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To link to this article DOI: http://dx.doi.org/10.1075/eww.37.3.03mat

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Malay English Intonation: The Cooperative Rise

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This paper presents the findings of a study on the intonational features found among ten proficient Malay Speakers of English (MSEs). More specifically, it will focus on a distinct rising tone which has been termed as the Cooperative Rise (CR). Using Brazil's (1985) Discourse Intonation as a framework for analysis, it has been found that the discourse function of the CR differs from the rise and fall-rise of Standard Southern British English (SSBE) as described in Brazil (1985). The CR is a referring tone which is used to provide extra emphasis on important information and creates a more cooperative and supportive tone. The form and function of the CR are also examined in relation to Standard Southern British English (SSBE) as described in Brazil (1985) and other varieties of World Englishes. The results indicate that the CR form is different than the standard rise in SSBE. Acoustically too, the duration and pitch range of the CR are statistically significantly different from the standard rise.

Keywords: Cooperative rise; Malay English; Malaysian English; Asian Englishes; Discourse Intonation; prosody; intonation; map tasks

1. Introduction

The main aim of this paper is to describe a distinct prosodic feature found among Malay Speakers of English (MSEs) which is termed here the Cooperative Rise (CR). Essentially, the research questions of the study that will be examined in this paper are:

1. What are the intonation patterns of MSEs in terms of form and function:
   a) within MSEs group, and
   b) with a different interlocutor?
2. To what extent are these intonation patterns similar or different:
   a) from intonation in SSBE as described by Brazil (1985)?
   b) from description of varieties of WE within the region such as ME, SgE and HKE?

In other words, it will examine the form and the discourse function of the Cooperative Rise (CR) and to what extent the CR is similar to or different from intonation patterns in SSBE, as described by Brazil (1985), and other varieties of World Englishes (WE) in the region. This research is drawn from a larger-scale study which looked in more general terms at features of intonation in MSE.

In comparison to the extensive research on other Asian varieties, such as Singapore English (SgE) and Hong Kong English (HKE), very few studies have investigated the prosodic features of the English spoken in Malaysia. This paper aims to address this gap in the literature and describe a distinct prosodic feature of Malay English, i.e., a sub-variety of Malaysian English that is spoken by MSEs.

Malaysian English (MalE) is the umbrella term used to refer to the English spoken in Malaysia by Malaysians, who comprise many different ethnic groups. MalE has evolved and become a unique, nativised variety with its own linguistic and phonological features (Platt and Weber 1980; Baskaran 1994, 2008; Morais 2001). However, its legitimacy and place in the context of a WE variety, as well as its development and features, will not be discussed in this paper. Suffice it to say that, within this variety, sub-varieties have emerged in terms of sociolectal (Baskaran 1994; Morais 2001; Rajadurai 2004) and ethnic differences (Nair-Venugopal 2000, 2001, 2003). For example, Malay English (ME) is the term used to describe the sub-variety or ethnolect of MalE spoken byMSEs.

In this study, MSEs have been selected essentially because the Malays comprise the biggest ethnic group in peninsular Malaysia and make up 63.1% of the total Malaysian population (Malaysian Department of Statistics, 2010). They also constitute approximately 55% of the speakers of MalE (Preshous 2001). As such, in order to understand the intonation features of MalE, the intonation features of ethnically Malay speakers of English needs to be described as their intonation patterns are likely to have a strong influence on MalE intonation in general.

2. The Literature

The literature is divided into two main sections. The first section will discuss the main approach used in the study, i.e., Brazil's (1985) DI model, and the second section will examine the relevant literature in WE.

2.1 Discourse Intonation

It should be highlighted that, in the British tradition, there have been many studies which have described intonation using Standard Southern British English (SSBE) as the model. Therefore, new data on SSBE intonation was not collected or analysed in this study as the literature has been quite extensive, and examples of its discourse functions have been thoroughly described in Brazil's (1985) DI, as well as in others (e.g., more recently, Wells 2006).

Historically, Brazil's (1985) DI model emerged from the British tradition and has its roots originally in the work of Halliday (1967). Like many in this tradition, the model was based on the intonation of Standard British English (Brazil et al. 1980, Brazil 1985, Brazil 1997). However, in contrast to the contour analyses advocated by Crystal (1969), Cruttenden (1997), Roach (2009), and Wells (2006), or Halliday's (1967) lexico-grammatical approach of intonation, Brazil (1985) views intonation as primarily having a discourse function. According to Brazil et al. (1980, p.11):

> We see the description of intonation as one aspect of the description of interaction and argue that intonation choices carry information about the structure of intonation, the relationship between and the discourse function of individual utterances, the interactional 'given-ness' and 'new-ness' of information and the state of convergence and divergence of the participants.

Brazil's (1997, p.vi) assumptions in proposing a DI model were "(a) that intonation choices are not related to grammatical or syntactic categories (rather, they depend on the speaker's contextually referenced perceptions), and (b) that there is no systematic link between intonation and attitude". According to Brazil (1997), speakers will make intonation choices based on a continuing assessment of the understanding between themselves and their interlocutor(s), which is termed as the context of interaction. This common ground is a shared understanding that exists between participants in an interaction. The basic elements in Brazil's DI model are tone, prominence, the tone unit, key and termination and the notion of dominance (Brazil 1985, 1997).

2.1.1   Tone in DI

Tone can be defined as a pitch movement within a tone unit. There are five major tones: fall (*p*), fall-rise (*r*), rise (*r+*), rise-fall (*p+*) and level (*o*). The two basic and commonly used tones in standard British English (BrE) are the fall and fall-rise while the three other tones are "seen as marked options, understood and meaningful in contrast" (Brazil et al.1980, p.13).

According to DI, in standard British English, the fall tones (*p* and *p+*) are proclaiming tones which indicate new information and the rise tones (r and r+) are referring tones indicating given or known information.

As such, all interactions can only proceed on the basis of a common and shared ground between the listener and speaker where given information is expressed using referring tones and new information is expressed using proclaiming tones, represented as '*r*' and '*p*' respectively (Brazil et al., 1980).

> Tone choice, we have argued, is not dependent on linguistic features of the message but rather on the speaker's assessment of the relationship between the message and the audience. On the basis of this assessment he makes moment by moment decisions to refer to sections of his message as part of the existing common ground or to proclaim them as an addition to it.
>
> (Brazil et al., 190, p.18)

However, sometimes as Setter (2005, p.7) points out, a speaker can make the wrong assumptions, i.e., using referring tones when actually common ground does not exist or using proclaiming tones when information is actually part of the common ground.

As mentioned earlier, Brazil (1985) classifies three other tones in SSBE: rise (*r+*), rise-fall (*p+*) and the level (*o*) tone. The rising tone (*r+*) and the rise-fall tone (*p+*) are used by the speaker who has a more dominant role in the conversation, while the level tone (*o*) otherwise known as an 'oblique' tone indicates the speaker has not finished an utterance or the speaker's lack of involvement (Brazil et al. 1980, p.88).

2.1.2   Prominence

Prominence, according to Brazil et al. (1980, p.39), "is a property associated with a word by virtue of its *function as a constituent of a tone unit.* Making a word prominent, whether lexical or not, constitutes a meaningful choice…".

Prominence is only found in the tonic segment of the tone unit. The tonic segment is the most important part of a tone unit which begins with the first prominent syllable (onset) and ends with the last prominent syllable (tonic) (Brazil et al. 1980, pp. 39-40). The tonic is the most prominent syllable in the tonic segment traditionally labelled as the nucleus. In DI, the tonic syllable is a meaningful choice indicating the speaker's judgement that the word contains the most important matter in the interaction and that everything else in the tone unit is "recoverable because it is grammatically or semantically predictable" (Brazil et al.1980, p.41).

2.1.3   Tone Unit

The tone unit in Brazil's approach is divided into three segments: proclitic segment, tonic segment and enclitic segment. The proclitic and enclitic segments are optional and a tone unit can comprise just a tonic segment or tonic syllable (Brazil et al. 1980, p.38). The proclitic segment contains all the unstressed syllables which come before the tonic segment while the enclitic segment consist of all the unstressed syllables after the tonic segment. In DI, the focus is primarily on the tonic segment (onset + tonic syllable) as this is what is

considered to be important for listeners to listen to in terms of information. The tonic segment comprises the most important component in the entire tone unit, i.e., the tonic syllable which is equivalent to the nucleus (O'Connor and Arnold 1973, Roach 2009).

2.1.4 Dominance

The notion of dominance in the DI model is a concept introduced by Brazil et al. (1980) to indicate that in all interactions there are social rules or role attribution that determine who speaks and to whom.

> We propose to use the term *dominant* in a technical sense to indicate the person who has the greater freedom in making the linguistic choices, and then to argue that the freedom to make choices in the *r/ r+* system is only available to a dominant speaker, or, as ever, to one who is using the system to *claim* dominance.   (Brazil et al. 1980, p.53)

In other words, the choice of either *r* or *r+* both convey common background or convergence, but it is the dominant speaker, i.e., the speaker who is linguistically more "knowledgeable" and has the privilege to choose (Brazil et al. 1980). Brazil et al. (1980) provide examples of role attribution in an interaction where this can happen, for example between a doctor and a patient, a teacher and a pupil or a story teller and the children listening. In all three instances, the former speakers are dominant in the sense that they control the interaction, they have the dominance in terms of the information or knowledge involved in that particular interaction.

