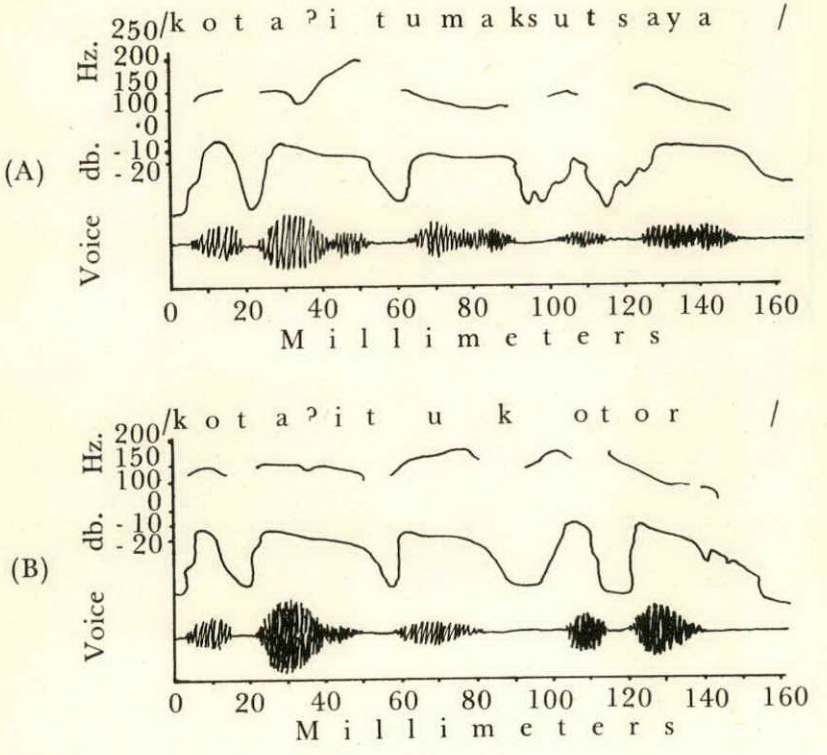


Fig. 11. A mingographic tracing of **kotak ˈitu.**
2– 31ˈ#

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 *focalized 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 BI.

Now, since PL2 is the initial pitch level of a pause-



Time: 100 mm/sec.

Fig. 12. Mingographic tracings of:
(A) **Kotak itu maksud saya.**
2– 32 / 211 #
(B) **Kotak itu kotor.**
2– 33/ 231 #

group (by definition),[24] 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 realized in the phonetic representation of BI 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

[24]Notice, however, that PL2 as the initial pitch level of a pause-group is not always realized 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 realized.

follows is realized 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 *focalization*), by means of which 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, 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.**[25] 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 **falling-rising.** In the actual use of language, simple contours may occur in combination, resulting in the complex intonation contour. This, however,

TABLE 8

FEATURE COMPOSITION OF CONTOURS

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

is non-syntactically motivated in BI, 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 syntacti-

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

cally motivated, whereas the latter is conditioned by the speaker's state of emotions and attitude.

The information obtained from the view of intonation as particles (that is, as pitch patterns) and that obtained from the view of intonation 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 falling 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 (125*a*) is used here for convenience in describing, for example, the case of 233, where the terminal pitch movement is 33, which in its phonetic realiza-

(124) **Selamat pagi.**
2– 3 1#
Good morning.

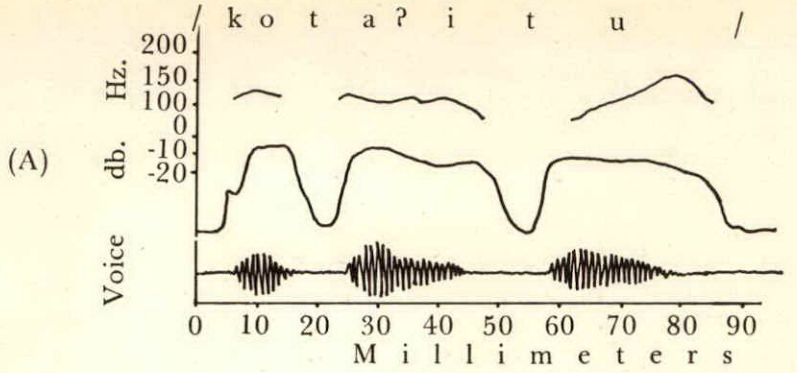
(125) **Selamat** pá^{f}**gi.** *Good morning.*

tion may be falling, rising, or sustained if it is followed by a cessation of speech. Figure 13*A* and *B*, and Figure 14 illustrate 233_f, 233_r, and 233_s respectively.

