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A Study of focus and Accent in Singapore Malay

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Abstract

The syntactic focus-marking, like clefting, in Malay is limited to certain focus contexts. Hence, this motivates the belief that Malay adopts other strategies of focus-marking. Cross-linguistic research has provided ample evidence of intonation used as a focus-marking strategy, including Indonesian. Hence, this study aims to explore the relationship between focus and accent in Singapore Malay, and investigate if intonation is adopted as a possible strategy to mark focus. This study involved 12 Singaporean participants who are native speakers of Malay. They were recorded producing 20 target sentences, each corresponding to four focus conditions (i.e. all-focus, subject focus, verb-focus and VP-focus), presented in the discourse context of question-answer pairs. The F0 contours were visually inspected to identify the presence of accents. The findings suggest that an obligatorily accented subject and object are general characteristics of the intonation of Singapore Malay declaratives. There is a lack of one-to-one correspondence between focus and accent in Singapore Malay, thus further supporting its imperfect relationship, as evident in theories of focus and cross-linguistic research. This study suggests that intonation is a possible focus-marking strategy in Singapore Malay, and proposes a preliminary theory of focus to account for accenting patterns of the different contexts of focus.

1 Introduction

Focus introduces a partitioning of an utterance into information that is in focus, in other words, novel or contrastive, and information that is shared between interlocutors (Krifka, 2001; German & D'Imperio, 2010). Languages adopt different strategies to mark focus, like syntax or intonation (Stoel, 2005). It is known that Malay has the option of syntactic marking of focus, like clefting seen in example (1).

(1)	Q1.	Siapa memakan epal?	*Who ate an apple?*
	A1.	Ia adalah Siti yang memakan epal.	*It is Siti who ate an apple.*
	Q2.	Siti memakan apa?	*What did Siti eat?*
	#A1.	Ia adalah Siti yang memakan epal.	*It is Siti who ate an apple.*

In the above example, it is observed that a clefted sentence A1 can act as a felicitous answer to a subject-focus context Q1. However, the same clefted sentence is infelicitous when used in an object-focus context Q2. Such a contrast suggests that focus exists as a relevant type of meaning in Malay.

In addition, it is also observed that a particular sentence can act as a felicitous answer to different contexts. In example (2), we see how a non-clefted sentence A2 can act as a felicitous answer to both an all-focus context Q3 and a subject focus context Q4.

(2)	Q3.	Apa yang berlaku?	*What happened?*
	A2.	Siti memakan epal.	*Siti ate an apple.*
	Q4.	Siapa memakan epal?	*Who ate an apple?*
	A2.	Siti memakan epal.	*Siti ate an apple.*

Given that the same sentence is felicitous when used in different contexts, there is a possibility that Malay adopts other strategies, besides syntax, to mark focus. Cross-linguistically, intonation and prosody are often used as a focus-marking strategy, like phrasing in Korean (Jun, 2011) and French (Jun & Fougeron, 2000), and pitch accents in

English (Xu & Xu, 2005) and Indonesian languages (e.g. Manado Malay in Stoel, 2005; Toba Batak in Goedemans & van Zenten, 2007).

A preliminary study was carried out to test whether there is a similar relationship between focus and intonation in Singapore Malay.

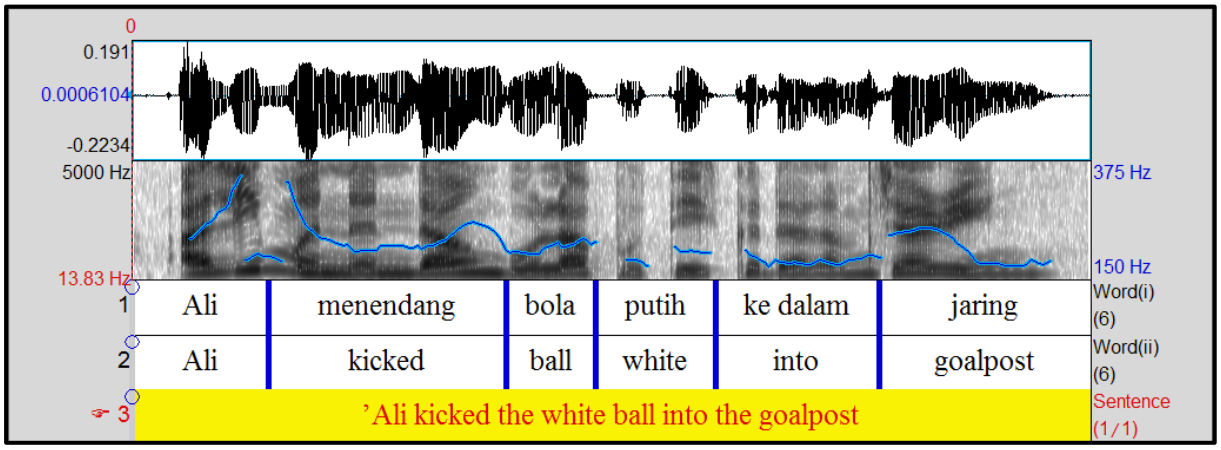


Figure 1 Pitch track of the answer to the all-focus context 'What happened?'

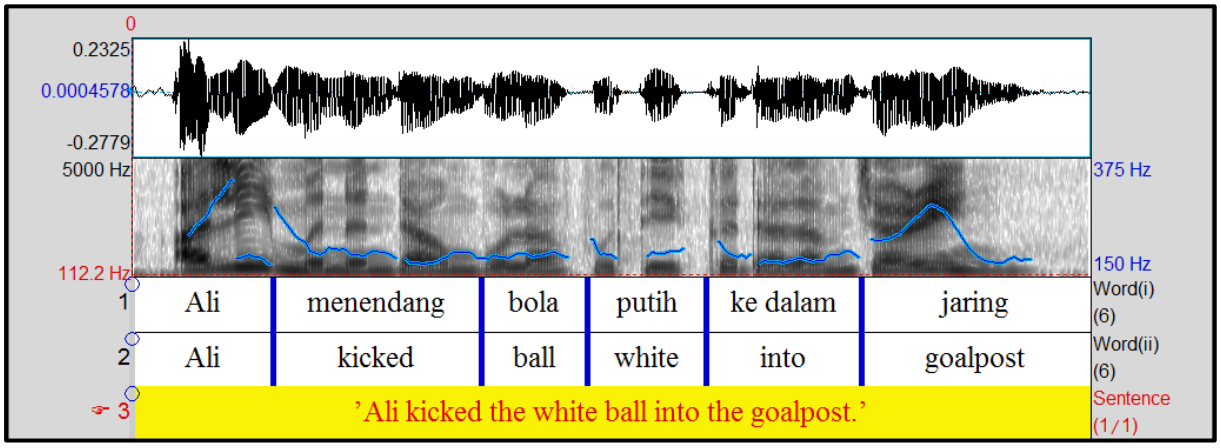


Figure 2 Pitch track of the answer to the subject-focus context 'Who kicked the white ball into the goalpost?'

Observations made from the preliminary study suggest the possibility that Malay adopts the strategy of intonation to mark focus. In the all-focus context in Figure 1, accents appear on the verb and the final word in the utterance. However, the verb is unaccented in the subject-focus context in Figure 2, with an unaffected accent on the final word of the utterance. Hence, these observations further support the idea that there are other ways to mark focus in Malay besides syntax, and that there is a need to explore the relationship between focus and intonation in Malay.

Many studies have shown a systematic relationship between the distributions of focus and accents, but this relationship is not always perfect (Gussenhoven, 2008). In other words, it is not always the case that focus and accent have a one-to-one correspondence, where the entire constituent in focus gets accented and the accented word constitutes the entire focus. For example, in the context of a verb phrase-focus in English, only the object gets accented, but it does not constitute the entire focus (e.g. Birch & Clifton, 1995; Krifka, 2001). This imperfect relationship is suggested in the *Focus-to-Accent* (FTA) approach (Ladd, 1980a cited in Ladd, 2008) and the theory of *Focus Projection* (Selkirk, 1995), further supported by variability seen in cross-linguistic research of focus and accent. This will be further elaborated in Section 2.

Our study explores the relationship between focus and accent in Malay, and hence tests whether Malays uses intonation as a strategy to mark focus. In addition, we develop a preliminary theory of the intonation of declaratives in Singapore Malay, since little work has been done on investigating this area of research (e.g. Tan, 1999).

This paper is divided into eight sections. In Section 2, we will provide a background on the notion of focus and intonation, and further elaborate evidence that suggests the lack of a one-to-one correspondence between focus and accent. In addition, we will briefly discuss post-focal deaccenting, another tonal characteristic of focused utterances evident in previous research of focus. Section 3 will describe the methodology, including the predicted accenting patterns of the focus contexts tested in this study, based on generalizations made from the preliminary study. The results will be presented in Section 4 and later discussed in Section 5. Lastly, Section 6 will provide a brief conclusion, followed by references and appendix in Section 7 and 8 respectively.