For the purpose of this study, the notion of dominance will be examined in light of the interaction between the MSEs and the interlocutors (i.e., other MSEs and NNS) involved. Besides dominance, aspects of tone, tonicity and the tone unit will be examined in relation to how they create meaning. The notions of key and termination, however, will not be explored. To summarise, the DI model is presented in Table .

Tone	Shape	DI symbol	Function	Meaning
rise	↗	r+	referring (dominant)	shared information common ground convergence dominance
fall-rise	↘↗	r	referring	shared information common ground convergence
fall	↘	p	proclaiming	new information divergence
rise-fall	↗↘	p+	proclaiming (dominant)	new information divergence dominance
level	→	o	opt out	routine hesitation

Table 1: Summary of Brazil's (1985) Discourse Intonation Model.

(Adapted from Kumaki, 2003, p.17)

The second part of the literature review will discuss World Englishes, focusing specifically on MalE, as there has been no specific study which examines the intonational features of ME. Most studies describe general aspects of MalE (Tongue 1979; Platt and Weber 1980; Baskaran, 1994). Even then, intonational features are rarely mentioned and, if they are, it is often at a very general and descriptive level (Baskaran 1994, 2008; Preshous 2001). For example, Platt and Weber (1980) found that the most prominent prosodic features were the irregular shifts of syllabic prominence and that speakers tended to accent the penultimate syllable of a word.

Rajadurai (2004) investigated MalE in the classroom between Malay students and a Malay teacher. She too noted that there was a tendency to change word accent; however, rather than the penultimate syllable, the shift was to the last syllable which was accompanied with vowel lengthening. Both Platt and Weber (1980) and Rajadurai (2004) agreed that the irregular shift of syllabic prominence is possibly a language transfer from Malay (L1), although no acoustic or quantitative measurements or comparisons were given in either study. According to Deterding and Poedjosoedarmo (1998), Malay prominence is always found at the end of an utterance and makes only a slight difference between stressed and unstressed

syllables. There is more prominence at sentence level rather than syllables or individual words (Nik Safiah , Farid, Hashim and Abdul Hamid, 1993). However, more recent studies have questioned the notion of stress, prominence and syllables in Malay altogether (Zuraidah, Knowles and Yong, 2008; Deterding and Clyne, 2011). As such, these concepts are ambiguous in Malay and will remain rather vague unless further empirical-based studies can be conducted.

According to Baskaran (2008), MalE does not have as many intonation patterns nor does it perform as many intonational functions as RP. She claims that, if any syllable is to be accented, it is loudness that seems to be the differentiating factor, and that pitch variation is not common in MalE, especially within the accented word. Baskaran (2008) also observed that the pitch range of MalE speakers is not as wide as that of RP speakers and that speakers instead use particles such as *lah, man*, and *ah* (*uh*) to indicate questions or to signify sentence types and the speaker's emotions or attitudes. However, like Platt and Weber (1980) and Rajadurai (2004), Baskaran's (2008) claims regarding pitch range are based on auditory impressions with no attempt at acoustic measurements.

In recent years though, there has been a growing number of studies on MalE (Pillai, Zuraidah, Knowles and Tang 2010; Wan Asylnn 2005; Tan and Low 2010) which have used more quantitative measures in their analysis. However, these studies focus on segmental features such as vowel duration and contrasts rather than the suprasegmental or the prosodic features.

Subsequently, although many studies have acknowledged that there are ethnic variations in MalE and that first language (L1) can affect the prosodic features of the variety (Gill 2002; Nair-Venugopal 2000, 2001, 2003; Goh 1994), none have attempted to delve further into this area. Empirical or instrumental studies which look at a specific suprasegmental aspect of a specific sub-variety of MalE such as intonation or rhythm have not been found.

The only study which has described the intonation of MalE to some extent is Goh (1994). She focused on the teaching of intonation using Brazil's (1985) Discourse Intonation (DI) model and examined aspects of prominence and tone. Goh (1994) found that, in terms of prominence, the results revealed that her participants used different stress placement in prominent words and names of places from what DI predicted, assigned prominence to the

last word of sentences, had fossilised prominence patterns and the tendency to overload prominence in tone units. Some examples are given below:

// WHAT'S your favourite DRINK //

// i DON'T know the WAY THERE //

// we could GIVE HER a PEN //

// i DID a LOT of SHOPping //

// AND // i BOUGHT a LOT of NEW clothes //

(Goh 1994: 84)

Additionally, Goh (1994) suggests that the overloading of prominence in tone units could be a transfer from the Chinese language, a syllable-timed language and the L1 for the majority of her participants.

In terms of tones, she noted that the level tone was highly frequent, and attributes this feature to the students' lack of fluency in English (the level tone is frequently used in hesitations) and also to the fact that the level tone is a very common tone in Chinese. Goh (1994) also observed the use of the proclaiming tone (fall) to refer to common knowledge and in certain adverbials (Goh 1994: 87), whereas Brazil's DI system requires these to be referring tones (fall-rise). Her subjects often chose the "wrong" tonic word or syllable and had difficulty in perceiving and producing the fall-rise tone. While Goh's (1994) study to some extent reveals the intonation patterns of Malaysian learners, a limitation to the study is that her participants were predominantly Chinese and little is mentioned about variation between ethnic groups.

In another study, Goh (2003) examined MalE and SgE speech data and again found that her speakers did not conform to the stress patterns in Brazil's (1985) DI model. In DI, there is a maximum of two prominences in a single tone unit, but Goh (2003) found that in ME and SgE there were often three or more prominences in longer tone units. She attributes this phenomenon to the frequent use of the level tone as well as a faster speech rate caused by the shortening of long vowels. Additionally, Goh (2003) observed that the unmarked, fall-rise tone in Brazil's model is uncommon in MalE and SgE while the marked, rising tone is very common.

Goh (2003) noted that in MalE and SgE prominence does not necessarily indicate meaning selection, especially prominence found at the end of an utterance. Instead, prominence in these instances seem to "serve specific pragmatic functions, such as reiterating important ideas, signalling the end of an utterance or a turn and expressing strong contrastive responses" (Goh 2003: 2). In general, Goh's (1994, 2001, 2003) studies have found similar intonation features in MalE and SgE thus providing a framework within which the DI model can be used to describe such varieties. More importantly, what can be concluded from her studies is that, even though the intonation features of MalE and SgE were similar to SSBE, their discourse functions may not always be the same (Goh 2003).

3. Methodology

Quantitative measures such as acoustic and statistical analyses will be used to exemplify, complement and support the DI model. As Cruttenden (1986) aptly summarises:

> The essential point is that all linguistic units are in varying degrees abstractions and are perceptual rather than acoustic realities; because we cannot find invariant acoustic counterparts, we should not, on such grounds alone, discard such units. On the other hand, acoustic research has made considerable contributions to our understanding of sounds…there is no reason to regard the analysis of prosodic patterns any differently from the analysis of segmental patterns; both auditory and instrumental analysis have something to offer.
>
> (Cruttenden, 1986, p.7)

3.1.   Research Paradigm and Framework

The research paradigm taken in this study is from a World Englishes perspective, i.e., that the ME spoken by the participants is a sub-variety of MalE and not a learner variety. Thus, any prosodic differences to SSBE for example, are features of this variety rather than errors.

The research framework can be described as exploratory and descriptive. Since the literature has shown that there have been very few studies which have described the

intonation features of ME or MalE, the main objectives of the study was to identify and describe these features.

Initially, the primary method of analysis was Brazil's (1985) DI model in which the five tones (fall, rise, fall-rise, rise-fall and level) formed the basis for analysis. However, as time progressed with the analysis, it was apparent that the five tones used were insufficient to describe everything that was happening in the data. The MSEs were 'doing' other things in the data and one of them was a rising tone termed as the CR. In line with an exploratory framework, besides looking at the discourse function of the CR, it was deemed necessary to identify the actual form of this new rise. It seemed appropriate that the best method to do this was a quantitative and acoustic analysis which would complement and support this new finding. This included the use of descriptive statistics and SPSS and speech software such as Praat (Boersma and Weenik 2009) and Adobe Audition for the acoustic measurements of the CR and rise. To facilitate the flow of this paper, the form of the CR will be explained first then its discourse function. This will provide a clearer picture of its physical properties before going into its discourse functions. The form of the CR will be described in section 6.1 and its discourse function in section 6.4 respectively.

3.2. Participants

The participants consisted of two different types of speakers: (i) the Malay Speakers of English (MSEs); and (ii) a Chinese Non-Native Speaker (NNS) of English. The main participants were MSEs and the Chinese NNS of English who was only used as a comparison.

Based on the background questionnaire given (Section xx), the MSEs can be considered to be a homogeneous sub-group. This can be concluded from the commonalities illustrated below:

1. All are women aged between 25-54, with the majority of them in their late 20s or mid 30s.
2. All were born in the north of peninsular Malaysia (Kedah) except for one participant, MSE01.
3. The Kedah dialect is the L1 for the nine MSEs who come from Kedah.

4. Nine out of the ten MSEs were educated in Kedah during their primary and secondary school years.

5. All have at least an undergraduate degree in ESL, English Language or Applied Linguistics. Some have a master's degree too.