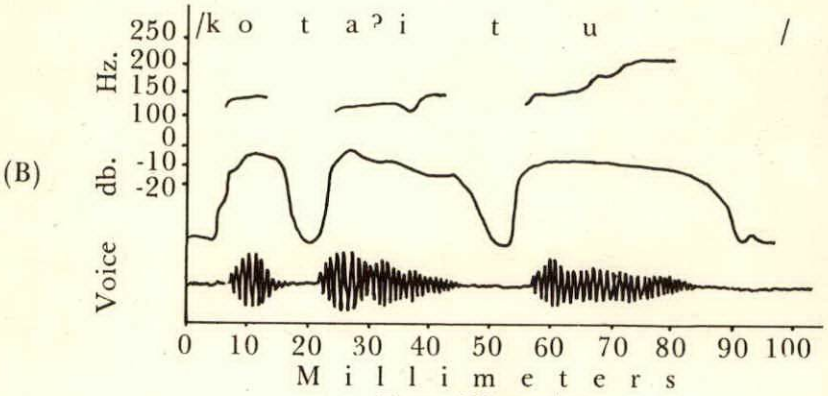
(125*a*) **Selamat** pá**gi.** *Good morning.*
2– 3 1_f#

Since there is no evidence that rising and sustained contours are contrastive in relation to BI 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 symbolized 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.



(A)



(B)

Fig. 13. Mingographic tracings of (A) 233_f and (B) 233_r.

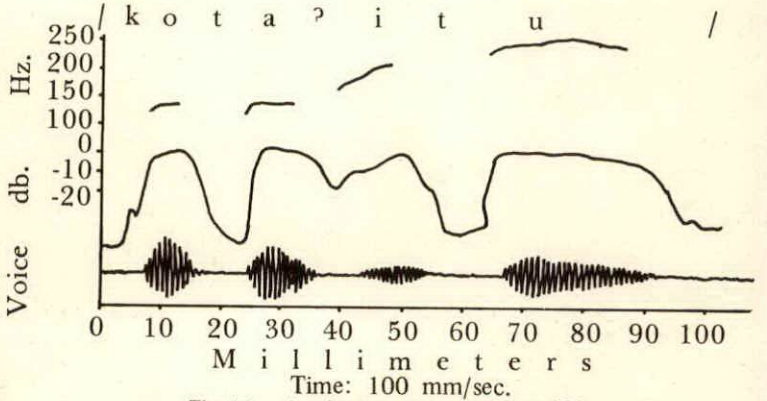


Fig. 14. A mingographic tracing of 233_s.

4.3.2.2 Accent

Accent is closely associated with pitch.[26] It refers to that prosodic feature which makes the syllable on which it falls relatively more prominent than its neighboring syllables within the same pause-group, and which is perceived by the listener as *stress*.

BI 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 BI because of (1) the distribution of the accent, and (2) defining features of the accent in BI.

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 BI syntax. There is no lexical contrast between, for example, **kótak** and **koták** *box*.[27] 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.

[26]Cf. Bolinger (1958).

[27]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, p. xxvi) about Javanese that "it makes no difference which syllable of a Javanese word gets the loudest stress" does not apply to BI. It should be interesting to see the consequences of Horne's statement even in Javanese.

(126) **Sayá mengatakan kótak.**
$2-33_r$ / 2– 3 1_f #
I say box:
I am saying box.

In other words, there is no word-accent as such in BI 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 itu.
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
2– 33_r/2–
injustice regulation new the create
perpecáhan.
3 1_f #
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 Characterization of Accent

The second reason for postulating only one type of accent in BI is that the same criteria of characterization 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 BI accent are conditioned by factors like occurrence 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 BI, 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 BI:

> 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.[28]

It is postulated here that there is only one type of accent in BI, and that the defining features of this accent are pitch and duration or length, and therefore the descriptive term "tonotemporal" is proposed for BI 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 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

[28] Vanderslice (1968), p. 29.

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 BI 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 BI. 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 BI in relation to BI 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 focalized 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 Doni.**
2– 3 2_f / 211_f#
is sleeping Doni
Doni is sleeping (with unfocalized topic).

Now, notice that if, instead of applying focalization (or fronting) to subject-as-topic (i.e., **Doni**) as in (127), we apply it to predicate-as-comment (i.e., **sedang tidur** *is sleeping*) as in (128), then we can see that

a. the nuclear accent is retained by **ti-** 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 **-ni** 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 focalized, and the other with the comment focalized.

(129*a*) **Mereka di sini kemárin.** (Topic focalized.)
2– 33_r/ 2–3 1_f#
they here yesterday :
As for their being here, it was yesterday.

(129*b*) **Kemárin mereka di sini.** (Topic unfocalized.)
2–3 2_f / 2 11_f #
It was yesterday that they were here.

(130*a*) **Saudara berangkát naik ápa?** (Topic focalized.)
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?

(130*b*) **Naik ápa saudara berangkat?**
2– 32_f/ 2 11_f
How *are you leaving?*

The differentiation between nuclear and non-nuclear accents will be ilustrated 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**.[29] The former is notationally symbolized 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

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

pause, as a theoretical entity may or may not be realized 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 realized presumably depends on the relative speed of speaking. The faster the speech the less likely for the pause to be realized 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,[30] 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 realized by cessation of speech or not is non-syntactically conditioned, and will not be discussed further since it lies beyond the scope of this thesis. It is also assumed that when a pause is not realized 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:

> 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

[30]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).

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.[31]

A phonetically unrealized 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 realization 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 realized 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

[31] Pike (1963), p. 31.Cf. Pané's **alun penghubung** *(connecting wave)* described in Chapter II).

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 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 pattern, 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 symbolized 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 realized, 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 realized pre-contour is manifested by a relatively level PL2. Furthermore, a pre-contour is realized 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 realized, 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 therefore 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.