2 Background

2.1 Focus and accent

Interpretation of an utterance is largely dependent on intonation (Birch & Clifton, 1995). The shape of an intonational contour is essentially determined by where accents are located and how they are realised in an utterance (Haan, 2002). Following the description of intonation developed for English by Pierrehumbert (1980), pitch accents are represented by H* or L*, with the asterisk marking its alignment with a stressed syllable (cited in Pierrehumbert & Hirschberg, 1990). By accenting a portion of an utterance, this means that the speaker makes that particular portion the 'intended focus' of the utterance (Ladd, 1996; Ladd 2008). Much research has revolved around exploring the relationship between focus and intonation, with particular reference to the placement of accents in a focused context (e.g. Gussenhoven, 1983; Selkirk, 1995; Schwarzchild, 1999).

The notion of *given-new* information has been introduced to describe for the relationship between focus and accent (e.g. Chafe, 1976; Gussenhoven, 1983). It adopts the *background-focus* distinction from Information structure (IS), a notion introduced by Halliday (1967b), involving the partitioning of an utterance into *background*, which includes information shared between interlocutors, and *focus*, which includes information that is contrastive or novel to the discourse (cited in Büring, 2005; German & D'Imperio, 2010). A common assumption is that *given* information refers to the knowledge that the speaker assumes to be shared between the hearer and him at the time of utterance. This non-focused portion of the utterance does not get accented. On the other hand, *new* information, which refers to the knowledge unshared between the interlocutors at the time of utterance, will be introduced by the speaker to the hearer in a particular discourse. Therefore, *new* information, being the portion of utterance in focus, gets accented.

The relation of focus and accent is often discussed in the distinction between *broad* and *narrow* focus contexts. Take for example the phrase *five francs* (see Ladd, 1996:162).

(3) (a) I didn't give him three francs, I gave him (FIVE)$_{\text{FOCUS}}$ francs.

(b) I didn't give him five dollars, I gave him five (FRANCS)$_{\text{FOCUS}}$.

In the context of (3a), where the number of francs given is the concern, *five* is said to be the focus, and is hence accented (denoted by CAPITALIZATION). Meanwhile, in the context of (3b), where the unit of currency is the concern, *francs* is the focus and is hence accented. These specific contexts are considered contexts of narrow focus, where focus lies on a single word. However, there exist contexts where focus lies on a larger constituent as seen in (4).

(4) I didn't give him my notebook, I gave him (five FRANCS)$_{\text{FOCUS}}$.

In the context of (4), *five francs* is contrasted as a unit, instead of individual words, to the phrase *my notebook*. Therefore, the focus lies on the phrase *five francs*. Such a context is referred to as a broad focus context. However, the direct relation between focus and accent is challenged. The accentual pattern in a broad focus context in (4) is similar to the narrow focus context in (3b), where *francs* is accented. Hence, not everything in focus gets accented and not everything that gets accented constitutes what is being focused.

2.2 *Normal stress* view and *highlighting* view

The idea of broad focus dates back to Newman's (1946) introduction of the notion of *normal stress* (cited in Ladd, 1996). To account for the phenomenon, Chomsky & Halle (1968) formulated the syntax-dependent Nuclear Stress Rule (NSR), which holds that the strongest stress is assigned on the rightmost constituent in an utterance. For example, in a sentence like *Amy ate banana*, *banana* gets the strongest stress, followed by *Amy*, then *ate*. This pattern of prominence (i.e. *normal stress*) results from the phonological rules operating on the surface syntactic structure of an utterance and thus, does not bear any meaning or function. Any pattern of prominence that deviates from the *normal stress* is referred to as the *contrastive stress*, which involves the stressed word showing some signaling of contrast or emphasis. However, it is always not the case that *normal stress* occurs on the rightmost constituent in an utterance. For example, in an utterance, a subject can be accented instead of a semantically-empty verb or a verb can be accented instead of a semantically-empty noun phrase (Krifka, 2001). NSR are unable to account for such cases.

Distinct from the *normal stress* view, the *highlighting* view proposes a different approach to broad focus. Bolinger (e.g. 1958, 1972b) proposed a context-dependent theory of accenting based on semantics and emotional highlighting (cited in Ladd, 1996). He suggested that in an utterance, words can be focused to indicate contrast, newness, or other informativeness, which is then marked by pitch accents. Each pitch accent is meaningful, and none is primary. It proposes that pitch accents in an utterance are not assigned by a rule like in NSR, but instead by the decision of the speaker based on what he wishes to highlight in a specific context. Despite being able to account for accents in cases involving focused contexts, by assuming a purely semantic theory of accent, this view assumes no interaction between the phenomenon of focus and grammatical structures. Hence, it is unable to account for certain cases of focus, like the VP-focus context in English, where the object receives the accent instead of the verb (Krifka, 2001).

2.3 Focus-to-Accent approach

Providing a compromise between *normal stress* view and *highlighting* view is the *Focus-to-Accent* (FTA) approach. First introduced by Ladd (1980a) and Gussenhoven (1983a), the FTA approach essentially makes a distinction between semantic and pragmatic *focus* on one hand and phonological *accent* on the other, hence allowing for focus to occur on a larger constituent that consists of more than just a single word, which is then marked by pitch accents (cited in Ladd, 2008). By distinguishing *focus* distribution from *accent* distribution, this approach describes accent patterns in two complementary yet separate aspects: one statement that describes which portion of the utterance is focused and another that describes how this pattern of focus is conveyed by where accents occur (Ladd, 2008).

The FTA approach differs from the *normal stress* view on the distinction between *normal stress* and *contrastive stress*. Instead, it reinterprets *normal stress* into broad focus, where focus constitutes the entire sentence, and *contrastive stress* into narrow focus. Though the FTA approach accepts that the placement of pitch accents is meaningful as mentioned in the *highlighting* view, it rejects the idea that accenting is purely based on pragmatic reasons. It adopts the idea of the *normal stress* view which

suggests that accents can also be assigned based on structural rules, particularly those involved in determining accent location when focused constitutes more than a single word, in particular Gussenhoven's (1983) Sentence Accent Assignment Rule (SAAR) (cited in Gussenhoven, 2008). For example, SAAR predicts that a predicate-argument constituent in focus forms a domain and accenting occurs on the argument.

To illustrate the FTA approach, we use the previous example of *Amy ate banana*. In a narrow focus context, focus can lie on either the subject, verb or object, which thus gets accented. However, in a broad focus context, focus lies on the entire sentence. In such a case, based on the rules proposed by Gussenhoven, the first focus domain includes the subject *Amy* while the second focus domain includes the verb phrase *ate banana*. Each of the focus domains receive only one accent, in which case in the second focus domain, the rightmost constituent of the VP gets accented. Hence, the sentence is realized as *AMY ate BANANA*. Such an example shows that not all the words in a focused constituent gets accented even when focus constitutes the entire sentence, and though a word might not be accented (i.e. verb *ate*), this does not mean that it is not focused. Therefore, the structure-based FTA approach suggests that the relation between focus and accent is not as straightforward as something that is focused is accented and something that is accented is the focus.

2.4 Focus Projection

Explaining the relationship between focus and accent is the argument-based theory of *Focus Projection* introduced by Selkirk (1984, 1995) (cited in Kadmon, 2001). This theory adopts the notion of focus feature F by Jackendoff (1972), who proposed that new information gets F-marked while given information remains unmarked. This was later adopted by Schwarzchild (1996), whose GIVENNESS constraint is as mentioned in (5) (cited in Schwarzchild, 1999).

(5) GIVENNESS: A constituent that is not F-marked is given.

This notion of focus feature F not only governs the location of pitch accents in a sentence, but also its semantic and pragmatic interpretation. Hence, a speaker assigns the location of F, after which the stress rules will predict the location of the pitch

accents. In the theory of *Focus Projection*, Selkirk (1995) proposes two rules that licenses the F-marking of constituents, which in turn determines the number and location of pitch accents:

(6) Basic Focus Rule: An accented word is F-marked

(7) Focus Projection Rule:

(a) F-marking of the head of a phrase licenses the F-marking of the phrase

(b) F-marking of an internal argument of a head licenses the F-marking of the head

(c) F-marking of the antecedent of a trace left by NP or *wh*-movement licenses the F-marking of the trace

Selkirk further suggests that focus of a sentence (FOC) refers to an F-marked constituent not dominated by another constituent that is F-marked. In other words, FOC is the highest F-marked constituent. To illustrate how this set of rules works, we assume that the sentence shown in (8) is entirely new (i.e. all-focus context, where focus lies on the entire sentence), and hence the F-marking will be as such:

(8) $[[\text{Tom}]_{F}\ [\text{kicked}_{F}\ \text{a ball}_{F}]_{F}]_{FOC}$

Since there is nothing to license F-marking from any node to the subject, according to the Basic Focus Rule in (6), the subject can only be F-marked if it is accented. The rules in (7) licenses F-marking to project from the object *the ball* to the verb *kicked* and then from the verb to the VP node. Similar to the case of the subject, the object has to be accented to be F-marked. Therefore, this provides an explanation to the claim in the FTA approach where only subject and object gets accented in the all-focus context.