6. All have graduated from local Malaysian universities.

7. All are bilinguals, as defined by Baker (2001) (chapter three, Section 3.8.1). The answers to the "language use" sections indicate that they are comfortable and competent in both Malay and English.

8. All read, watch TV and listen to radio and music in both languages.

The NNS from China was chosen to ascertain whether the intonation patterns of the MSEs differed when they interacted with an interlocutor from a different background. Additionally, this was done and in order to avoid a NS interlocutor of, for example, British English being seen as the "target" as well as to help preserve the WE paradigm.

3.3.   Sampling Procedure

Purposive sampling (Dörnyei 2007) was used in recruiting the participants. Within purposive sampling the sampling strategies were a combination of homogeneous and criterion sampling (Dörnyei 2007). As stated in section 3.2, the MSEs were a homogeneous sub-group as they were all Malays, female, lecturers or teachers of English who were from a specific geographical area (nine out of the ten MSE are from the Kedah) and had similar socio-linguistic backgrounds and academic qualifications. Criterion sampling was carried out following Smith and Rafiqzad's (1983) criteria in order to avoid undue influence by speakers of other varieties of English. They recommend that speakers should not:

• have spent more than four consecutive months in any English speaking country;

• have been formally educated in schools directed by native speakers of English; or

• have ever lived with English speaking families or groups.

(Smith & Rafiqzad, 1983, pp. 49-50)

The participants were recruited via a colleague from the language centre, Universiti Utara Malaysia, Malaysia. The sampling criteria were given to the researcher's colleague to ensure that all participants fulfilled the requirements.

4. Data Collection

4.1. The Questionnaire

A questionnaire was given to the MSEs which asked them about basic information such as date of birth, place of birth, educational background and language use. The rationale for collecting such information was to provide a basic understanding of where the participants came from in terms of personal and educational background as well as language use. As discussed in section 3.2, what can be concluded is that the MSEs were a homogeneous group.

4.2. The Map Task

The primary data used were map tasks (Human Communication Research Centre (HCRC) Map Task n.d). Previous studies (Anderson et al. 1991; Isard and Carletta 1995; Mixdorff and Pfitzinger 2005) have found map tasks useful in providing interactional data for analysis since, although they provide somewhat structured speech events, they are unrehearsed, unscripted dialogues which allow natural occurring spoken discourse to take place. The map tasks were conducted and divided into two groups, MSE-MSE data, which is the recorded interaction between the MSEs; and MSE-NNS data, which is the recorded interaction between ten MSEs with the Chinese NNS. This data was collected over a period of two weeks.

4.3. Pilot Study

A pilot study was conducted prior to the primary data collection period in Malaysia. The participants were two Malay postgraduates (MSEs) and one Chinese postgraduate from Taiwan (NNS) who was used as a comparison to the data provided by the Malay speakers. The two Malay postgraduate students were selected on the basis that they had spent less than four months in the UK as described by Smith and Rafiqzad (1983). The recordings were

transcribed orthographically by the researcher and a DI approach was used to analyse the intonation of the speakers. Based on the pilot study, some minor modifications were made to ensure that the actual data collection would run smoothly and effectively.

4.4. Recording Equipment and Techniques

An Edirol R-09HR recorder was used as the main source of recording. The recordings were sampled at a rate of 16 bits, 44.1 kHz and in stereo WAV format. To ensure that the tasks were properly recorded and there were no technical problems, an Apple Macintosh computer using a lapel microphone was used as a backup which was sampled at the same Edirol settings. All of the recordings were then stored on the Apple Macintosh computer initially, and later transferred to a Dell Inspiron laptop.

4.5. Data Transcription

The recordings were transcribed using Express Scribe (Version 5.06). All the tasks were transcribed orthographically and saved into MS word documents. This comprised a total of 20 MSE-MSE and MSE-NNS map task transcripts which amounted to approximately 100 minutes of recording/ data.

5. Data Analysis Techniques

5.1. Auditory Analysis and DI

Using DI as the theoretical framework, the main method of analysis was auditory in nature. The labelling of tones was modified slightly to avoid the assumption that the tones have the same proclaiming and referring functions as SSBE as described in Brazil (1985).

All transcripts were labelled and marked in terms of tone unit, tonic syllable and tones and were analysed at least three times at different levels with a time lapse between the analyses. In addition, a second labeller independently marked 20 percent (four transcripts) of the total 20 transcripts to ensure reliability of the marking. An inter-rater reliability (IRR) scores was then calculated. The IRR score was 90.4% for tonic syllables agreement and 85.3% for tone agreement.

5.2.   Speech Analyzer, Adobe Audition and PRAAT Software

Sound files of all the recordings were analysed using three computer programmes. Speech Analyzer version 3.0.1 (available from http://www.sil.org/) was used to analyse the pitch contours when it was difficult to determine the tones from the auditory analysis. Adobe Audition version 1.5 was used to make sound file snippets or examples of the CR or other tones involved. The files made using Audition were later transferred onto Praat (Boersma and Weenik 2009) version 5.2.35 (available from http://www.fon.hum.uva.nl/praat/), a speech analysis program which was used to generate and illustrate visual examples of the intonation patterns produced by the speakers.

5.3.   Statistical Analysis

The data from the 20 marked map task transcripts were transferred into Excel spreadsheets so that simple descriptive statistical analysis could be calculated, such as the percentage of tones used by MSEs. Using SPSS), independent t-tests were conducted in order to determine whether there were any statistically significant differences in the types and number of tones used with the two different interlocutors (i.e., MSEs and the NNS)

5.4.   Acoustic measurements

As the CR tone was a new feature found in the data which did not really match any of the tones described by Brazil (1985), some acoustic measurements were deemed necessary to establish its form and support the auditory analysis. The use of acoustic measurements to support auditory "judgements" is very common in phonetics (Ashby 2011:10).

To ascertain whether the CR was different from the "standard" rise measurements were made for both rises. A sample of the most obvious rises (CR and R) was selected from the data and measured based on two parameters: (i) duration and (ii) pitch range.

Only 10% of the total number of CRs in MSE-MSE data was selected as the main purpose was merely to establish the physical existence or form of the CR. The focus of the study was not an acoustic study of the CR. As such, 10% of the CRs were selected from the data which comprised 40 tone units containing instances of 40 CRs (four examples for each MSE). As a comparison, 40 instances of the R were also chosen. In selecting the tones, the

four CRs and Rs with the highest quality acoustic signatures for each MSE were chosen since the environment was not optimum for obtaining good quality recordings and not all recordings yielded clear enough acoustic displays; the initial aim of the research had been to conduct a mainly auditory analysis.

Altogether 80 tone units were converted into Praat (Boersma and Weenik 2009) images and labelled using the text-grid function. The duration of both types of rise were measured in milliseconds and the mean, minimum and maximum F0 as well as the F0 range were also extracted from Praat (Boersma and Weenik 2009), measured in Hertz. Nolan (2003) suggests that a logarithmic scale best models speaker intuitions about pitch range, and so semitone conversion was used to normalize the pitch range data. This allowed us to compare the pitch ranges of the subjects, even though they had different modal F0 and their pitch values were obtained from different ranges on the physical scale. The pitch range in semitones (st) was obtained using the following formula (Nolan 2003), in which fmax is the maximum pitch in Hz and fmin is the minimum pitch in Hz:

$$st = 12(\frac{LN\left(\frac{fmax}{fmin}\right)}{LN2})$$

Labelling of Analysis

The following table provides the labelling that is used in the examples discussed.

Table 2. Labelling of Analysis

//	Beginning or ending of utterance
/	Beginning or ending of a tone unit
Tonic syllable	Letters that are capitalised, in bold and underlined
Stressed syllable	Letters that are capitalised
F	Fall
RF	Rise-Fall
R	Rise
CR	Cooperative Rise
FR	Fall-Rise
L	Level

RFR	Rise-Fall-Rise
MSE01-MSE10	A specific Malay speaker as an individual
M01-M10	Individual transcripts from the MSE-MSE data
N01-N10	Individual transcripts from the MSE-NNS data
Example M03: 76.5s	"M" refers to MSE-MSE data. The number "03" refers to the specific MSE speaker in the interaction."76.5s" indicates the time in seconds the utterance occurs in the recording.
Example N07: 91.3s	"N" refers to MSE-NNS data which is the interaction between MSE with the Chinese NNS of English. "07" refers to MSE number seven who is interacting with the Chinese NNS and the utterance occurred at 91.3 seconds.

6. Results

6.1. The Cooperative Rise: Form

In order to demonstrate that the CR is physically different from the standard rise (R) as described in Brazil (1985), a comparison of the acoustic properties of both rises (R and CR) is given, providing support that the CR is a separate tone from the R for the MSEs. Based on the data, the CR is usually found at the end of an utterance, i.e., the final syllable of the tone unit, unless there are syllables containing weak vowels (e.g., schwa), in which case the tonic stress falls on the syllable nearest the end containing a full vowel. Auditory analysis indicated that there was a clear difference in the rises. It was not an R or a FR but, rather, a rise which sounded longer in duration and slower compared to the "standard" rise (R), which sounded quicker and "sharper". It was during this stage of auditory analysis that the distinction between a CR and R was initially identified.