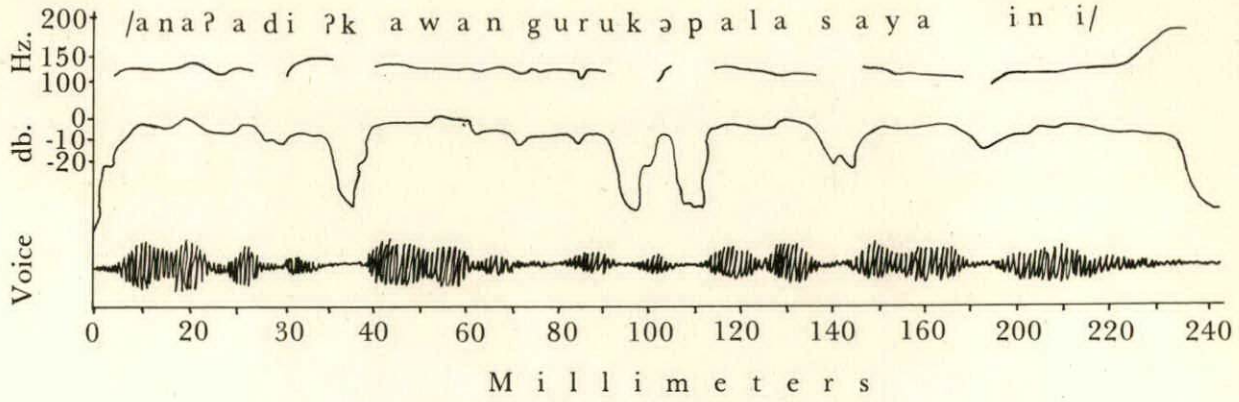
Now, if the first syllable of the total contour is accentuated, the pre-contour is not realized. If the pre-contour is not realized, then the total contour consists of a primary contour only. Compare, for example, the second contours of (134) and (135). In (134) the contour relatable to the comment **buku 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 realized. 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).

A primary contour begins where the preceding pre-contour, 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 BI accent, a primary contour begins with its accentuated syllable. The primary contour ends with the



Time: 100 mm/sec.

Fig. 15. A mingographic tracing of
anak adik kawan guru kepala saya ini
2– 33_{r}/

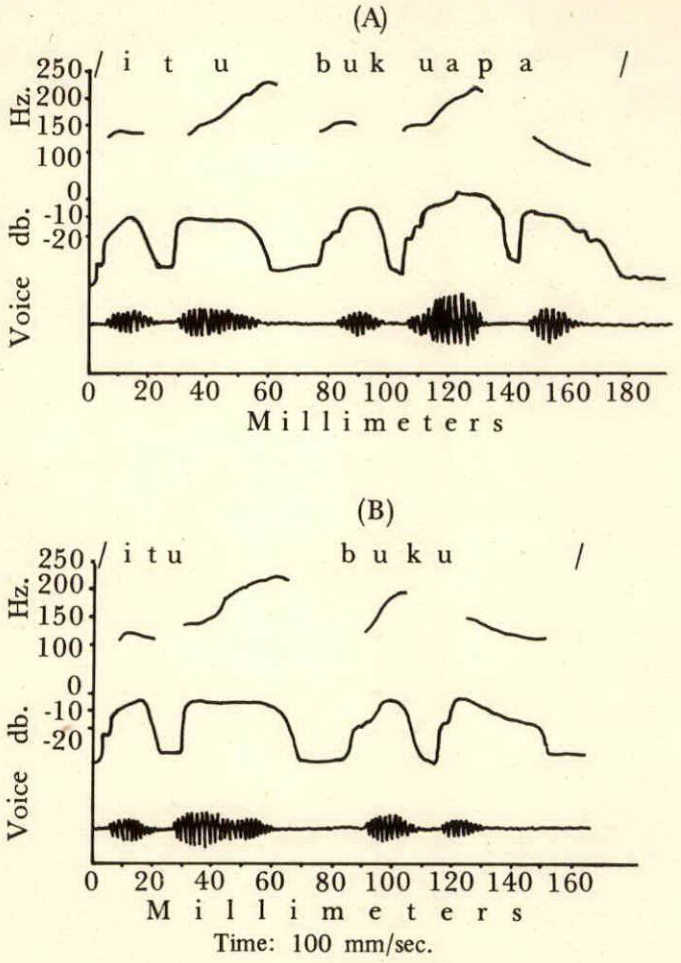
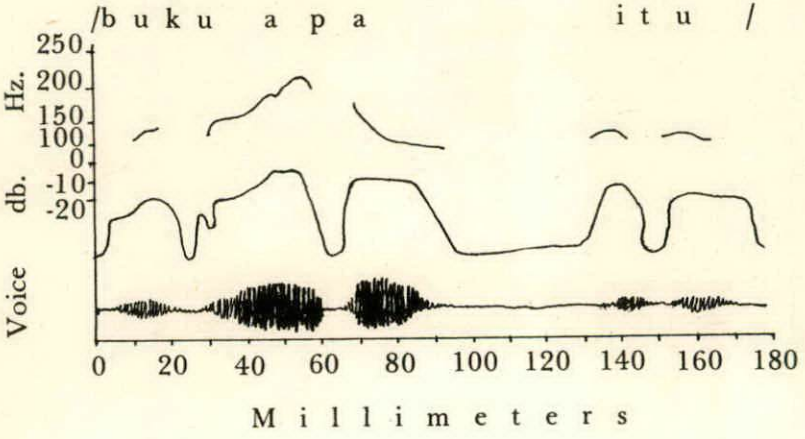


Fig. 16. Mingographic tracings of
(A) Itú buku ápa?
$23_3{}_r$/ 2_- 31_f#
(B) Itú búku.
233_r/ 231_f#

final pitch level and the terminal pitch movement of the contour, thus with 33_f, 32_f, or with 31_f.