Selkirk's theory also predicts the placement of accent in a specific discourse context. Take for example the context in (9).

(9) Speaker A: There are many balls in the court.

Speaker B: Tom kicked a ball.

In this case, *ball* has been mentioned in the discourse prior to the utterance of Speaker B. We consider it to be *given* information, and hence, it does not get F-marked. On the other hand, the subject and verb are considered *new* information, hence receives F-marking as seen in (10)

(10) $[[\text{Tom}]_{F}\ [\text{kicked}_{F}\ \text{a ball}]_{F}\ ]_{FOC}$

Based on the Basic Focus Rule, if a word is accented, it is obligatorily F-marked. Hence, in this case, since the object remains unmarked, it must be unaccented. Unlike the previous context in (8), F-marking cannot be projected from the object to the verb, and later to the VP node. Hence, the only way for the F-marking to be projected from the verb to the VP node is for the verb to be accented. Hence, the rules predict the accent pattern to be like in (11).

(11) Speaker B: TOM KICKed a ball.

The theory of *Focus Projection* addresses the relation between F-marking and pitch accent, hence the relation between focus and accent. Similar to the FTA approach, this theory further supports the imperfect one-to-one correspondence between focus and accent, since it allows focus to be projected up the syntactic tree from an accented word, which is F-marked. This is evident in cases like the contexts mentioned earlier where not all the words in focus need to be accented.

2.5 Variability

Further supporting the theories of FTA and *Focus Projection*, studies investigating the focus-accent relation in different languages have provided evidence of this imperfect one-to-one correspondence between focus and accent. For example, investigating the accentual marking of focus in Manado Malay, Stoel (2005) found that broad focus is generally marked by a final accent. However, in the context of narrow focus, though preferably unaccented, no general pattern of focus-marking could be found. German, Pierrehumbert & Kaufmann (2006) investigated the accentual pattern of focused utterances involving prepositions in English. Accenting on the prepositions was found to be probabilistic, with a high degree of variability across speakers, which was then

accounted for by amendments made to Schwarzchild's (1999) proposal. In addition, in exploring the relation between information structure and intonation in French *wh*-interrogatives (German & D'Imperio, 2010), though the results were in favor of the association of phrase-initial rises (LHi) to the left edge of contrastive focused constituents, the findings showed that there was not an absolute association between focus and accent.

2.6 Post-focal Deaccenting

Based on the observations from the preliminary study, we noted possible deaccenting of post-focus sequences, another tonal characteristic of an utterance in a focused context. Since Halliday's introduction of the *given-new* notion, much research has suggested that entities which are new to the discourse or *new* information are accented while entities that are old to the discourse or *given* information are deaccented (e.g. Ladd, 1996; Kadmon, 2001). Deaccenting relegates given information to a lower level of salience, hence lowering its accentability (Ladd 1980, as cited in Ladd, 1996). Erickson & Lehiste (1995) found deaccenting of post-focus words in English, which involves the deletion of pitch accents making the post-focus sequences tonally flat (cited in Jun & Fougeron, 2000). In French, it has been found that post-focus sequences generally lack tonal variation (Di Cristo, 1998, Jun & Fougeron, 2000). Similarly, post-focal sequences are generally realized with a flat fundamental frequency (F0) contour in narrow-focused utterances in German (Féry and Kügler, 2008).

To investigate the tonal patterns of focused utterances, in addition to considering the occurrence of accents on different constituents, this paper will also examine the tonal pattern of post-focus sequences in Malay declaratives.

2.7 Question-Answer Congruence

Question-answer congruence is commonly used to explore the focus-accent relation in different languages (e.g. German, Pierrehumbert & Kaufmann, 2006; German & D'Imperio, 2010; Jun, 2011). In a *wh*- question-answer pair, the felicity of the answer

depends on whether focus falls on the portion of the utterance that replaces the *wh*-word (Glanzberg, 2003). For example, we refer to the subject-focus context in (12).

(12) Who does Tom like?

(a) Tom likes AMY.

(b) #TOM likes Amy.

If focus, and hence accent, falls on the wrong place within an utterance, the answer becomes infelicitous like in (12b). Thus, this paper will look at question-answer congruence using *wh*-questions to explore the relation between focus and accent.

2.8 Research questions

From the preliminary study, it is observed that Malay possibly adopts intonation as a strategy to mark focus. To date, few studies have explored the intonation of the Malay variety used in Singapore, and no known research has investigated its relation to focus. Hence, this paper will attempt to address these research questions:

1. What are the general characteristics of the intonation of Malay declaratives?

2. Is there a relationship between focus and accent in Malay? If yes, is there a one-to-one correspondence between focus and accent? Otherwise, what is the specific relationship if it is not a one-to-one correspondence?

3. Is intonation adopted as a strategy of focus-marking in Malay?

3 Methodology

The study involves participants providing a naturalistic production of sentences, in a discourse context of question-answer (Q-A) pairs. This enables us to examine the intonation used in different contexts, and hence, investigate the relationship between focus and accent in the Malay variety used in Singapore.

3.1 Materials

20 target sentences are used in this study (refer to Table 4 in the Appendix). Each of the sentences has the structure of Noun-Verb Phrase (N-VP), where the VP consists of a verb and a direct object. An example is given in (13), with the structure of Subject-Verb-Object (S-V-O).

(13) Aini memegang oren.
Aini hold orange
'Aini holds an orange.'

Given the precedence of question-answer congruence in cross-linguistic research investigating focus and accent, we assume that the pattern of given and new information in utterances can be induced by manipulating the discourse context that precedes it. For example, if the sentence *Aini memegang oren* serves as the answer to the subject-focus context in (14), the subject *Aini* acts as new information while the VP *memegang oren* acts as given information.

(14) Siapa memegang oren?
who hold orange
'Who holds an orange?'

[**Aini**]$_{new}$ [memegang oren]$_{given}$.
Aini hold orange
'Aini holds an orange.'

Meanwhile, if the sentence serves as an answer to the VP-focus context in (15), the subject *Aini* then acts as given information while the VP *memegang oren* acts as new information.

(15) Apa yang Aini lakukan?
What REL Aini do
'What is Aini doing?'

[Aini]$_{given}$ [**memegang oren**]$_{new}$.
Aini hold orange
'Aini holds an orange.'

Each of the target sentences appeared in four different conditions (i.e. conditions a-d), for a total of 80 Q-A pairs. Condition (a) corresponds to an all-focus context, resembling the structure in (16) where focus is on the entire sentence.

(16) Apa yang berlaku?
what REL happened
'What is happening?'

[**Aini memegang oren**]$_{new}$.
Aini hold orange
'Aini holds an orange.'

Condition (b) corresponds to a subject-focus context, resembling the structure in (14) where subject is the focus. Condition (c) corresponds to a verb-focus context, similar to the structure in (17) where verb is in focus.

(17) Apa yang Aini lakukan dengan oren?
What REL Aini do with orange
'What is Aini doing with an orange?'

[Aini]$_{given}$ [**memegang**] $_{new}$ [oren]$_{given}$.
Aini hold orange
'Aini holds an orange.'

Lastly, condition (d) corresponds to a VP-focus context, resembling the structure in (15) where focus lies on the VP.

In summary, every sentence will serve as an answer to four questions calling for different focus as shown in (18).

(18)	Condition (a)	What happened?	All-focus
	Condition (b)	Who V-O?	Subject-focus
	Condition (c)	What did S do to O?	Verb-focus
	Condition (d)	What did S do?	VP-focus

For each of the sentences, the four conditions that it corresponded to are equally divided among four sets ((6a) goes to Set 1, (6b) to Set 2, etc.). Hence, each participant is subjected to 5 Q-A pairs that correspond to the same condition, but they do not encounter more than one condition per sentence. In total, there are 240 target sentences produced by all the participants.

In addition to the 20 target sentences, the same ten fillers (refer to Table 5 in the Appendix) were added to each of the four sets. Though these fillers are also made up of Q-A pairs, as seen in (19), they are made up of non-repeated materials in the context, in order to elicit a non-emphatic and non-contrastive response.