In terms of the physical form, it is a gradual rise which starts off relatively low in pitch. In relation to the R, the rise in the CR is more gradual. This can be seen in Figure 1 and Figure 2 which show a distinct gradual curve on the pitch diagram of more than 300 ms. This contour or shape was initially labelled as a fall-rise by the researcher but with further examination it was found that the starting point in the CR was too low to be the onset of a
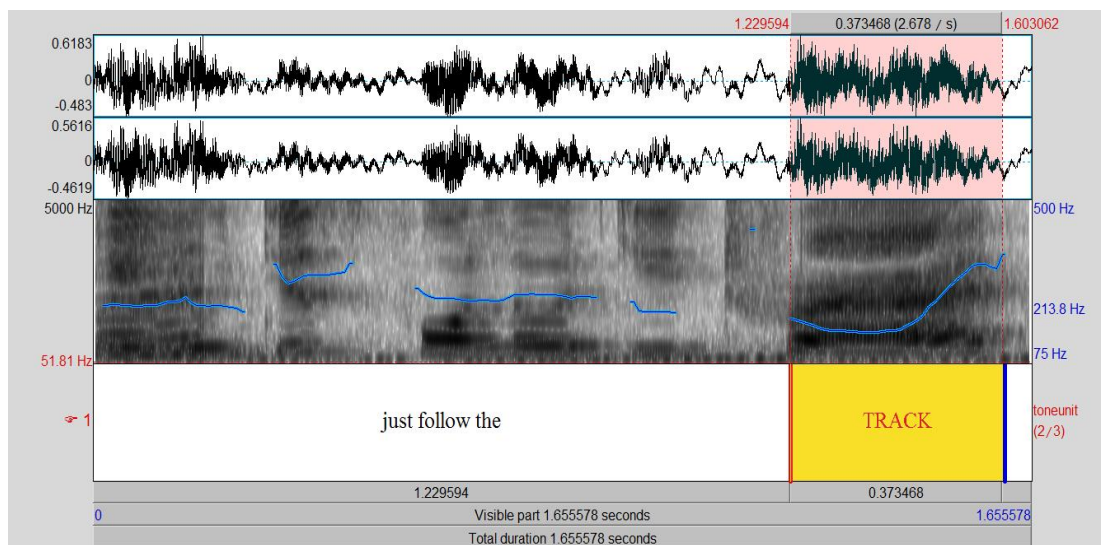
fall-rise.

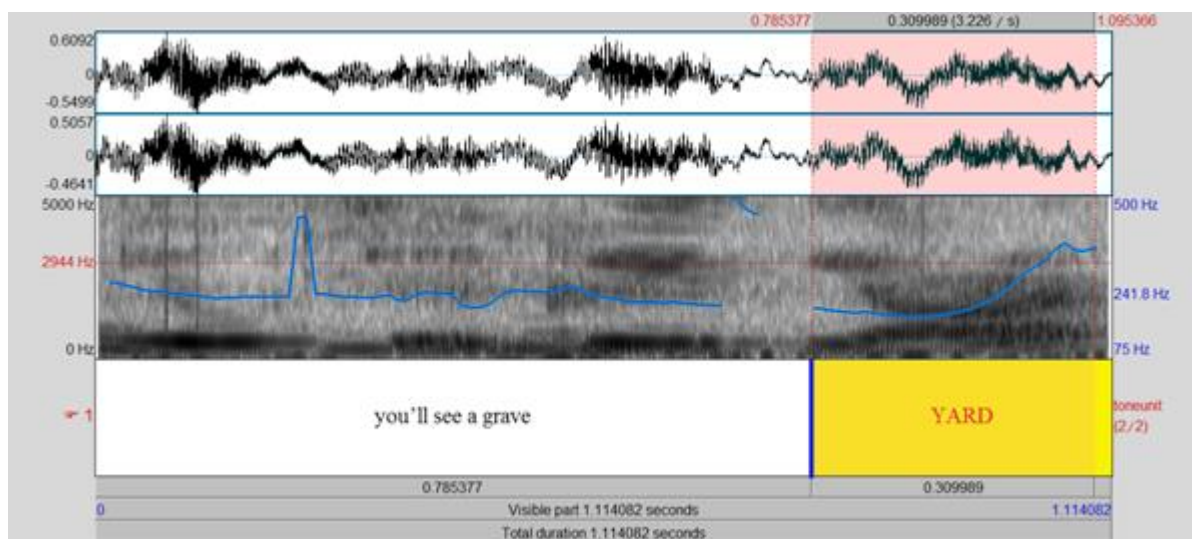**Figure 1.** // *CR* just follow the **TRACK** // (N10:73.4s)

Figure 2. // *CR* you'll see a grave **YARD** // (N06: 43.0s)

Compared to Figure 1 and Figure 2 which show a CR, Figure 3 and Figure 4 clearly show that the slope in the "standard" rise is much steeper than the CR, being less than 200 ms in duration.
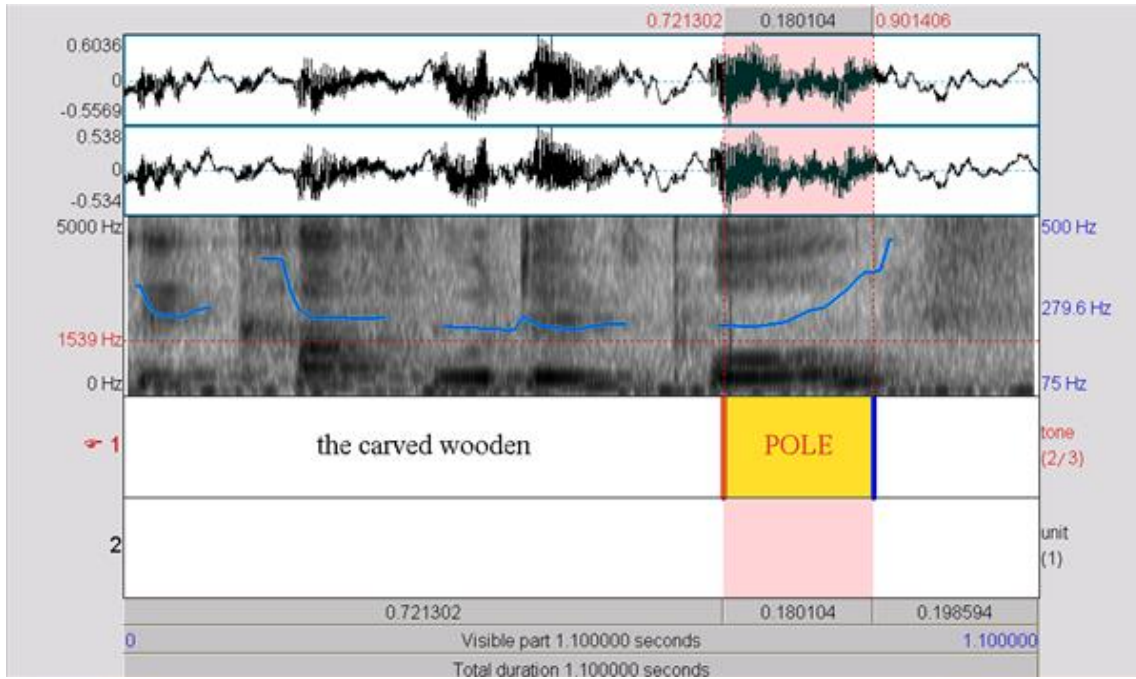
Figure 3. // *R*   the carved wooden **POLE** // (M05: 120.0s)
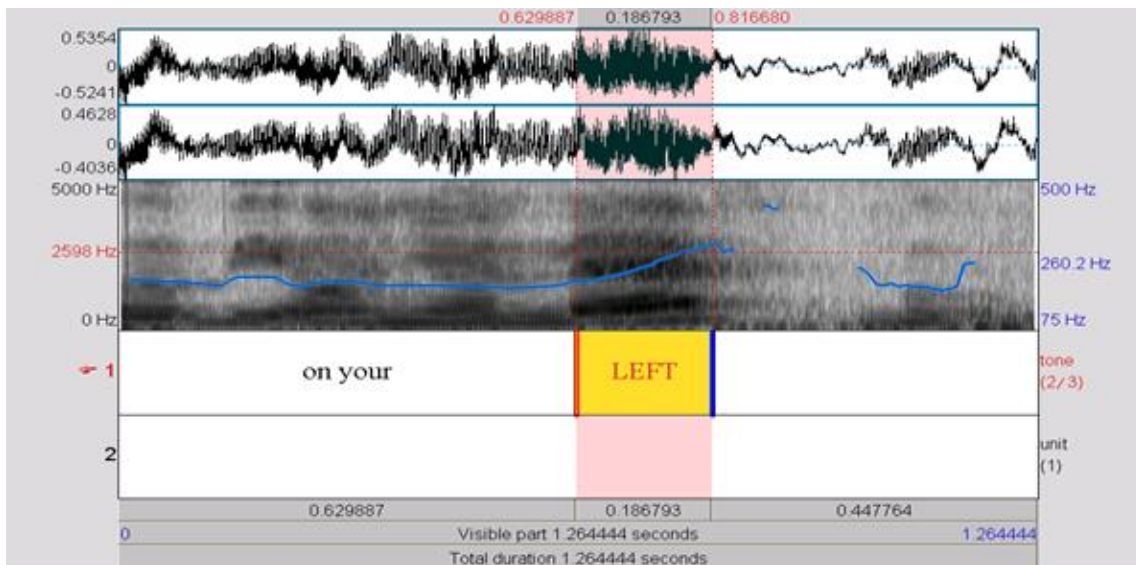