It has been shown (4.3.2.2) that the category topic is unaccentuated when it is not focalized. 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 realization is displayed by Figure 17.

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



Time: 100 mm/sec.

Fig. 17. A mingographic tracing of
Buku apa itu?
2– 32_f/ 211_f#

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 thesis 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 realized (see 4.3.2.3), the pause-group may or may not be realized in its phonetic representation. If realized, the pause-group ends with cessation of speech. If not realized, 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[32] 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[33] within each of these pause-groups is dependent on the position of the pause-groups relative to each other. Suffice it to point out,

[32]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, p. 18).

[33]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, p. 18).

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) focalized Subject-as-topic (**kopi ini** *this coffee*), and (2) comment (**masih panas** *still hot*).

(137) **Kopi iní 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 defocalized (that is, not focalized) as in (138), the same number of underlying pause-groups remains. Notice, however, that the pause-groups of (137) and their 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) focalized Subject-as-(primary) $topic_1$ (**Doni**), (2) focalized Modal-as-$topic_2$ (**kemarin** *yesterday*), (3) focalized Locative-as-$topic_3$ (**di sekolah** *at school*), and (4) comment (**main bola** *played ball*), respectively. The position of these pause-groups

(139) **Doní kemarín di sekoláh main bóla.**
2–33_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.

changes, and 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 bóla 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.**
2–33_r/ 2– 33_r/ 2– 3 2_f/ 211_f #
As for Doni, while at school, playing ball was what he did yesterday.

(143) **Doní kemarín main bóla di sekolah.**
2–33_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 unrealized pause-groups and deleted pause-groups. Unrealized 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 unrealized 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

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

of **bola** *ball* and then remains (of course with some non-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). Unrealized 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 BI 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– $3\ 1_f$#
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– 31_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 recognize the

relations between intonation and syntax, and his ability to utilize 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 brack-

(152) This is [the cat that caught [the rate that stole [the cheesel]]]

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

eted), 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].

On the other hand, Stockwell (1960) recognizes 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 analyzes 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 is 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 recognized [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 thesis: (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.[34] 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

[34]See, for example, Nida (1963), pp. 168–169.

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 BI 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 imperative modes respectively.

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 symbolized 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 symbolized 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 symbolized as:
$233_r/ \ldots (233_r/)\ 232_f/\ (211_f/) \ldots 211_f\#$

The intonation pattern symbolized 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 focalized. IP_1 specifies that if focalized, 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

(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.

pause (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 focalized, the results are (159) and (160) respectively. The

(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.

concomitant intonation changes are therefore relatable to the transformation processes involved in changing (157) to (159), and (158) to (160). Thus, the intonation pattern symbolized by $232_f/(211_f/)$ ... 211_f# is a syntactically

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

conditioned variant of IP_1. For the same reason, the intonation pattern symbolized by $233_r/$ ... $(233_r/)$ $232_f/$

$(211_f/)$ . . . $211_f\#$, and 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 confirm 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 BI 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**,[35] 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?

[35]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.

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

(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 (unfocalized) topics, whereas in (168) **mahal** *expensive* is the comment, and **rumah** *house* and **sekarang** *now* are the (focalized) topics. The meaning of (171) is roughly *As of now, are houses the things that are expensive?*

Third, some yes-no questions are signaled by intonation. The syntactic structure of the sentence under attention is kept as in its declarative mode; its interrogativity is signaled by its intonation pattern (IP_2), which may be symbolized 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

(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 arrihal, is it at seven o'clock in the morning?

contour which is made up of a pre-contour and 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 symbolized 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 #

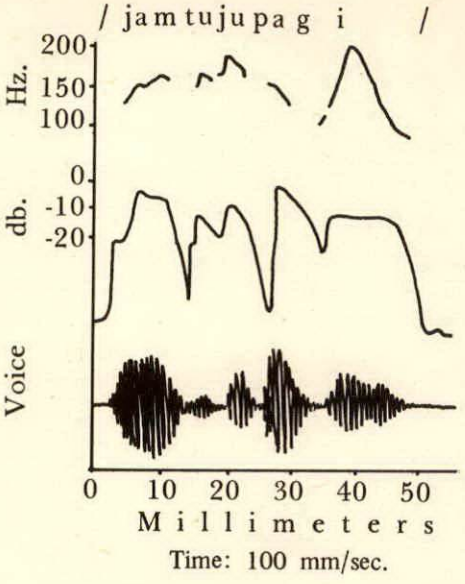


Fig. 18. Mingographic tracing of **Jam tujuh pagí?** 2– $_{f}31_{f}$#

(175) **Jam tujuh pagí datangnyá?**
2– $_{f}32_{f}$/ 2– $_{f}31_{f}$#

This intonation pattern (IP_2), of which the nuclear pause-group contains the primary contour symbolized by $_{f}31_{f}$, is the only intonation pattern which is exclusively relatable to the interogative 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*, **kapan** *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 following are some examples.