(19) Bagaimana Adi dan Siti pergi ke sekolah?
how Adi and Siti go to school
'How did Adi and Siti go to school?'

Mereka menaiki bas.
they take bus
'They took a bus.'

For each set, the 30 Q-A pairs, including the fillers, are pseudo-randomized in a manner where not more than 3 targeted Q-A pairs occur consecutively. The targeted Q-A pairs corresponding to the same condition also do not occur consecutively. This is to reduce the possibility of participants catching on to the patterns of the experiment and thus, inventing an ad-hoc contrast to accentuate the difference they recognize.

3.2 Participants

12 Singaporeans participated in this study (11 females and 1 male). All are native speakers of Malay and are undergraduates of Nanyang Technological University (NTU).

3.3 Procedures

Prior to the experiment, all the questions in the Q-A pairs were pre-recorded by a Singaporean female native speaker of Malay in a sound-attenuated booth located in the NTU Linguistics/Phonetics Laboratory. In the experiment itself, each of the participants sat in the same sound-attenuated booth. A computer was used to present the PowerPoint slides that included instructions, the Q-A pairs and also the pre-recorded prompts, which could be controlled by the participants in the event a playback was needed. The participants were instructed to listen to each prompt and then provide the answer in a conversational manner, using only the sentences provided. Responses were recorded digitally onto a computer using a Shure SM81 microphone at a sampling rate of 44.1 KHz. To determine the presence of accents, we identified major prominences primarily by visual inspection of the F0 contour using Praat 5.3.24.

In this study, we took a conservative approach by counting a rise from the F0 as evidence of a high (H) tone, hence accent. In cases where a less obvious rise from the F0 is observed, we relied on auditory intuition to decide if an H tone, hence accent, is present. Phonologically, there seems to be a low (L) tone following an H tone in the utterances, but there is insufficient evidence to determine its presence. Thus, for the purpose of this study, we restricted the analysis to identifying only the presence of H tones.

There remains a pending proper theory of lexical stress in Malay, with debates not only on their location at the penultimate or final position (Gil, 2007), but also on whether it is present at all in Malay (Zuraidah, Knowles & Yong, 2008). Hence, unlike H* used in Pierrehumbert's representation of a pitch accent, for convenience, we used H to represent an accent, without considering its alignment characteristics within a word.

3.4 Predictions

In the preliminary study, we observed particular tonal patterns in certain focus contexts. In an all-focus context like in Figure 1, an accent is generally observed on the subject (i.e. first word) and the final word, with optional accenting between these two constituents. As seen in Figure 2, the subject in a subject-focus context is accented. The post-focal sequences are generally unaccented, except for an accent on the final word. In a verb-focus context as shown in Figure 3, the subject and the verb are generally accented. Similar to the subject-focus context, the post-focal sequences are generally unaccented, except for an accented final word. In a VP-focus context like in Figure 4, accenting generally occurs on the subject and the final word. The rightmost word in the VP is generally accented, with optional accenting occurring on the other words within the VP.

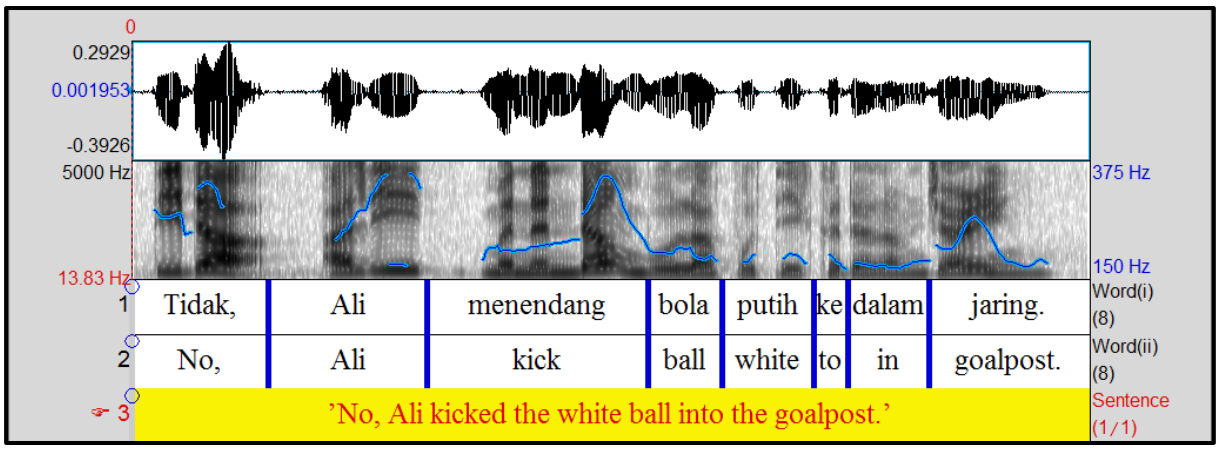


Figure 3 **Pitch track of the answer to the verb-focus context 'Did Ali throw the white ball into the goalpost?'**

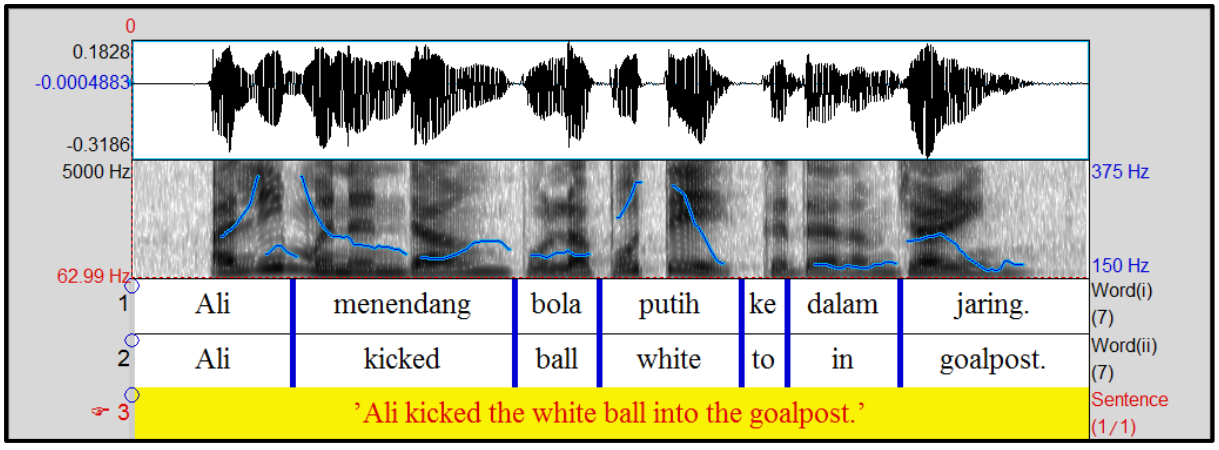


Figure 4 **Pitch track of the answer to the VP-focus context 'What did Ali do?'**

The general observations made from the preliminary study motivated our choice of which focus contexts to explore in this study. Based on these observations, we made some tentative generalizations regarding accenting in focused utterances.

Specifically, the data suggests that there must be an accent in focused constituents. Similarly, Selkirk's *Focus Projection* theory suggests the FOC rule, which states that FOC is the highest constituent that is F-marked. Hence, FOC must contain an accent for F-marking to occur, and subsequently for the projection of F-marking up the syntactic tree. Looking at the subject-focus context, given information are generally unaccented (GIVENNESS hereon), similarly suggested in Selkirk's *Focus Projection* theory. However, this rule is unable to account for some instances where accenting of given information is observed. In the verb-focus and VP-focus context, we generally observed accenting on the subject, which is given information. Taking into account that the subject is accented in all four focus contexts, there seems to be obligatory accenting on the subject (ACCSUBJ hereon). Hence, accenting on the subject in the verb-focus and VP-focus context can only be accounted for if the rule ACCSUBJ takes priority over GIVENNESS. Also, in the subject-focus and verb-focus contexts, we observed an accent occurring on the final word of the utterance. Considering that the final word is accented in all four contexts of focus, there seems to be an obligatory accent on the final word (ACCFINAL hereon). Hence, the only way to account for the accenting on the final word in the subject-focus and verb-focus contexts is that ACCFINAL takes priority over GIVENNESS. The four rules are summarized in (20).

(20) FOC: A FOC-marked phrase contains an accent.

ACCSUBJ: Accent the subject.

ACCFINAL: Accent the final word in the utterance.

GIVENNESS: A constituent that is not F-marked is given.

Hence, these rules interact in the hierarchy of relative priority as seen in (21) to be able to generate the accenting patterns observed in the preliminary study.