Figure 4. // *R*   on your **LEFT** // (M04: 78.0s)

6.1.1.   Duration of Rises

Figure 5 illustrates the comparison of the duration of both rises (in milliseconds) in the ten MSEs. Based on Figure 5, it can be seen that the duration of the CR is much longer than the

rise. An average among the ten speakers was calculated for both rises. The results revealed that the average duration of the CR was 389.85 ms while the average duration of the rise was only 208.68 ms.
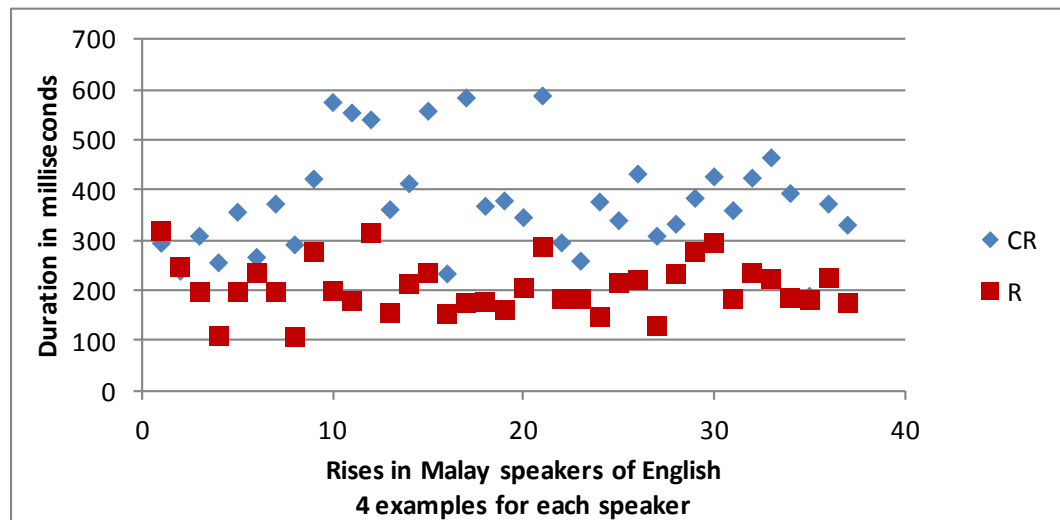

Figure 5. Comparison of duration in CR and R (in milliseconds) among MSEs

A Levene's Equality of Variances test was conducted to determine whether there was homogeneity of variance. The test indicated that p was significant ($p < 0.002$) and thus equal variances were not assumed. An independent t-test was conducted to ascertain whether the difference in the duration of the CR and the R was statistically significant. The independent t-test was found to be highly statistically significant, $t(39) = 7.233$, $p < 0.001$. The outliers, indicate that for example 38, the duration of the CR was much longer than the normal range and similarly, the duration of the rise in example 39 was longer. The results are visually presented in Figure 6.
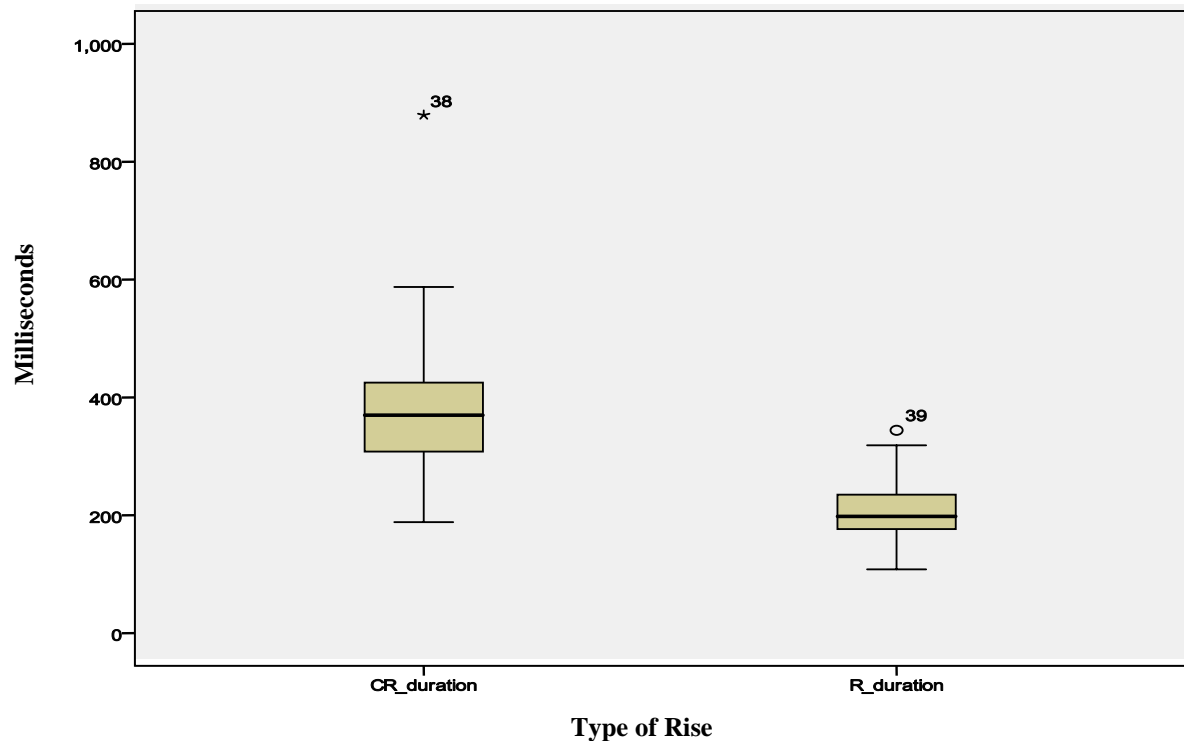
Figure 6. Comparison of duration of CR and R in milliseconds

6.2.2. Pitch Range of Rises

Figure 7 compares the pitch range measured in semitones (st) for the CR and the R. As illustrated, the F0 range for the CR is much larger compared to the R. The average range for the CR is 9.64 st while the average range in the R is 6.67 st.
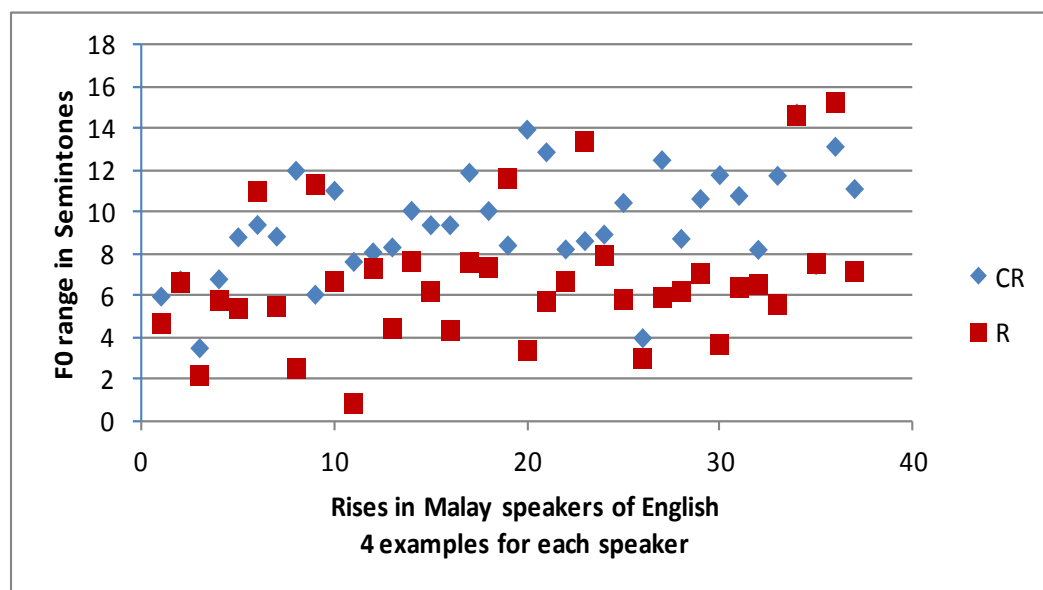