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

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

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

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

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

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

(182) **Datangnyá kápan?**
$2-\ \ \ 33_r/\ \ 231_f\ \#$
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 unfocalized 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

BI interrogative sentences is rising rather than falling.[36] In BI 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 BI. Consider, for example, the following:

(183) **Ibú ada di rúmah.**
233_r/ 2– 3 3_s #
Mother is at home :
As for mother, she is at home.

(184) **Ibú ada di rúmah?**
233_r/ 2– 3 3_r #
As for mother, is she at home?

(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

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

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 unfocalized)
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, **rumáhlah** (← **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 $_f31_f$.

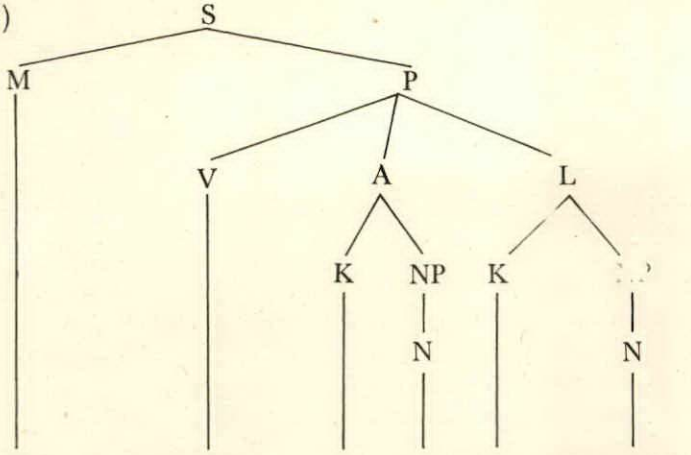
4.4.2 Intonation and Topic-Comment Relations

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 BI, 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 BI, the relations between topic and comment are signaled 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 defocalization 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) **Dia berangkat ke Amerika kemarin.**
he leave to Amerika yesterday:
He left for America yesterday.

(192)



(191) is a segment takes place. The relations between 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 signaled 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).

(193) **Diá berangkat ke Amerika kemarin.**
233_r/ 2– 3 2_f/ 211_f #
Speaking of him, as for yesterday, he left for America.

(194) **Dia berangkát ke Amerika kemarin.**
2– 33_r/ 2– 3 2_f/ 211_f #
Speaking of departures, as for yesterday, it was to America.

(195) **Dia berangkat ke Amerika kemarin.**
2– $3\,2_r/\ 211_f$ #
As for yesterday, he left for America.

(196) **Dia berangkat ke Amerika kemarin.**
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 relations, but they are of identical syntactic organization (that is, word-order).[37] In (193), **dia** *he* and **kemarin** *yesterday* are the topics; the former is focalized, but the latter is unfocalized. 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 mentioned in the same discourse. Now compare (195) with (196). In (195) **kemarin** *yesterday* is the (unfocalized) 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.

[37] According to Lieberman (1967, p. 113), however, such English sentences as **the cat fell/off the roof,** and **the cat / fell off the roof** are "stylistic variants that are produced 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 of the roof** is the comment of the sentence.

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.
$2-$ $33_r/$ $2-$ 3 1_f #
dog his PAS. hit him :
As for his dog, he beat it up.

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

(200) Modality-as-Topic:
Kemarín di síni.
$2-$ $33_r/$ $2-$ 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.
$2-$ 33_r / $2-$ 3 1_f #
in Palembang often rain :
Speaking of Palembang, it often rains there.

(202) Instrumental-as-Topic:
Dengan mobíl hanya satu jám.
2– 33_r/ 2– 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 BI 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 sini 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 sini sendirían.
233_r/ 2– 33_r/ 2– 33_r/2– 3 1_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 sini 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 color its red :
Speaking of that book, as for its color, 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 sub-ordinated 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 BI 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 Bahasa Indonesia. It excludes non-syntactically motivated intonation (that is, intonation as a device for expression of attitudinal and emotional meaning). Specifically, this thesis attempts:

1. to characterize BI 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 BI 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 symbolized by 231_{f}, for example, is found to be expounded by declarative, interrogative as well as imperative sentences.

Chapter III characterizes BI accent, and presents rules of accent placement. It was concluded that BI accent might be termed "tonotemporal" because its defining features are

pitch and duration. The accent placement was accounted for by recognizing the features "unmarked" versus "marked," "base" versus "non-base," and "monosyllabicity" versus "polysyllabicity."

It was hypothesized in Chapter IV that the varieties of intonation can be accounted for by taking into consideration the following:

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 recognize and generate idealized syntactically well-formed sentences (that is, sentences out of context), but also his ability to recognize 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 characterized 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 characterized 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 interrealitions of the components of grammar; it allows, specifically, the interrelations between intonation and syntax.