(21) ACCSUBJ, ACCFINAL, FOC » GIVENNESS

Based on observations from the preliminary study and the rules mentioned above, the predicted accent placements in S-V-O utterances in the four focus contexts are shown in Table 1.

Conditions	Subject	Verb	Object
(a) All-focus	H	(H)	H
(b) Subject-focus	H		H
(c) Verb-focus	H	H	H
(d) VP-focus	H	(H)	H

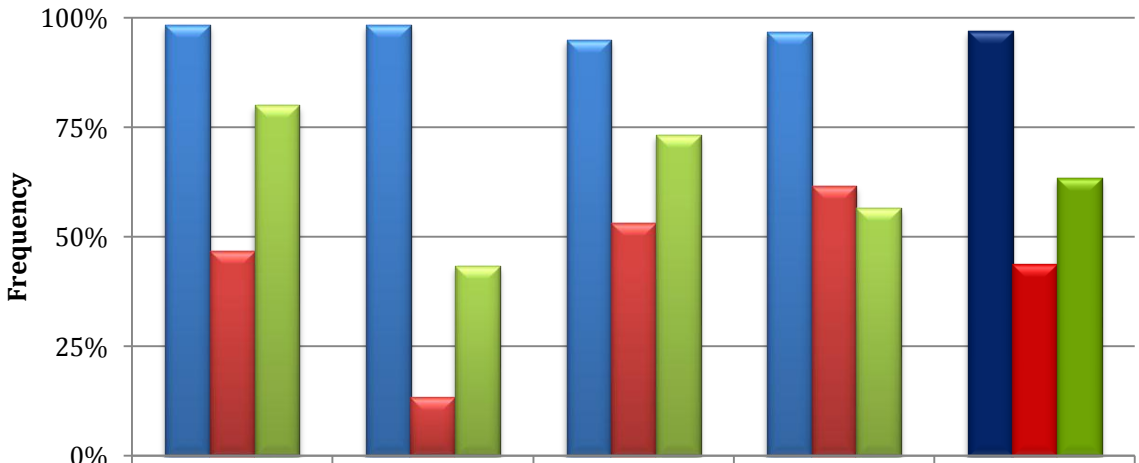
Table 1 Predicted accent placements in S-V-O utterances of different focus contexts

4 Results

In this section, we will firstly present a general observation across focus conditions in Section 4.1, and then look at observations within each condition in Section 4.2, where we will discuss the general accenting patterns of focused utterances observed across speakers (i.e. S1, S2, S3, etc.).

4.1 Across all conditions

Overall, results show that an accent generally occurs on the subject in all utterances (97%). In addition, there is a relatively high tendency for an accent to occur on the object (63%). The frequency of accented words in different conditions is shown in Figure 5.



	(a) All-focus	(b) Subject-focus	(c) Verb-focus	(d) VP-focus	Overall
Subject	98%	98%	95%	97%	97%
Verb	47%	13%	53%	62%	44%
Object	80%	43%	73%	57%	63%

Figure 5 Mean frequency of accented words in each condition and across all conditions

One-way ANOVA tests were carried out to investigate if focus condition has an effect on the accenting of different constituents. It was found that condition does not have a significant effect on the accenting of subject ($p = 0.625909 > 0.1$). However, condition was found to have a significant effect on the accenting of the verb ($p < 0.0001$) and object ($p = 0.014943 < 0.5$). Hence, the subject is generally accented across the focus contexts, but accenting on the verb and object depends on the focus context.

4.2 Within each condition

For each condition, each speaker produces 5 utterances, hence 5 of each constituent (i.e. subject, verb and object). In the calculation of frequency of accented word per speaker, each accented word constitutes of 20% of the total number of a particular constituent produced in each condition.

4.2.1 Condition (a): All-Focus

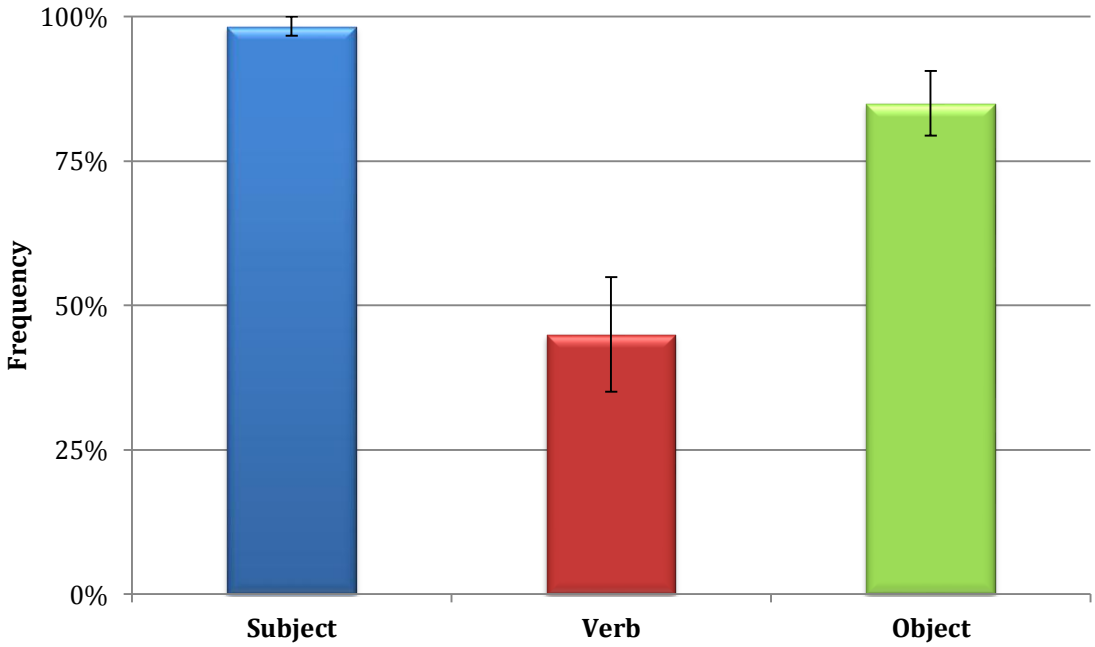


Figure 6 Mean frequency of accents in condition (a) per constituent

As seen in Figure 6, the subject is generally accented across speakers. 11of the 12 speakers completely accented the subjects, with the remaining speaker accenting 80% of the subjects. The object is also generally accented across speakers. 7 of the 12 speakers completely accented the objects, with 1 other speaker accenting 80% of the objects. However, we observed variability in the case of accent on the verb. Among the 6 speakers who preferred an accented verb, 1 speaker completely accented the verbs while another accented 80% of the verbs. Among the other 6 speakers who preferred an unaccented verb, 1 speaker did not accent 80% of the verbs and 3 other speakers never accented the verbs. Generally, as predicted, in the all-focus context, subject and object is obligatorily accented, with optional accents occurring on the verb.