Figure 7. Comparison of pitch range in CR and R

A Levene's Equality of Variances test was conducted to determine whether there was homogeneity of variance. The test indicated that p was not significant ($p < 0.716$) and thus equal variances were assumed. An independent t-test was conducted to determine whether the difference in pitch range in CR and R was statistically significant. The independent t-test was found to be highly statistically significant, $t(39) = 4.47$, $p < 0.001$. The results are visually presented in Figure 8. Numbers 11, 19, 23, 34 and 36 are the examples of the rise which do not fall into the 'normal' parameters of the pitch range shown for the rise.
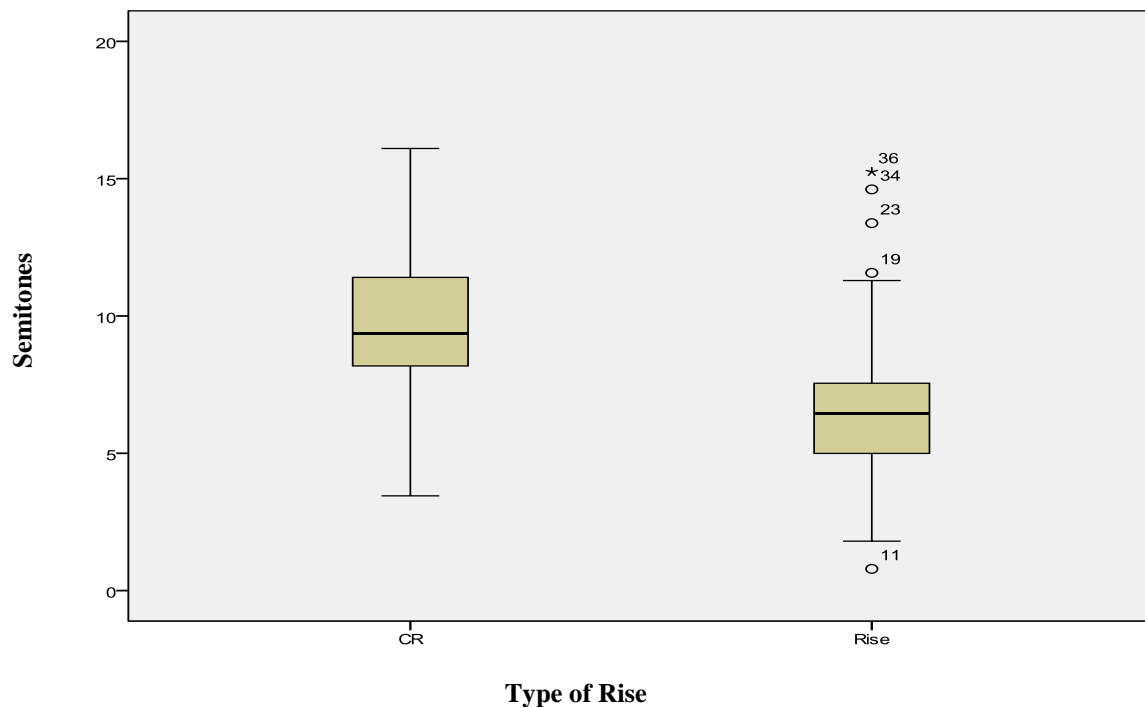
Figure 8. Comparison of the pitch range in CR and R (in semitones) among MSEs

6.2.   Summary of acoustic measurements for the CR

The main purpose of conducting acoustic measurements was to identify whether the CR was different from the rise in terms of form. It can be concluded that based on the acoustic analysis, the CR is significantly different than the R in terms of duration and pitch range.

6.3. The Cooperative Rise: Percentages and overall tones

Descriptive statistics were used to describe and highlight any important findings in terms of percentages. For example, Figure 9 and Figure 10 represent the overall percentage of tones used in the two groups, i.e., MSE-MSE data and MSE-NNS data respectively.

Figure 9. Percentage of overall tones in MSE-MSE data

Figure 10. Percentage of overall tones in MSE-NNS data

Based on Figure 9 and Figure 10, the CR comprises 14.8% of the overall average percentage of tones used in MSE-MSE data and 15.0% of the overall average percentage of

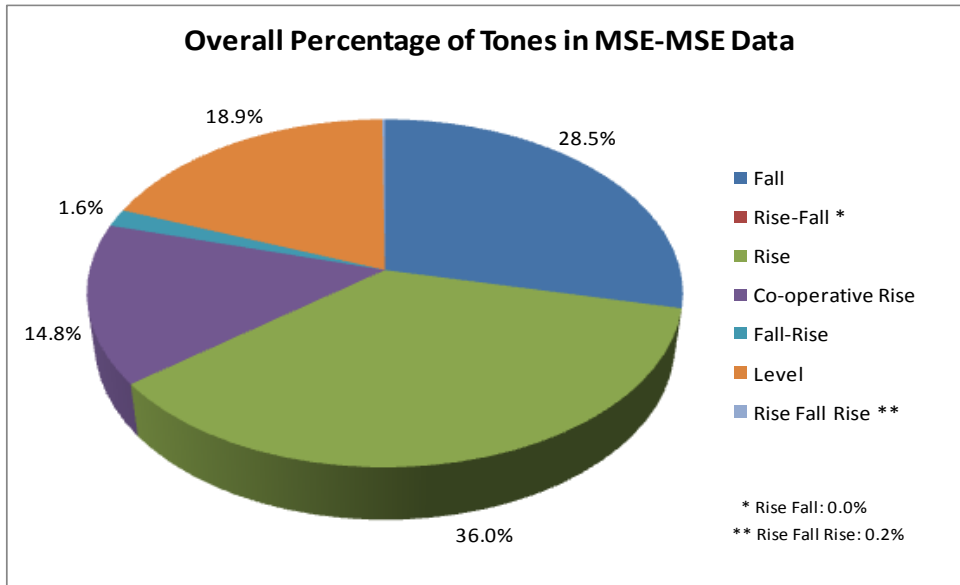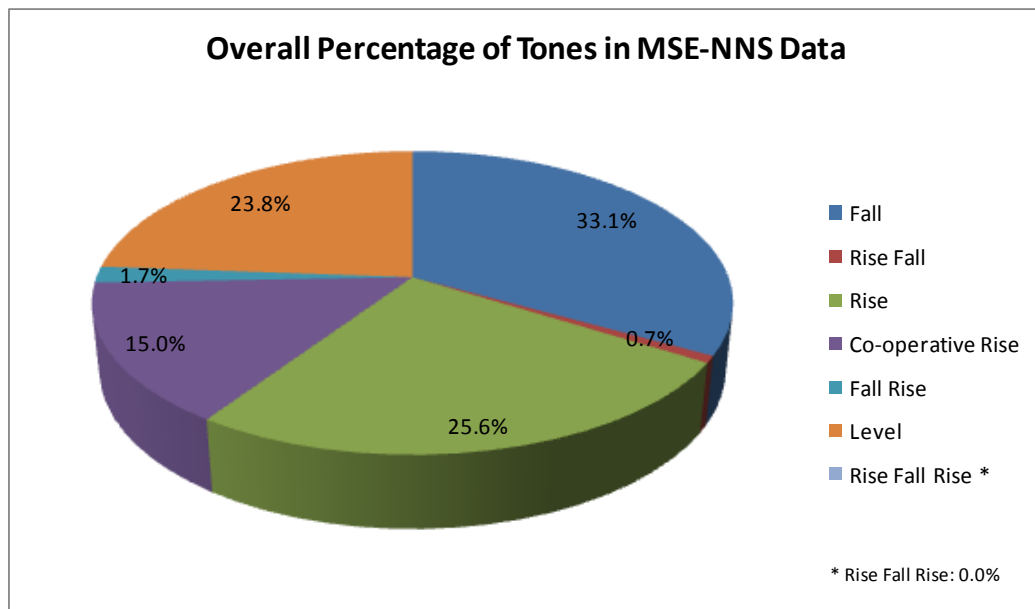tones in MSE-NNS data indicating that MSEs use slightly more CRs when paired with the NNS than when paired with other MSEs but this is statistically insignificant. However, if the CR is compared in relation to the overall rise tones (R and CR) used in MSE-MSE data and MSE-NNs data, then the CR makes up 29.1% of the total rise (R and CR) tones used in MSE-MSE data and 36.9% of the total rise (R and CR) tones used in MSE-NNS data.

6.4.   The Cooperative Rise: Discourse Function

While the physical form between the CR and the rise is relatively easy to distinguish, the discourse function of CR and the rise is much more challenging to determine. Although it is the speaker's choice to use the tones at his or her disposal, the data suggests that there is a systematic choice among MSEs in deciding what tones to use.

To determine the discourse function of the CR as opposed to the rise, the MSEs have a selection of three referring tones to choose from: the R, the FR and the CR. Based on the data, the FR is an uncommon tone and is rarely used (Noor 2012). In the MSE-MSE data, only 1.6% of the MSEs used the FR and in the MSE-NNS data, only 1.7% of the MSEs used it. These findings are consistent with the low percentages of the FR tone used in other Asian Englishes in the region such as Hong Kong English (Setter, Wong and Chan 2010; Cheng, Greaves and Warren 2008), and Singapore English (Goh 1998, 2000).

Thus essentially, the two most common referring tones that are usually used among MSEs are the R and the CR. The question is, when do MSEs use a R and when do they use a CR? Based on the data, it can be seen that there are slight differences among MSEs in their choice of rising tones. Below is transcript M01 which is the interaction between MSE01 and MSE04.

Example 1

MSE01   // **R** I'm going to guide you from the starting **POINT** / **CR** at crest **FALLS** //

MSE04   // **CR** o**K** //

MSE0   // **R** o**K** / **F** towards to the finishing point at remote **VI**llage //

MSE04   // **R** remote **VI**llage / **F** o**K** //

MSE01   // **R**   o**K** // **R**   can you see the crest **<u>FALLS</u>** //   (M01: 15.2s)

As shown, in the first tone unit, MSE01 uses the R tone for the word 'point'. This is a referring tone used to indicate assumed knowledge between MSE01 and MSE04. However, this is not essentially what MSE01 intends to highlight. When MSE01 wants to highlight a very important piece of information, she uses the CR. MSE04 responds by affirming the statement with an 'ok' using a CR. In this context, MSE04 is most probably echoing the tone that MSE01 is using as a show of reciprocal and mutual participation. In all the other instances, the rise is used either for a simple check or to reaffirm information such as in the last two tone units by MSE01 'ok can you see the crest falls'.