Viewed as particles, BI intonation was characterized 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 BI 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 characterized 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 recognized: 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 recognized:

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 BI. 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 *focalized topic.* If, on the other hand, the pause-group is relatable to an unfocalized 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 corresponding affix of another base within the same sentence, as in (231). Otherwise (that is, in pause-groups

(231) **Orang itú tidak tértarik 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.

relatable to the category *comment*), 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 BI 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 focalized topic or topics. The contour 232_f is relatable to comment not preceded by topic or topics. The contour 233_r is relatable to focalized topic, and 211_f is relatable to unfocalized topic.

It was indicated earlier that this thesis does not deal with non-syntactically motivated intonation. Nor does this thesis 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?

[1]The intonational notations in examples (235) through (240) are very tentative. They are merely intended as illustrative notations.

(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]

[2]Cf. this use of **ya** in BI with the use of **ne** in Japanese, as in **Watakushi wa ne kinō ne hon o ne gakkō de ne yomimashita** *I* (**watakushi wa**) *read* (**yomimashita**) *the book* (**hon o**) *at school* (**gakkō de**) *yesteraay* (**kinō**). I am indebted to Mr. Hirofumi Ando for this Japanese example.

APPENDIX A

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	/g̀ig̀i/	*tooth*
8.	gigit	/g̀ig̀it/	*to bite*
9.	kuku	/kúku/	*nail*
10.	kutub	/kútup/	*Pole*
11.	tepat	/tɔ́pat/	*exact*
12.	taplak	/tápla?/	*table-cloth*
13.	demam	/dɔ́mam/	*fever*
14.	jemput	/jɔ́mput/	*to fetch*
15.	ijazah	/ijázah/	*diploma*

16. kepada /kəpáda/ *to*
17. sebentar /səbə́ntar/ *a short while*
18. keluarga /kəluárga/ *family*
19. istimewa /istiméwa/ *special*
20. puteri /putə́ri/ *daughter*
21. gigi /gigi̍/ *tooth*
22. gigit /gigi̍t/ *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. keluarga /kluárga/ *family*
39. keluarga /kəluargá/ *family*
40. keluarga /kluargá/ *family*
41. istimewa /istimewá/ *special*

42.	puteri /pútri/	*daughter*
43.	puteri /putəŕi/	*daughter*
44.	puteri /putŕi/	*daughter*
45.	mengecat /məŋəcát/	*to paint*
46.	pengecatan /pəŋəcátan/	*(the process of) painting*
47.	mengesahkan /məŋəsáhkan/	*to legalize*
48.	mengelem /məŋəlém/	*to glue*
49.	pengepasan /pəŋəpásan/	*(the process of) fitting*
50.	pengepasannya /pəŋəpasaŋa/	*(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 legalize*
57.	mengesahkan /məŋəsahkán/	*to legalize*
58.	mengesahkan /mŋsahkán/	*to legalize*
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 /pŋpasánŋa/	*(the process of) fitting it*
65.	pengepasannya /pəŋəpasanŋá/	*(the process of) fitting it*

66. pengepasannya /pŋpasaŋŋá/ *(the process of) fitting it*

67. menjemput /mənjə́mput/ *to fetch*

68. penjemputan /pənjəmpútan/ *(the process of) fetching*

69. penjemputannya /pənjəmputáŋŋa/ *(the process of) fetching it*

70. keistimewaan /kəistimewá?an/ *specialty*

71. keistimewaannya /kəistimewa?áŋŋa/ *his specialty*

72. berceritera /bərcəritə́ra/ *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 /pnjmputáŋŋa/ *(the process of) fetching it*

79. penjemputannya /pənjəmputaŋŋá/ *(the process of) fetching it*

80. penjemputannya /pnjmputaŋŋá/ *(the process of) fetching it*

81. keistimewaan /kistimewá?an/ *specialty*

82. keistimewaan /kəistimewá?an/ *specialty*

83. keistimewaan /kəistimewa?án/ *specialty*

84.	keistimewaan /kistimewaʔán/	*specialty*
85.	keistimewaannya /kistimewaʔáɲa/	*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 /kóta?/	*box*
94.	ibuk /íbu?/	*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/	*neighbor*
101.	tetangga /ttáŋga/	*neighbor*
102.	pipi /pípi/	*cheek*
103.	pipit /pípit/	*sparrow*
104.	pipi-pipi /pipi pípi/	*cheeks*
105.	kata /káta/	*word*
106.	katak /káta?/	*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 /pɔ́ka?/	*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 /tɔ́mbus/	*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/	*nationalization*
130.	aktivitas /aktifitas/	*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	/pəkərjáʔan/	*job*
138.	pekerjaan	/pkrjáʔan/	*job*
139.	seperempatnya	/səpərəmpátɲa/	*one fourth of them*
140.	seperempatnya	/sprmpátɲa/	*one fourth of them*

APPENDIX B

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. keistimewaánnya ~
keistimewaannyá *his specialty*

20. berceritéra ~ berceriterá *to tell a story*

APPENDIX C

A BRIEF SKETCH OF THE SEGMENTAL PHONOLOGY OF BAHASA INDONESIA

C.1 Phonemes

BI 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.