4.2.2 Condition (b): Subject-Focus

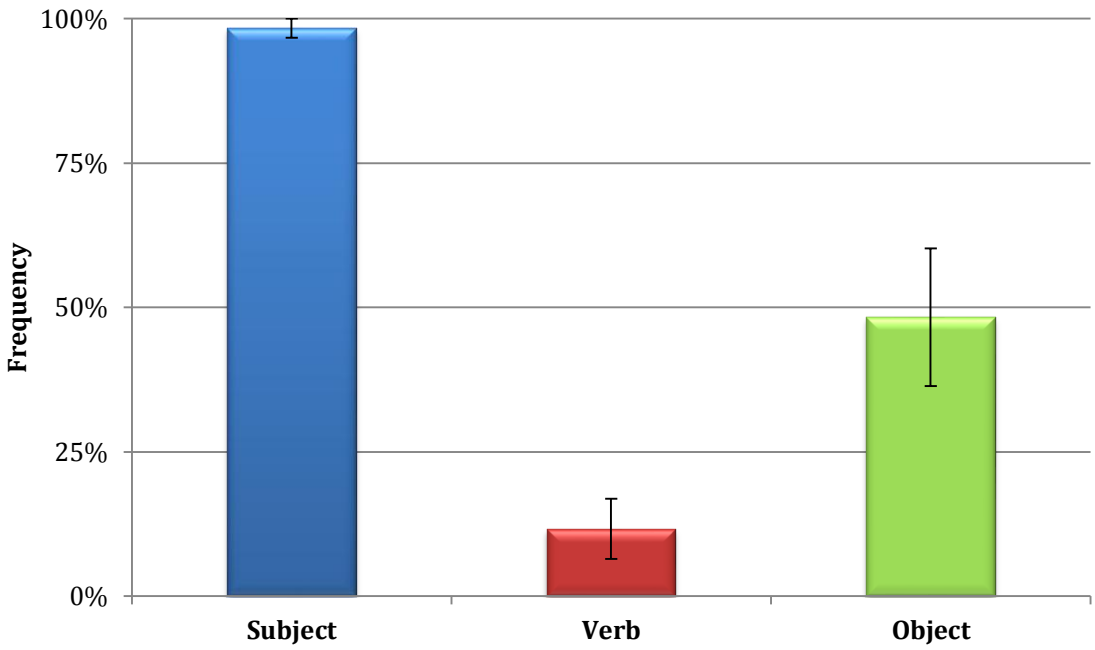


Figure 7 Mean frequency of accents in condition (b) per constituent

From Figure 7, there is generally an accent on the subject. All the speakers completely accented the subjects, except for 1 speaker who accented 80% of the subjects. This is similar to the predicted obligatory accent on the subject in the subject-focus context. In comparison to condition (a), there is lower frequency of accented verbs and objects. As predicted, the verb is generally unaccented across speakers. While 3 speakers did not accent 60% of the verbs and 1 other speaker did not accent 80% of the verbs, the remaining 8 speakers never accented the verbs. However, no general pattern can be observed in the case of accent on the object. Among the 5 speakers who preferred an accented object, 3 speakers completely accented the objects while the other 2 speakers accented 80% of the objects. Of the remaining 7 speakers who preferred an unaccented object, 2 speakers did not accent 80% of the objects while 3 other speakers never accented the objects. Hence, the results do not fully align with the predicted obligatorily accented object in the subject-focus context.

4.2.3 Condition (c): Verb-Focus

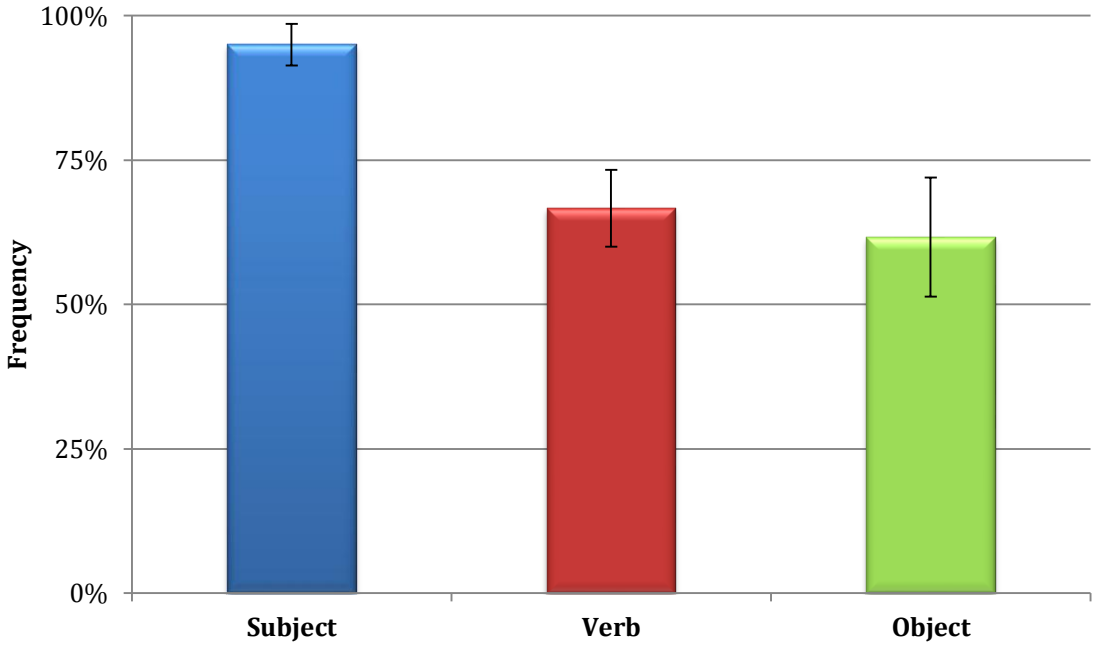


Figure 8 Mean frequency of accents in condition (c) per constituent

As predicted, the subject is generally accented across speakers as seen in Figure 8. 10 of the 12 speakers completely accented the subjects. The remaining 2 speakers accented 80% and 60% of the subjects respectively. Except for 2 speakers who do not accent 60% and 80% of the verbs respectively, the other 10 speakers preferred an accented verb. Of the 10 speakers, 2 speakers completely accented the verbs, with 3 other speakers accenting 80% of the verbs. Thus, this is consistent with our prediction of an accented verb. However, condition (c) does not have the highest frequency of verb accentuation amongst all the conditions, unlike the prediction that only in the verb-focus context is the verb obligatorily accented. Compared to condition (a), there is a lower frequency of accented objects. Across speakers, there is variation in the accenting of the object. Among the 7 speakers who preferred an accented object, 3 speakers completely accented the objects while 4 speakers accented 80% of the objects. Among the remaining speakers who preferred an unaccented object, 2 speakers did not accent 80% of the objects while 1 other speaker never accented the objects. Thus, the results do not fully align with our prediction of an obligatory accent on the object in the verb-focus context. When comparing the accenting of post-focus sequences in conditions (b) and (c), for a majority of the speakers, we observed general intra-speaker patterns of

accentuation of the object. 4 of the 12 speakers generally preferred not accenting the object in both conditions whereas 4 other speakers generally preferred accenting it. Nevertheless, no intra-speaker patterns of accentuation the object could be found for the remaining 4 speakers.

4.2.4 Condition (d): VP-Focus

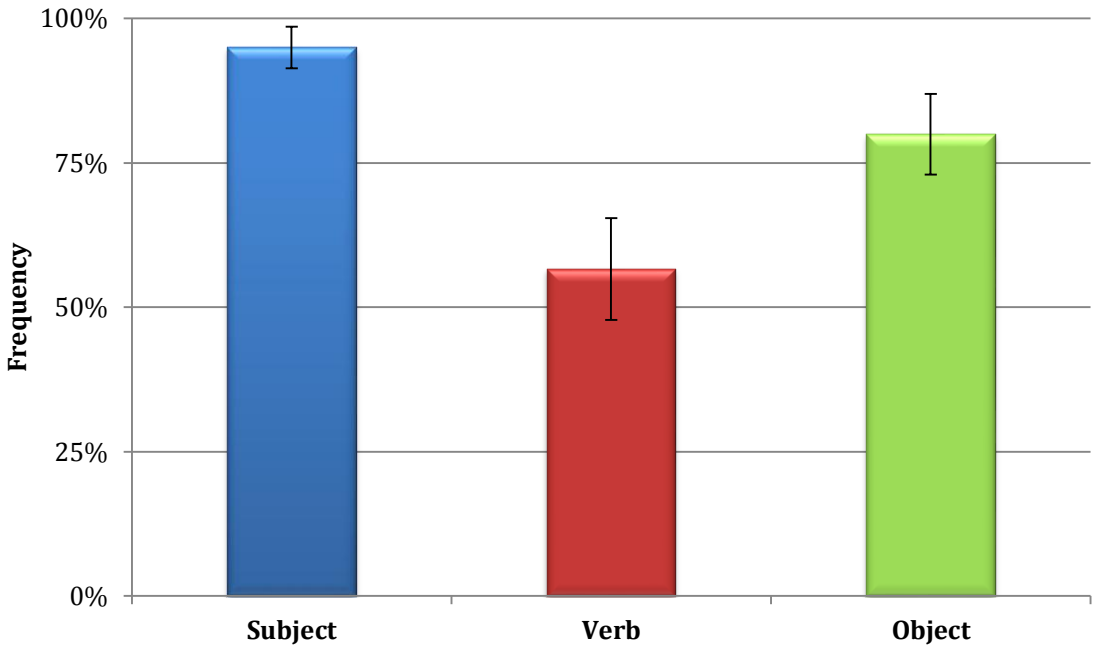


Figure 9 Mean frequency of accents in condition (d) per constituent

From Figure 9, it is observed that the subject is generally accented across speakers. While 10 of the 12 speakers completely accented the subjects, the 2 other speakers accented 60% and 80% of the subjects respectively. Except for 1 speaker who did not accent 80% of the objects, the remaining 11 speakers preferred an accented object. Of the 11 speakers, 5 speakers completely accented the objects while 4 other speakers accented 80% of the objects. However, similar to condition (a), variability is observed in the case of accent on the verb. Of the 8 speakers who preferred an accented verb, only 1 speaker completely accented the verbs and 4 other speakers accented 80% of the verbs. Among the remaining 4 speakers who preferred an unaccented verb, 2 speakers did not accent 80% of the verbs and 1 other speaker never accented the verbs. Thus, these results are similar to our prediction of an obligatorily accented subject and object in the VP-focus context, with optional accents occurring on the verb.