Similarly, in example 2, MSE01 uses the rise when the word 'footbridge' is mentioned the second time to check on whether MSE04 has found the 'footbridge'. When the word 'footbridge' is first mentioned, MSE01 chooses to use the fall tone instead of the CR as shown in the first example. The choice to use a proclaiming tone suggests that MSE01 is assuming that this is new information for MSE04.

Example 2

MSE01   // **F**   towards the **<u>FOOT</u>**bridge / **R**   can you see a **<u>FOOT</u>**bridge //

(M01: 34.1s)

In example 3, MSE05 is the giver of instructions, and she starts by saying:

Example 3

MSE05   // **R** o**K** **<u>AI</u>**da / **R** shall we **<u>START</u>** //

MSE06   // **CR** **<u>YA</u>** //

MSE05   // **R** o**K** / **F** **<u>NOW</u>** / **L** **<u>EM</u>** / **L** you **<u>ARE</u>** / **CR** at the DIAmond **<u>MINE</u>** //

MSE06   // **R** **<u>RIGHT</u>** //

MSE05   // **R** SO the DIAmond **<u>MINE</u>** / **CR** is on your **<u>LEFT</u>** //   (M05: 9.0s)

As shown in example 3, the R tone is used when the assumed, common ground is used to simply check or clarify rather than emphasise. For example, MSE05 uses it in the beginning to check whether MSE06 is ready. However, when she wants to emphasise an important piece of information, she uses the CR, i.e., 'diamond mine' and 'left'. When 'diamond mine' is mentioned the second time, however, MSE05 uses the R tone rather than the CR.

Again, in example 4 and 5, MSE01 uses the R tone to check whether the information given has been located by MES04. Note that the rise is used with the second mention of the highlighted words, 'stream' and 'temple' respectively.

Example 4

MSE01   // **F**   until you reach a poisoned **<u>STREAM</u>** / **L**   do you **<u>HAVE</u>** / **L**   **<u>ER</u>** /

      / **R**   can you see a poisoned **<u>STREAM</u>** //   (M01: 42.0s)

Example 5

MSE01   // **F** after the stream there's an old **<u>TEM</u>**ple / **R**   do you see an old **<u>TEM</u>**ple //

                                                    (M01: 51.2s)

However, the distinction in terms of discourse function between the CR and the R tone was not only found in the MSE-MSE data but also in the MSE-NNS data which is the interaction between MSEs and the Chinese NNS. Thus, the CR is not a tone used exclusively in conversations among MSEs. In fact, in the interactions with the NNS, MSEs use a slightly greater number of CRs. This is confirmed in Figure 1 and 2, where the overall percentage of CRs used in MSE-NNS data is 15.0% compared to 14.8% in MSE-MSE data. Example 6 is an excerpt of the interaction between MSE05 and the Chinese NNS.

Example 6

NNS   // **R**   can we **<u>START</u>** /

MSE05   // **R** **<u>YA</u>** / **R** **<u>SURE</u>** / **R** ok **<u>LI</u>**ly //

NNS   // **F   YA** //

MSE05   // **L   EM** / **F** you'll see a camera **SHOP** //

NNS   // **R   YA** / **L**   I see **A** / **F** the camera **SHOP** //

MSE05   // **F** o**K** / **CR**   on your **LEFT** //

NNS   // **R   YA** //

MSE05   // **R** o**K** / *R* and **THEN** / **L ER** / **CR** you walk **STRAIGHT** //

NNS   // **R** m**HM** //

 MSE05   // **R** m**HM** / **L AND** / **CR** at the end **THERE** / **CR** you'll see a parked **VAN**/

          CR on your **LEFT** //   (N05: 18.5s)

        NNS begins by asking MSE05 a question 'can we start?' and MSE05 responds with short replies using the R tone which is merely to answer the questions quickly with minimal response. However, when MSE05 wants to highlight important information which are content words and integral in understanding the directions, the CR is used, e.g. 'on your left'. Similarly, in the following utterance, 'ok and then er you walk straight' the rise is chosen for the first two tone units instead of the CR, because in terms of content or important information, there is nothing to highlight. The rise is used merely to acknowledge and keep the conversation going but in the last tone unit 'you walk straight' MSE05 wants to highlight important information so she uses the CR. A similar pattern in the selection of rise tones can be seen in example 7 which is the interaction between MSE08 and the Chinese NNS.

Example 7

NNS   // *L*   **MMM** / R   **EAST** lake / *R*   you sure it's **EAST** lake //

MSE08   // *F*   **YES** / *R* do you **HAVE** it //

NNS   // *F*   **OH** //

MSE08   // *R*   in your **MAP** //

NNS   // *R*   I think I **SEE** it / *R*   how can I go **THERE** //

MSE08   // *F*   o**K** / *L* **ER** / *R* **NOW** //

NNS   // *R*   m**HM** //

MSE08   // **R**   you are at the camera **SHOP** //

NNS   // **F** **YA** //

MSE08   // **R** o**K**/ **L** **ER** / **CR**   you go **STRAIGHT** //

NNS   // **L** **ER** / **R** straight down **STRAIGHT** //

MSE08   // **CR** **YES** //

NNS   // **R** o**K** //

MSE08   // **R** and **THEN** / **CR** till you pass a parked **VAN** //   (N08: 38.0s)

Throughout the conversation MSE08 uses the rising tone to check with the NNS whether she is on track before MSE08 actually starts to give exact directions. After NNS confirms that she is, the choice of tones changes. From this point onwards, MSE08 uses the CR because she wants to highlight information that she deems important for NNS to understand. In fact, she even responds to the NNS' questions using the CR instead of a rise. Her choice to use the CR suggests that this part of the conversation is important, so she opts to use the CR rather than the rise.

As such, it can be concluded that although there are exceptions, in the majority of cases, the rise is a referring tone which is used to check, to ask simple and direct questions or to respond when straightforward information is required. On the other hand, based on the MSE data the discourse function of the CR is a referring tone which is used to provide extra emphasis to a particular piece of information with a more cooperative and supportive tone compared to a "standard" rise. The tone creates a sense of togetherness and cooperation in the interaction rather than just purely being a transfer of instructional information from one "dominant" speaker to the listener. Example 8 shows MSE03 giving instructions to MSE08.

Example 8:

MSE03:   // *CR*   o**K** / *CR*   we move FOR**WARD** / *F*   **STRAIGHT** / *CR*   we going **DOWN** / *F*   **SO**rry / *CR*   we going **DOWN** / *CR*   and **THEN** / *CR*   move FOR**WARD** / *CR*   go **STRAIGHT** / *L*   and **THEN** / *L*   we going to **GO** / *CR*   we going to turn **RIGHT** //

<div align="right">(M03: 17.7s)</div>

In the twelve tone units uttered by MSE03, she uses eight CRs, two falls and two level tones. MSE03 is the giver of instructions, i.e., the speaker who is in control of the conversation because she has the information needed by the follower. However, by choosing the CR rather than the rise, communicatively it suggests that she is trying to be more cooperative and participatory in the interaction.

It seems that by using the CR, MSE03 is slowly guiding the follower in a more encouraging way and checking the follower's understanding rather than just giving instructions or directions which would be more authoritative and commanding. In terms of status, they are both colleagues so they are the same status. As such, in example 8, the gradual rise in the CR has a more softening impact to the listener compared to the standard rise which perhaps sounds more abrupt and direct. By opting to use the CR, irrespective of the interlocutor, MSEs create a sense of camaraderie in the interaction even when they are in a more "knowledgeable" and authoritative position.

In the data, the CR is used more by MSEs who are the giver of directions. To a certain extent this is due to the nature of the map task where the giver provides most of the information. However, it is not exclusively used by the 'dominant' speaker alone. As example 9 shows, the follower (MSE08) in the map task also uses the CR.

Example 9:

MSE03   // *F* **YA** / *R* continue your jour**NEY** / *L* and **THEN** //

MSE08   // *CR* go **STRAIGHT** //

MSE03   // *CR* you go **STRAIGHT** //

MSE08   // *CR* **YA** / *R* I can SEE the PYramid **THERE** //

MSE03   // *R* <u>YES</u> / *CR* PYramid on YOUR **RIGHT** / *CR* you go up the PYra**MID** //

MSE08   // *CR* o**K** //   (M03: 312.0s)

In terms of discourse function, it could be suggested that by using the CR, MSE08 is also actively participating in the conversation in a more cooperative way.

Additionally, based on the data, the CR seems to be the default referring tone in MSEs rather than the fall-rise as described by Brazil (1985) for Standard Southern British English which is uncommon in the data. Thus, it is suggested that the CR could be a substitution for the fall-rise.

6.5.   Summary of findings

Overall, the CR is the most distinct feature in the MSE data which is usually found at the end of a tone unit. In terms of the physical form, the CR is a gradual rise which starts low and slowly curves up as shown in Figure 1 and Figure 2. To ascertain whether the CR was statistically significantly different than the R, two acoustic parameters i.e., duration of rise and pitch range were measured. The results revealed that the CR was very highly statistically significantly different from the R. On average, the CR makes up approximately one third of the rises used in both sets of data. Thus, it can be concluded, that with every three rise tones chosen by the MSEs, one is a CR. This is quite a substantial ratio in terms of rise tone choices among the MSEs.