C.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 occurence in final closed syllables; that is, syllables whose final segments are consonants. These

[1] BI as it is spoken in Java appears to have eight, instead of six, vowels. For example, Dardjowidjojo (1966, pp. 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 BI, also posits eight vowels. It is interesting to note, furthermore, that Dardjowidjojo himself and Macdonald (1967) state that "there are six vowels . . . [in BI]" [p. 22], and that "Javanese . . . has eight vowels . . . It is easy to understand how a Javanese speaker, accustomed to distinguistishing 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 BAHASA INDONESIA 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									–	–	–	–	–	–	–	+	–	–	–	–	–	–	+	–	+	–	–	–	+

phenomena are accounted for by rule (P1), which may be called vowel laxing rule.

(P1) V → [-tense] / (C) ——— C#

where V stands for any vowel and C for any consonant.

(P1) 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 nasalized).

/i/	/ikan/ *fish* [ikan];	/tiba/ *arrive* [tiba];
	/dari/ *from* [dari];	/sakit/ *sick* [sakit].
/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].

C.1.1.1 Vowel Nasalization

Vowels are nasalized in BI in the position after (never before) nasal consonants (/m, n, ɲ, ŋ/). For example: /kami/ *we, excl.* [kamĩ]; /ana?/ *child* [anã?]; /baɲa?/ *much, many*

[baŋãʔ]; /baŋun/ *to wake up* [baŋũn]. This phenomenon is accounted for by rule (P2*a*):

(P2*a*) $V \rightarrow \tilde{V} / N$ ——— X

where V stands for any vowel, N for any nasal consonant, and X is either null or non-null.

The effect of the nasalization is maintained across syllable boundaries under the following conditions:

1. The syllable to which P2*a* applies is an open syllable (that is, the X of P2*a* is null), and
2. The following syllable begins with a vowel, or with any one of the following: /y/, /w/, /h/, /ʔ/.

Below are some examples:[3]
/ni-at/ *intention* [nĩ-ãt]; /ma-in/ *to play* [mã-ĩn]; /ma-ut/ *death* [mã-ũt]; /ŋe-oŋ/ *to meow* [ŋẽ-õŋ]; /mã-yã-pa-da/ *world* [mã-yã-pa-da]; /ma-yor/ *major* [mã-yõr]; /me-na-war/ *to haggle* [mə̃-nã-wãr]; /me-wah/ *luxurious* [mẽ-wãh]; /ma-hal/ *expensive* [mã-hãl]; /mə-mi-haʔ/ *to take sides* [mə̃-mĩ-hãʔ]; /ma-ʔaf/ *to forgive* [mã-ʔãf]; /na-ʔim/ *Naim (boy's name)* [nã-ʔĩm].

Nasalization across syllable boundaries is generalized in (P2*b*), which must be applied after (P2*a*):[4]

(P2*b*) $V \rightarrow \tilde{V} / N\tilde{V}- \left(\begin{bmatrix} -\text{syllabic} \\ -\text{consonantal} \end{bmatrix} \right)$ ——— X

[3]The "dash" symbol (–) is used to indicate syllable boundaries.

[4]The lexicon will have to provide for specific rules to account for the (non-phonologically conditioned) exceptions to (P2*b*) such as:
/mə-ya/kin-kan/ *to convince* [mə̃-ya-kĩn-kan] and /mə-wa-jip-kan/ *to require* [mə̃-wa-jĩp-kan], which are phonetically not *[mə̃-ya-kĩn-kan] and *[mẽ-wã-jĩp-kan] respectively, as we would expect from (P2*b*).
Furthermore, the nasalized vowels in words like [ãʔã], [əʔə̃], or [ũʔũ] *yes* and [ã] or [ə̃] *hah? (what did you say?)* constitute another special case.
The non-nasalized vowels after /h/ in words like /məŋ-hu-kum/ *to punish* [məŋ-hu-kum] and /məŋ-hi-sap/ *to suck* [məŋ-hi-sap] are not exceptions. (P2*b*) does not apply to them simply because these words do not satisfy the condition that the syllable preceding the /h/ be an open syllable.

C.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) /e/ → ϕ / X ——— Y
where ϕ 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,[5] 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].

(P3) does not apply to the /ə/'s in words like /tantəŋa/ *his/her aunt,* which consists of the base /tantə/ *aunt* and the pronominal suffix /-ŋa/ *his, her,* because the /ə/ is in the final syllable of the base, and /tantəŋa/ is a non-base.

[5] 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).

C.1.2 Diphthongs

There are three diphthongs in BI: /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 BI) 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 characterizes 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. BI diphthongs are of the former type.

Distributionally, BI 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 verbalizing 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/[6] *foolish, stupid* + /i/ as in example *(a)* above.

C.1.3 Consonants

There are twenty-three consonants, including two "semi-vowels," in BI: see Table 10.

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 BI 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/ *phase,* /sarap/ *garbage.* However, they are in free variation in certain non-phonologically conditioned cases as in /fikir/ or /pikir/ *to think,* /nafas/ or

[6]For the deletion of /h/ of /bodohi/ in its phonetic representation: [bodoi], see rule (P5) below.

/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 BI,[7] 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/ *oficial 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 with /h/ as in /ax/ or /ah/ *oh*. Yet it contrasts with /h/ such as in the pair: /axir/ *end* and /mahir/ *fluent*. Still in 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*; /ɲamu?/ *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

[7] See, for example, Dardjowidjojo (1966), pp. 32–33.

