

ACOUSTIC PARAMETERS GIVING THE ANGRY IMPRESSION IN LAMPUNGNESE NEUTRAL SPEECH

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Abstract

Misinterpretation of intonation can cause obstacles or problems in communication. A case of misunderstanding was nonnative speakers of Lampungnese often thought that Lampungnese neutral speech uttered by native speakers was angry speech. This research was conducted in order to carry out the acoustic factor behind the misunderstanding. This study applied the IPO approach with three main activities: speech production, speech acoustic analysis, and perceptual test experiments. The data were recordings of Lampungnese neutral speech. The utterance consisted of three sentence patterns, each of which was repeated four times by four native speakers. Furthermore, the data were compared to Indonesian neutral speech to find out the contrast between them. The contrasts were considered according to the acoustic parameter which gave an angry impression in Lampungnese neutral speech. Results of the analysis showed that neutral Indonesian and Lampungnese neutral speech were differentiated by pitch. Lampungnese pitch is higher and its contour pattern resembles angry speech patterns. Furthermore, experimental results showed that different pitch height and contour pattern lead to the perception of non-Lampung speakers that Lampungnese neutral speech is angry speech.

Keywords: angry speech, acoustic parameter, Lampungnese

Abstrak

Kesalahan dalam memahami intonasi mengakibatkan kendala atau masalah dalam berkomunikasi.. Salah satu kasus kesalahpahaman memahami intonasi adalah seringnya penutur non-Lampung yang mengira bahwa tuturan netral bahasa Lampung oleh penutur jati sebagai tuturan marah. Penelitian ini dilakukan dalam rangka menemukan alasan kesalahpahaman tersebut. Dalam penelitian ini, diterapkan pendekatan IPO yang terdiri dari tiga kegiatan utama, yaitu eksperimen produksi ujaran, analisis akustik ujaran, dan eksperimen uji persepsi ujaran. Data yang digunakan adalah rekaman tuturan netral dan marah yang identic secara segmental. Tuturan tersebut terdiri dari tiga pola kalimat yang masing-masing diulangi sebanyak empat kali oleh empat penutur jati bahasa Lampung. Selanjutnya, data dibandingkan secara akustik dengan tuturan netral bahasa Indonesia untuk melihat adanya perbedaan akustik antara keduanya. Perbedaan tersebut dianggap sebagai parameter akustik yang memberi kesan marah pada tuturan netral bahasa Lampung. Dari hasil analisis, ditemukan bahwa tuturan netral bahasa Indonesia dan Lampung dibedakan oleh tinggi nada. Tuturan netral bahasa Lampung lebih tinggi dan pola alir nada tuturan netralnya menyerupai bentuk pola tuturan marah pada umumnya. Hasil eksperimen menunjukkan bahwa perbedaan tinggi nada dan pola intonasi antara bahasa Lampung dan bahasa Indonesia menggiring persepsi pada penutur nonLampung yang menganggap bahwa tuturan netral bahasa Lampung adalah tuturan marah.

Kata kunci: tuturan marah, parameter akustik, bahasa Lampung

INTRODUCTION

Nolan (2014) states that speaking without any intonation is like speaking into a machine. Why is intonation important in speech? According to t'Hart, Collier, & Cohen (1990), physical intonation is the ensemble of various pitches in an utterance created by varying periodicity in the vibrations of the vocal cords, while linguistic intonation is a suprasegmental or prosodic element that influences the perception of listeners and is able to create a different meaning of speech from its lexical and structural meaning (Sidauruk, 2017; Yousri, 2014; Zsiga, 2016). By this definition, it can be stated that intonation is able to make the meaning of an utterance as non-lexical and non-structural. Hayes (2012) adds that intonation brings its own meaning which sometimes does not have any relation to the lexeme and grammar system.

According to Jeong (2018), meaning is formed not because of *what you say it* but *how you say it*. This phenomenon occurs since intonation conveys linguistic and paralinguistic information (Nolan, 2014; Prieto & Borràs-Comes, 2018). Linguistic information is about sentence form, such as declarative, interrogative, or imperative sentence (Sugiyono, 2007); while paralinguistic information is about emotion in speech, for example angry or happy speech.