In determining each speaker's general accenting pattern of the constituents in each condition, we considered the accenting of at least 3 of the 5 constituents to mean that the speaker preferably accent the constituent in the particular condition. Subsequently, the mean frequency of speakers preferably accenting each constituent in the four focus conditions is calculated, as shown in Table 2.

Condition (a)			**Condition (b)**			**Condition (c)**			**Condition (d)**		
S	**V**	**O**	**S**	**V**	**O**	**S**	**V**	**O**	**S**	**V**	**O**
100%	50%	100%	100%	0%	42%	100%	83%	58%	100%	67%	92%

Table 2 Frequency of speakers preferably accenting each constituent in the different focus conditions

Based on Table 2, we deduced the overall accenting pattern for each condition. A frequency of >50% meant that a majority of the speakers generally preferred an accent on the constituent. Hence, the overall accenting pattern is labelled with a high tone H. On the other hand, a frequency <50% meant that a majority of the speakers generally preferred the constituent to be unaccented. Thus, the overall accenting pattern is labelled with no tone. In cases where there are as many speakers who preferably accented a particular constituent as those who preferably did not accent it (i.e. 50%), we assumed the overall accenting pattern to be (H). This means that the particular constituent in this condition is optionally accented. Table 3 compares the predicted accenting pattern of each focus condition to the general accenting patterns found in this study.

Conditions	**Predicted**			**Actual**		
	Subject	**Verb**	**Object**	**Subject**	**Verb**	**Object**
(a) All-focus	H	(H)	H	H	(H)	H
(b) Subject-focus	H		H	H		
(c) Verb-focus	H	H	H	H	H	H
(d) VP-focus	H	(H)	H	H	H	H

Table 3 Predicted and actual accenting patterns in the different focus conditions

Referring to Table 3, similar to our prediction of the accenting pattern of condition (a), the subject and object are generally accented, with an optional accent on the verb. In condition (b), as predicted, the subject is generally accented while the verb is generally unaccented. However, instead of the predicted obligatory accent on the object, we observed that the object is generally unaccented. Similar to our prediction, the general accenting pattern in condition (c) involved all three constituents being accented. Lastly, in condition (d), the subject and object are generally accented as predicted. However, the verb is also generally accented, which is unlike the predicted optional accent on the verb in this condition.

An interesting observation was made with regards to the location of accent in the different constituents. In discussing the location of accent in a constituent, we will use F to refer to the final syllable and F' to refer to the penultimate syllable. Figure 10 shows the mean frequency of accents occurring on different syllables in each constituent across the four conditions of focus.

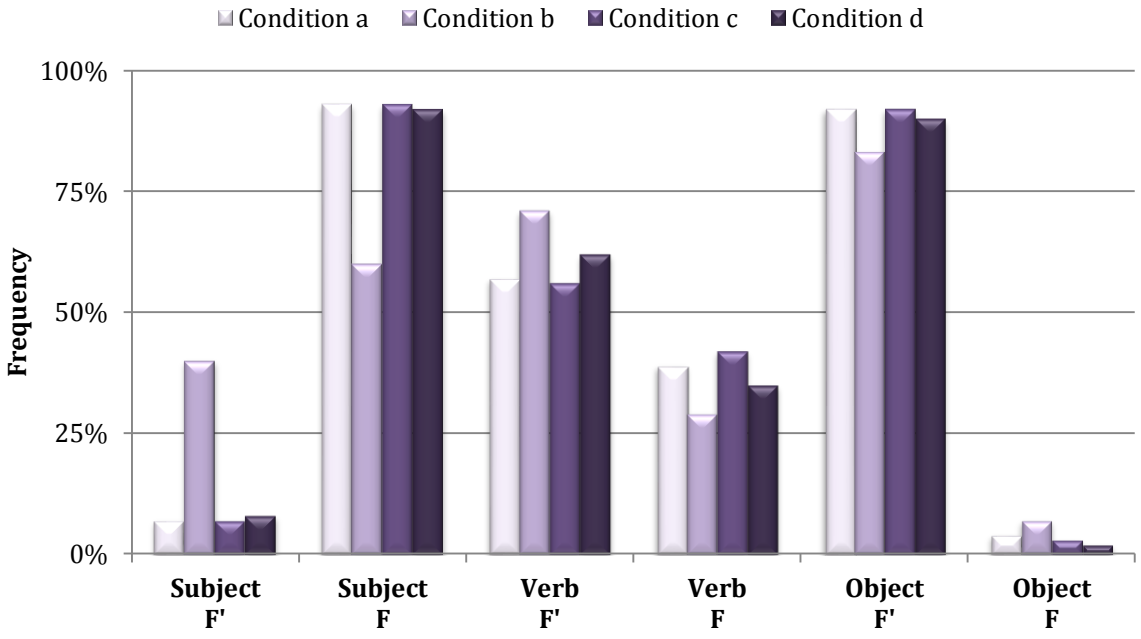


Figure 10 Mean frequency of accents in different locations in each constituent across all conditions

In the conditions (a), (c) and (d), the accent on the subject generally occurs on F. However, though an accent on F of the subject is preferred in condition (b), there is a sizeable number of accent that occurs on F' instead (i.e. 40%). No general pattern of accent location is observed in the case of the verb. An accent on F' is preferred across all conditions, but there remains a sizeable number of accenting on F of the verb for each of the conditions. On the other hand, across all conditions, the accent on the object generally occurs on F'.

5 Discussion

This study explores the relationship between focus and accent in Singapore Malay. In the previous section, we observed that the general accenting patterns are aligned to the predictions in some focus contexts, but slightly differed in others. We will now look at how well the data adhered to the generalizations made regarding the accenting patterns of focused utterances.

In all four contexts of focus, we observed that all focused constituents are accented, hence adhering to the FOC rule. The general non-accentuation of the verb and object in the subject-focus context, which are given information, adheres to the GIVENNESS rule. The *Focus Projection* theory proposes that a focused constituent is F-marked, hence is accented, while a non-focused constituent is not F-marked, hence remains unaccented. However, in this study, we observed accenting on non-focused constituents, with some of these accenting patterns common across all contexts of focus. Hence, as predicted, it seems that the FOC and GIVENNESS rules need to work together with other rules in order to generate the accenting patterns as seen in the data.

Across all utterances, the subject generally gets accented, even in the verb-focus and VP-focus context where subject is given information. This supports our prediction that the ACCSUBJ rule is ranked higher than GIVENNESS. Hence, having an accented subject seems to be an obligatory feature of the intonation of a basic S-V-O declarative in Malay. Supporting this claim, Tan (1999) found that in Singapore Malay declaratives, the subject is accented. Interestingly, it was also observed that when a temporal adverb occurs in the first position of the utterance prior to the subject, the accent occurs on the temporal adverb instead. Hence, the obligatory accent observed on the subject in this study and in Tan (1999) could be because the subject is situated at the beginning of the utterances. It could possibly be the case that Malay adopts the rule of ACCINITIAL, which involves the obligatory accenting of the initial word of the utterance. Hence, accenting the leftmost constituent of an utterance could be a phonological requirement of declaratives in Malay, with no relationship to information structure.

In addition to the generally accented object in the all-focus and VP-focus contexts, the object is also generally accented in the verb-focus context, where object is given information. This supports our prediction that the ACCFINAL rule is ranked higher than

GIVENNESS. Tan (1999) similarly found an accent on the final word of Singapore Malay declaratives. Hence, accenting the rightmost constituent of an utterance could be another phonological requirement of Malay declaratives, with no relationship to information structure. However, results from the subject-focus context showed the contrary. It is observed that the object is generally unaccented in this focus context. More than half of the total speakers prefer deaccenting of post-focus sequences in the subject-focus context. It seems that in such cases, the generalization GIVENNESS takes priority over ACCFINAL. However, if the ranking is as such, it would not be able to generate the obligatorily accented object in the verb-focus context. We suggest that this could possibly be due to inter-speaker variability in the ranking of the constraints. As mentioned earlier, for a majority of the speakers, there is a general pattern in the accenting of the object in both *narrow* focus contexts (i.e. subject-focus and verb-focus). It seems that the speakers are divided into two groups with different grammars. In one group, the speakers seem to rank the rule ACCFINAL higher than GIVENNESS, hence the final word is obligatorily accented in all focus contexts. On the other hand, in the other group, the speakers seem to rank the rule GIVENNESS higher than ACCFINAL, hence the final word is generally unaccented in such *narrow* focus contexts where the final word is given information. Thus, only a re-ranking of the same constraints is needed to generate these two different grammars in Malay, without requiring the introduction of new rules.