[ɬ] is pronounced with the blade (instead of the tip) of the tongue placed against the alveo-palate and velarized.

The lexicon, which is not our concern here, must provide for non-general rules to characterize 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].

C.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 realization of voiced [ʔ] is momentary laryngeal constriction with creaky voice.

C.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 BI 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/ *material*, /mahal/ *expensive*, /leher/ *neck*, /pohon/ *tree*, and /luhur/ *glorious*.

(P5)

$$/h/ \rightarrow \phi \quad / \quad \left\{ \begin{array}{l} X \begin{bmatrix} -\text{syll} \\ +\text{cons} \\ -\text{son} \end{bmatrix} \begin{bmatrix} +\text{syll} \\ -\text{cons} \\ +\text{back} \\ +\text{low} \end{bmatrix} \_\_\_\_ \begin{bmatrix} +\text{syll} \\ -\text{cons} \\ +\text{high} \end{bmatrix} \\ YV \_\_\_\_ + \begin{bmatrix} +\text{syll} \\ -\text{cons} \\ +\text{high} \\ -\text{back} \end{bmatrix} \\ X \_\_\_\_ V(C)\text{–}CV(C) \end{array} \right\} X$$

where ϕ 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 monosyllabic 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.

C.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 C.1.1.2 above).

Typical canonical forms of BI (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*
-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*

C.2 Syllable Structure

The structure (or, the CV-pattern) of a syllable is composed of its "onset," "peak" ("nucleus") and "coda,"[8] or, to use Abercrombie's terms, "releasing consonant" (C), "syllabic element" (V) and "arresting consonant" (C).[9]

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 BI: *(a)* CVO; *(b)* CVC; *(c)* OVC, and *(d)* OVO.

The following are some examples of BI 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 BI) base words are disyllabic.[10] For this reason, the CV-patterns of BI disyllabic (base) words will be discussed in sufficient detail.

Table 11 is a matrix of the CV-patterns of BI 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.

[8]Charles F. Hockett (1955), p. 52.

[9]Abercrombie (1967), pp. 73 et sqq.

[10]See, for example, Gonda (1950).

TABLE 11

MATRIX OF THE SYLLABLE STRUCTURES OF BI DISYLLABIC BASE WORDS

First Syllable	Second Syllable: CVO	CVC	OVC	OVO
CVO	+	+	+	+
CVC	+	+	−	−
OVC	+	+	−	−
OVO	+	+	+	+

Table 11 shows that there are twelve different types of CV-patterns of BI 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	/tan-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-naʔ/ *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 generalized.

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 generalized by rule (P6).

(P6)

$$N \rightarrow \begin{bmatrix} \alpha \text{ anterior} \\ \beta \text{ coronal} \end{bmatrix} \quad / \quad \underline{\qquad} \quad - \quad \begin{bmatrix} - \text{ syllabic} \\ + \text{ consonantal} \\ \alpha \text{ anterior} \\ \beta \text{ coronal} \end{bmatrix}$$

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	/əŋ-gaʔ/ *no, not*

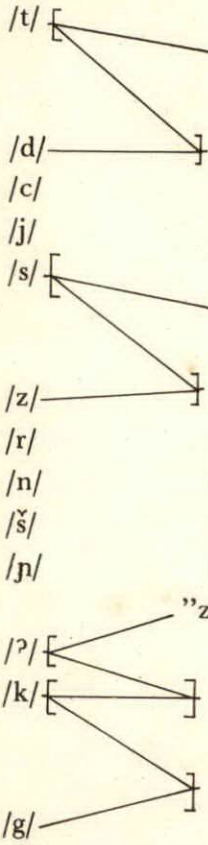
C.3 Graphology

There is no one-to-one correspondence between phonemes and graphemes (units of graphology, that is "letters" of the

spelling system) in BI. 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 BI 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/ *soar (throat)* **serak**
/o/	o	/obat/ *medicine* **obat**
/a/	a	/apa/ *what* **apa**
/ay/	ai	/səray/ *citronella grass* **serai**
/aw/	au	/kərbaw/ *water buffalo* **kerbau**
/oy/	oi	/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/	b	/kutup/ *Pole (North/South)* **kutub**
		/buka/ *to open* **buka**
/f/	f	/taraf/ *phase* **taraf**
/m/	m	/malam/ *night* **malam**



/tadi/ *just now* **tadi**
/dapat/ *be able* **dapat**
/maksut/ *intention* **maksud**
/dari/ *from* **dari**
/cari/ *to look for* **cari**
/jari/ *finger* **jari**
/sari/ *essence* **sari**
/iris/ *to slice* **iris**
/azis/ *Aziz (boy's name)* **Aziz**
/zaman/ *era* **zaman**
/lapar/ *hungry* **lapar**
/nona/ *Miss* **nona**
/šarat/ *requirement* **syarat**
/ɲoɲa/ *Mrs.* **nyonya**
/maʔaf/ *to forgive* **maaf**
/paʔ/ *father* **pak**
/kapaʔ/ *axe* **kapak**
/pak/ *carton* **pak**
/gudək/, /gudəg/ *spiced rice* **gudeg**
/giraŋ/ *happy* **girang**
/ixlas/ *sincere* **ikhlas**
/taŋan/ *hand, arm* **tangan**
/patah/ *broken* **patah**

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