Meanwhile, Ball and Müller (2014) stated that intonation gave syntactic and semantic signals. Syntactically, intonation marks a speech categorized as finished or unfinished and it highlights the structure of a sentence, such as major or minor unit in a sentence (Ball & Müller, 2014). Semantically, intonation indicates a message beyond its meaning, such as polite or impolite attitude, emotional conditions (e.g., happy, neutral, angry, sad), and purpose (e.g., declaring, questioning, or commanding) (see Rodero, 2011). Moreover, intonation also represents the social class of the speakers (Levon, 2016). Intonation, therefore, contributes significantly in creating meaning of speech. In the study of intonation, the elements that need to be analyzed include pitch, duration, intensity, and other prosodic components (Nolan, 2014).

Intonation system, which is found in most languages except in Amahuaca (Bolinger, 1972), differs from one language to another. For example, in Indonesian and Sundanese, the final tone of an interrogative speech is higher than the initial tone (Sugiyono, 2017; Irawan, 2012). Meanwhile, in Lampungnese and Bima, the initial tone is higher than the final tone (Reranta, 2021; Yanita & Sekarwati, 2015). The different systems of intonation leads to the notion that intonation has to be learned so that a speech can be interpreted correctly. If a speech is incorrectly interpreted, there is a potential that pragmatic failure and conflict may occur (Gunlogson, 2003; Juariyah, 2012).

A case of pragmatic failure as a result of intonation is the assumption of nonnative speakers of Lampungnese that Lampungnese native speakers sound like they are angry when they speak because they speak with a high pitch (Awlyaa, 2020; Hasan, 2017). This is actually in contrast with the fact that Lampungnese people are essentially very peace-loving, friendly, and tolerant, and they also like to get along with other ethnic groups (Hidayat, 2014). It could also be seen from the Lampungnese cultural values called *Piil Pesenggiri*, which consists of five principles: (1) *Titi Gametei* 'being shameful to do evil and despicable acts', (2) *Juluk Adek* 'having a position in society and behaving based on position', (3) *Nemui Nyimah* 'welcoming guests or newcomers in a friendly manner and serving the best dishes', (4) *Nengah Nyampur* 'participating in community activities', and (5) *Sakai Sembayan* 'working hand in hand' (Minandar, 2018; Saputro, 2011). The five principles indicate that actually Lampungnese are friendly and helpful,

evidenced by quite a number of transmigrants who live safely in the Lampung province (Kesuma, 2017). According to Sujadi (2012), 75% of the population in the province are transmigrants.

A number of studies have been conducted on emotional intonation. For example, Agrawal et al. (2010) found that angry intonation in Hindi has a higher pitch than neutral intonation. Yildirim et al. (2004) found the same phenomenon in English. Interestingly, Chuenwattanapranithi et al. (2007) found that Thai speakers could easily differentiate neutral and angry speech in English, German, French, Spanish and Slovenian since angry speech has a higher pitch than a neutral speech. Similarly, Paeschke & Sendlmeier (2000) found that the acoustic character of angry speech has a higher pitch than neutral speech, it is going up and down sharply and coming to a peak (highest tone) quickly.

Some other acoustic studies have been done without involving any analysis on emotion. Sugiyono (2007), for example, investigated the contrast between declarative and interrogative intonation in Indonesian. In contrast to the declarative intonation, he found that the interrogative type has a higher pitch in the initial tone and peak. Further, Reranta (2021) did a study on the contrast between Lampungnese declarative and interrogative intonation. He found that the Lampungnese interrogative intonation has a higher tone. Moreover, Mubin and Laksman (2021) found that Korean students apply Korean intonation when they speak Indonesian.