In terms of the discourse function, as shown in the examples provided, the CR is a referring tone that is chosen by MSEs to highlight and emphasise what they deem as important information, assume common knowledge, incomplete information and holding the floor. Additionally, the more gradual tone creates a greater sense of cooperation and camaraderie in the interaction. A summary of the discourse functions of the CR in comparison to the R are given in table 3.

Tones	CR	R

Discourse Function	- referring, i.e., (*r+*)
	  in most instances
	
	- (*r*) some instances
		- referring, i.e., (*r*)
		  in all instances
		- preferred tone to FR
		- **substitution for FR**

Meanings	- given / shared information, common ground - unfinished information, more to come - **more instructional, direct** - mostly used by a dominant speaker, i.e., giver of directions (due to the nature of the map task) BUT -**not an exclusive tone used only by a dominant speaker** - also used by a non-dominant speaker i.e., follower of directions	- given / shared information, common ground - unfinished information, more to com e - conveys **a sense of cooperation** and **togetherness, more guidance (compared to R)** - mostly used by dominant speaker, i.e., giver of directions (due to the nature of the map task) BUT - also used by non-dominant speaker i.e., follower of directions

Table 3. Discourse functions and meanings of the CR in comparison to the R

7. Discussion

7.1.   The CR in comparison to SSBE (Brazil 1985)

The CR or anything similar to the CR is not described in SSBE within Brazil's (1985) model. Similarly, such a rise in terms of form or function has not been described in any other intonation models and theories. The CR does not assume the same discourse function of the marked rise (*r+*) tone used by the dominant speaker in SSBE in Brazil's (1985) model. Rather, it seems to be a substitution for the FR tone which is uncommon in the MSE data.

In the MSE data, both speakers (the giver and follower of directions) have a choice to use the CR. It is not a tone exclusively used by the dominant speaker as described by Brazil (1985) for SSBE. However, it should be noted that the dominant speaker in the map task, i.e., the giver of directions, does use it more. This could be due to the nature of the map task itself which provides the giver of directions more opportunities to use it more than the follower of the task.

7.2. The CR in comparison to WE in the region

Compared with other varieties of Asian Englishes in the region, the CR is a feature which has not been identified as far as the literature reviewed has shown. The only study that mentions some differences in the physical form of the rise tone produced by Malay speakers is a study by Lim (1996). She found that there were the differences in the utterance-final rise of spontaneous Yes/No questions between the three ethnic groups in Singapore: Chinese, Indians and Malays. She claims "It is the middle section of the rise that the differences are highly significant (sic). It would appear that, in spontaneous Yes/No questions, the Malays manifest a significantly larger and faster movement in the middle portion of the final rise, compared to the Chinese and the Indians" (Lim 1996: 142). It was also found that the alignment of the F0 peak in the Malays occurred significantly later than for the Chinese and Indians.

Figure 11 shows Lim's (1996) example from a Malay speaker using a rise tone at the final utterance of a Yes/No question.
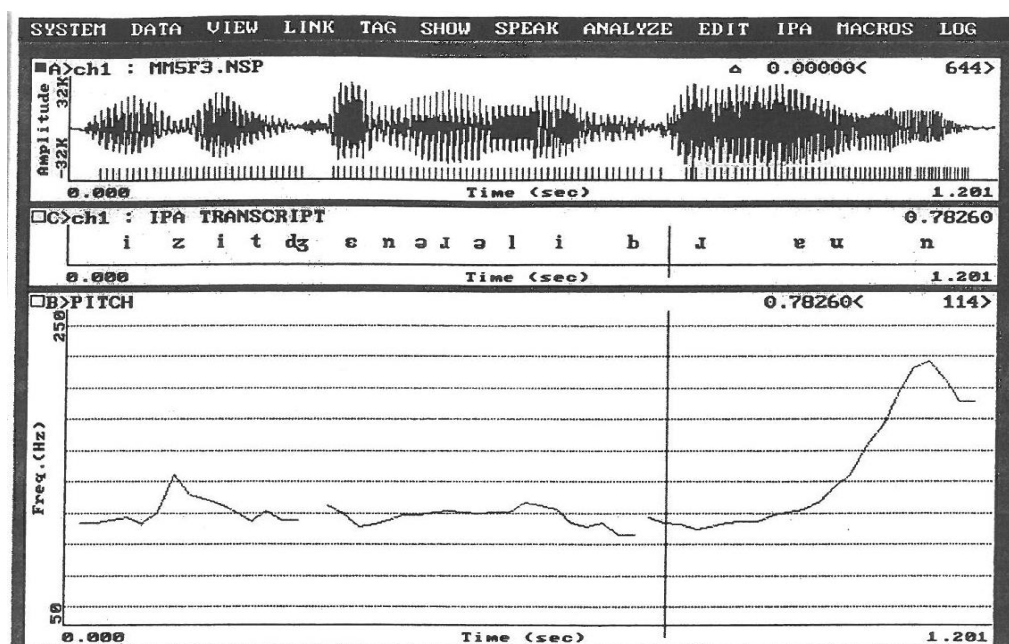

Figure 11. CSL printout of a spontaneous Yes/No question of a Malay subject. (Lim 1996: 136)

Unlike her Indian and Chinese subjects, the shape of the pitch contour in the rise tone of her Malay speaker shows a striking resemblance to the shape of the pitch contour of the

CR in MSEs as shown in Figure1 and Figure 2. Other than this, no recent study has described such a rise in the prosodic features of Asian Englishes.

7.3.   The CR in comparison to a High Rising Terminal (HRT)

The high rising terminal (HRT), also commonly known as uptalk, has been described in varieties such as Australian English (Fletcher et al. 2002; Fletcher and Loakes 2006; Buescher 2009), New Zealand English (Warren 2005); Canadian English (Sando 2009); and Southern Californian English (Ritchart and Arvaniti 2013). According to Fletcher et al. (2002), in terms of the discourse function, the HRT serves a cooperative and participatory function in the map task interactions they observed. Thus, this suggests a similarity to the discourse function of the CR in MSEs. Sando (2009) and Richart and Arvanti (2013) also revealed that in Canadian English and Southern Californian English, the HRT was used more frequently among female speakers; as the MSEs in this study are all females, we can observe that female MSEs do this but cannot comment on whether male MSEs do it, too. However, while there may be some similarities between the HRT and the CR, it should be highlighted that the HTR is used as a proclaiming tone unlike the CR. Further examination needs to be conducted before any other comparisons can be made, especially in terms of quantitative, acoustic measurements (for example, whether the duration and pitch range of the CR and the HRT are similar). For now, the CR is a tone distinct from the HTR.

7.4.   The Origins of the CR

The CR found in the MSEs could be an indicative of "distinct ethnic markers" as described by Lim (2000: 152), whose speakers were educated and proficient speakers of SgE, similar to the MSEs in this study. Bearing in mind that the MSEs are all English teachers or lecturers who are well aware of Standard English pronunciation, choosing to use the CR could be a way of asserting their Malay identity and allegiance. Whether this is a conscious or subconscious act, it is difficult to ascertain. What it suggests, though, is that the CR reflects flexibility on the part of the MSEs to adapt the standard British English tones to suit the discourse functions of the Malay-Malaysian linguistic setting. So, instead of using the FR tone, which would be the default tone used by speakers of SSBE, MSEs preferred to use the CR.

More substantial conclusions will only be possible when there is a better understanding of how MSEs indicate prominence and how Malay prosodic features and other substrate languages affect the intonation patterns of MSEs. However, it should be noted that the use of the CR tone among these MSEs did not seem to impede intelligibility or deter the effectiveness of the interaction.

8. Limitations of the Study

The number of participants involved in this study (ten) is relatively small and, as they were all female speakers, some of the features could be gender-specific. The MSEs all come from the same profession, i.e., teachers or lecturers of English, which could to a certain extent have an effect on the way they speak and on their intonational features. Finally, nine of 10 of the MSEs come from Kedah and thus their mother tongue is the Kedah dialect, a distinct northern dialect that differs phonetically and phonologically from standard Malay.   If there was a transfer of Malay prosodic features then there is a possibility that the prosodic features of the Kedah dialect would have a great influence on these MSEs' speech.

Additionally, the results are primarily based on the map tasks and the features could well be an artifact of the map task itself. However, other studies have also used map tasks to describe varieties of WE such as Setter et al. (2010) which examined HKE.

Bearing all these factors in mind, the findings cannot be generalised to all MSEs. However, it does depict a specific, homogeneous group of MSEs and, to a certain extent, portrays intonation features typical of educated and proficient MSEs.

9. Conclusion

This paper has essentially described the prosodic features of Malay English, focusing on one distinct feature - the Cooperative Rise - examining it in terms of form and function; and comparing it with tones in SSBE, as described in DI, as well as other Asian Englishes in the region. Ultimately, it has also shown that more research needs to be conducted on Malay prosodic features, especially examining the tones used in Malay and their discourse-communicative functions. These studies should focus on the notion of stress, prominence and tonicity in Malay, i.e., how they manifest themselves and whether they can be compared with suprasegmental systems in other languages. Thus, it is hoped that this study will form

the basis for further research into the prosodic features of ME as well as spark an interest in an area which is in great need of investigation and documentation.

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