In the VP-focus context, we observed that the verb is generally accented. Though this does not violate the FOC rule, it is unlike what was proposed by the FTA approach and *Focus Projection* theory, which involved the accenting of the rightmost constituent in the VP (i.e. object) in a context where VP is the focus. According to the rules of the *Focus Projection* theory, the accented object is F-marked, and this F-marking then gets projected from the object to the verb, then to the VP. However, in addition to an accented object, the data also showed accenting on the verb. It could possibly be the case that unlike English, Malay does not involve assigning an accent to a constituent to mark focus. We suggest that there is a default pattern of accent in neutral Malay utterances that is present for rhythmic reasons or prosodic segmentation of the utterance. When a constituent is in focus, the accents outside of the focused constituent are suppressed while those within the domain of focus remain unsuppressed. Hence, such a focus-marking strategy is able to account for accentuation of the verb in the VP-

focus context as observed in this study, with the assumption that accenting occurs on the verb when in a neutral utterance. The default density of accentuation within a constituent can differ depending on several factors, for instance the length of the constituent and speaking rate (Welby, 2006). Since the proposed focus-marking strategy in Malay would involve suppressing the accents outside of focus rather than adding new accents to the focused constituent, and that the density of accentuation within a focused constituent can differ, this can account for the optional accenting of the verb seen in the all-focus context and also the observation that the verb in the verb-focus context does not get the highest frequency of accentuation amongst the four focus contexts.

Besides common accenting patterns of constituents found across speakers, general patterns were also observed with regards to the location of accents in the respective constituents. Generally, in most utterances, the accent on the subject occurs on the final syllable. On the other hand, the accent on the object occurs on the penultimate syllable. As mentioned earlier, this could possibly be due to the occurrence of L tones at the end of the utterance. Tan (1999) similarly found that in Singapore Malay declaratives, the first word of the utterance will end in a high tone, while in the final word, the penultimate syllable will have the high tone followed by a low tone on the final syllable. Ng (2011) points out that such distinction could also be found in other varieties of Malay, for example Kuala Lumpur Malay and Standard Indonesian. The utterance-final high-low tone, as proposed by Lorentz (1997), could be due to the shifting of the phrase-final high tone at the end of the utterance to the preceding syllable to accommodate a low tone at utterance-final position (cited in Ng, 2011). Hence, it is possible that a phrase-final high tone and an utterance-final high-low tone is not only a characteristic of the Malay variety used in Singapore, but an intonational feature of the Malay language. With Malay emphasizing on high tones at the phrase level instead of the word level (Ng, 2011), this could explain why variation is observed in the location of accent on the verb, which is not located at the phrase boundary.

An interesting observation concerns the location of accent on the subject in the subject-focus context. We observed that a sizeable number of speakers accent the subject on the penultimate syllable instead. We propose that an early peak alignment is adopted to mark focus on the subject, so as to differentiate an accented subject in focus from an

obligatorily accented subject seen in other contexts of focus. This is possibly due to tonal crowding as the result of a low tone at the right-end of the subject, causing the high tone on the final syllable to be shifted to the adjacent syllable on the left. As mentioned earlier, though low tones seem to be phonologically present in this study, insufficient evidence to determine the presence of such a tone has led us to limit the analysis in this study to identifying only H tones. Hence, future research involving a wider auditory analysis needs to be done to determine the feasibility of this proposal.

In this study, we observe a relationship between focus and accent in Malay. Some data suggest a one-to-one correspondence between focus and accent in Malay, namely the general accenting of only the subject in the subject-focus context and the general accenting of both the verb and object in the VP-context. However, looking across all contexts of focus, there is evidence that suggests otherwise. Variations in the accenting pattern of different speakers are observed across the four contexts of focus. More significantly, we observe obligatory accenting on the subject and final word regardless of the focus context. This supports the idea that not all accented words constitute the focus, hence providing evidence of the imperfect relationship between focus and accent.

This study has shown that intonation can be adopted as a strategy of focus-marking in Malay. Supporting the structure-based FTA approach, this study provides evidence of structural rules working together to generate accenting patterns of different focus contexts in Malay, including rules that satisfies the phonological requirement of Malay declaratives and are independent of information structure, like the obligatory accenting of subject and final word. For some of our generalizations, we found a robust relationship between focus and accent, while for others, we found a weaker relationship. With variability observed in GIVENNESS, we propose that such a generalization is probabilistic, which requires further research in another study. Thus, an extended study with a larger data set can better ascertain which generalizations are involved in generating the accenting patterns of focused utterances in Malay. This study primarily used a conservative method of visual inspection of the F0 contour to detect the presence of accents. As a result, some rises in F0 might have been overlooked. Hence, a future study involving both visual and auditory inspection of the F0 contour would minimize the chances of accents being overlooked, providing more comprehensive results. A reductive analysis of the data is used in this study in order to make some

generalizations regarding the accenting patterns of the different contexts of focus. The presence of variations observed in the data could possibly be a result of the non-interactive reading test, which does not demand a communicative goal. Hence, a future study may benefit from a more interactive experimental design, for instance involving the discourse between two interlocutors.

6 Conclusion

This study explored the focus-accent relation in Malay. Data in this study suggested that there is indeed a relationship between focus and accent, hence suggesting that intonation is an available strategy for marking focus in Singapore Malay. Supporting other research of focus, the findings in this study provide evidence that there is no one-to-one correspondence between focus and accent in Malay, namely the presence of accents that are independent of information structure and inter-speakers variability observed in the different contexts of focus. This paper suggests a preliminary theory of focus in Singapore Malay, involving different generalizations working together to generate accenting patterns of the different focus contexts investigated. With the study of focus and intonation in Singapore Malay still in the preliminary stage, more research, including the development of a proper theory of lexical stress in Malay, needs to be carried out to establish a more concrete theory of focus in Malay.

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8 Appendix

Table 4 Target question-answer pairs

1	Aini memegang oren.	*'Aini holds an orange.'*
2	Ali menyaman wartawan.	*'Ali sues a reporter.'*
3	Alia meminum milo.	*'Alia drinks milo.'*
4	Amin melamar Aina.	*'Amin proposes to Aina.'*
5	Ani mencuci cawan.	*'Ani washes a cup.'*
6	Ila mencuri gelang.	*'Ila steals a bracelet.'*
7	Iman mengira wang.	*'Iman counts money.'*
8	Lela menyewa rumah.	*'Lela rents a house.'*
9	Malina menuang air.	*'Malina pours water.'*
10	Mila melawan arahan.	*'Mila fights against the instructions.'*
11	Mona mengulas jurnal.	*'Mona reviews a journal.'*
12	Munir mematuhi aturan.	*'Munir obeys the rules.'*
13	Nala menanam bunga.	*'Nala plants a flower.'*
14	Nina mengejar anjing.	*'Nina chases after a dog.'*
15	Nora meracuni minuman.	*'Nora poisons the drink.'*
16	Norman menghalangi jalan.	*'Norman blocks the road.'*
17	Omar memandu lori.	*'Omar drives a lorry.'*
18	Rani mengulangi lagu.	*'Rani repeats a song.'*
19	Rila memotong halia.	*'Rila cuts a ginger.'*
20	Umar menjual roti.	*'Umar sells bread.'*

Table 5 Fillers

1	Bagaimana Adi dan Siti pergi ke sekolah? Mereka menaiki bas.	*How did Adi and Siti go to school?* *They took a bus.*
2	Mengapa Timah berasa sedih? Dia gagal peperiksaan.	*Why did Timah feel sad?* *She failed the examination.*
3	Bagaimana Hasan mendapatkan wang? Dia membuat kerja sambilan.	*How did Hasan get cash?* *He did a part-time job.*
4	Mengapa Hani pulang ke rumah? Dia tertinggal payung.	*Why did Hani return home?* *She left the umbrella.*
5	Bagaimana Rozy memakan bubur? Dia menggunakan sudu.	*How did Rozy eat porridge?* *She used a spoon.*
6	Mengapa ayah memarahi Hadi? Dia memecahkan pasu.	*Why did dad scold Hadi?* *He broke a vase.*
7	Bagaimana Sani membuat pilihan? Dia menanya pendapat ibu.	*How did Sani make a choice?* *He asked for mother's opinion.*
8	Mengapa Anita menangis? Dia kehilangan buku.	*Why did Anita cry?* *She lost the book.*
9	Bagaimana Tina meluahkan perasaannya? Dia menulis surat.	*How did Tina express her feelings?* *She wrote a letter.*
10	Mengapa Siti lulus ujian? Dia bekerja keras.	*How did Siti pass the test?* *She worked hard.*