So far, studies about acoustic characters in speech were not based on dialog context. This research, therefore, would like to investigate whether neutral Lampungnese speech produced by native speakers of Lampungnese gives an impression of angry speech to the nonnatives. It is hoped that this research would support the government's policy in relation to the maintenance and preservation of Lampungnese language.

THEORY

Mozziconacci (2002) states that emotions can be indicated from pitch, pitch range, and contour. Yildirim (2004) further adds that duration is an element that contrasts neutral and angry speech. Therefore, this research focused on these four elements: pitch, pitch range, contour form, and duration. To analyze these elements, this study applied the theory of anger intonation by Paeschke & Sendlmeier (2000) and Yildirim (2004). Their theory claimed that angry speech has a higher pitch than neutral intonation, it is quickly going to a peak, and it is flowing up and down sharply.

In doing the analysis about pitch and contour, one cannot judge them as being higher, wider, or different without comparing the Lampungnese intonation with another intonation. As stated by Halim (1984, tone in intonation is relative and consequently it needs to be compared with other tones to consider whether it is higher or lower. Therefore, this research used the Indonesian neutral declarative intonation proposed by Sugiyono (2007) as a comparison. Sugiyono's (2007) approach was chosen as it has the same mode and emotion. Besides that, nonnative speakers who consider Lampungnese neutral speech as anger speech are generally Indonesian.

Sugiyono (2007) declared that the acoustic character of Indonesian neutral speech has a *slope up-down* contour in each constituent and that the peak is the *up* tone in the final constituent. For the pitch, Indonesian neutral speech starts on -0,55 st (semitone) and ends on -3,55 st to -5 st. It needs 1,29 s (second) to produce the speech (for seven syllables in a speech). In his analysis, he applied a unit of semitone with reference of 130,7749 Hz. The Indonesian neutral intonation is demonstrated below (Sugiyono, 2007).

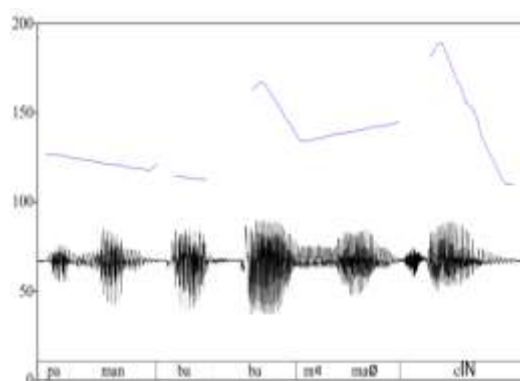


Figure 1. Indonesian Neutral Intonation Prototype by Sugiyono (2007)

METHOD

This research applied the IPO approach, or *Institute voor Perceptie Onderzoek*, by the Institute for Perception Research in Eindhoven (t'Hart et al., 1990). Heryono (2019) claimed that the IPO approach can accurately count acoustic elements. Accordingly, the approach consists of three steps: (1) data production, (2) acoustic characteristic analysis, and (3) perception tests. The data used in this research were Lampungnese speech recordings in the *API* dialect, which was chosen since it is the dominant dialect in Lampungnese (Badan Pusat Statistik 'Central Bureau of Statistics', 2000).

The participants in this study are four native speakers of Lampungnese (initials E, I, H, and T), who performed dialogs which were specially designed for the purpose of this research. Their age range was between 20 to 30 years old when the data were taken. They did not have any linguistic knowledge, they were physically normal, and they used Lampungnese in their daily conversation. Three of them, E, I, and T, were theater actors so they could act when they performed the dialogs. The other subject, H, came from a language protected area (± 130 km from Bandar Lampung, the regional center of Lampung). In his hometown, all people spoke Lampungnese. He had only visited Bandar Lampung city once in the last ten years for a period of three days. Thus, his Lampungnese was not interfered with by other languages. The aim to involve subject H in this research was to get the pure Lampungnese intonation. Actually, this research was planned to involve all subjects with the same criteria as H, but because mobilization today is very easy, it was hard to find subjects with the same condition as subject H. In this research, there were three target sentences with different structure patterns, *S+V*, *S+V+O*, *S+V+O+C*, as demonstrated below.

- (1) *Nyak* (S) *pedom* (V)
I sleep
'I sleep'
- (2) *Nyak* (S) *ngunut* (V) *duit* (O)
I look for money
'I look for money'
- (3) *Tiyan* (S) *mutil* (V) *lada* (O) *ganta* (C)
they pick pepper now
'They work to pick pepper now'

The different structure patterns were used to find out whether the intonation patterns also changed if the sentence structure changed. Each sentence was contextualized based on the emotion constructed in the dialogs, which was neutral emotion (the three dialogs are attached).

Each subject was asked to act as character B who spoke the target sentences, with one of the authors as character A. The recording was repeated four times so that the data gathered from each subject could be compared to select subjects with consistent intonation in each structure pattern. The recording process was done by using *Samson C01* microphone, *Focusrite Solo Gen3* Sound Card, and *Asus A412DA* laptop. The equipment was considered suitable for home recordings. The recordings were then stored in a *waveform* format. From the four subjects, 48 recording data (4 subjects x 3 structure patterns x 4 repetition) were obtained.

Next, the gathered data were coded to make the process of selecting data easier. The code consisted of three symbols: (1) initial subject, (2) dialog order, and (3) repetition order. For example, T14. After that the data were stylized to erase unnecessary pitch (t'Hart et al. (1990) and then segmented based on each sound voice. Each data was then classified based on the subject and dialog order. Each class of dialog order was then compared to each other to select subjects with consistent intonation for all sentence patterns. From this process, subject H was selected as the subject with the most consistent intonation in all sentence patterns. Thus, his recordings went on to the next step.

The next step was the perception test. This step involved twenty nonnative speakers of Lampungnese, aged between 20–40 years old. These people have lived in Lampung since birth, and they are not able to speak another language except Indonesian. In this perception test, each of the four native speakers read each dialog pattern four times. The four sentences produced by subject H in each classification were then tested by the nonnative respondents. They were asked to give their perception on each recording: *neutral* or *not neutral*. Playback of the recordings used a Behringer *MS16* flat monitor speaker. This perceptual test was conducted individually to achieve individual perception. Accordingly, the recording with the highest correct answer number in each sentence pattern was taken as the prototype of intonation which would be analyzed to carry out the acoustic character. In this research, all processes of acoustic analysis were done by using the *Praat 6.1.50* software.

After that, a comparison of Lampungnese and Indonesian neutral intonation was made to find their acoustic contrast. Next, the contrast was analyzed using the theory of angry speech intonation by Paeschke & Sendlmeier (2000) and Yildirim et al. (2004). After that, the contrasts which were similar to the theories were considered as an angry impression given to nonnatives by Lampungnese neutral intonation.

To measure their consideration, an experiment was done by conducting speech manipulation and perceptual tests to the 20 non-native speakers of Lampungnese. Finally, the results of the experiment were matched to the result of the finding, which was then taken as a conclusion.

FINDINGS AND DISCUSSION

From the process of producing data, stylization, segmentation, data comparison and perceptual test, the selected intonation prototype for each sentence pattern was identified. They were datum H14, H24, and H31. The acoustic characters are demonstrated below.

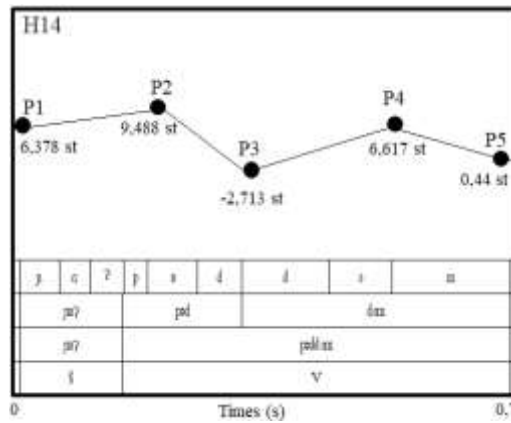


Figure 2. Lampungese Neutral Intonation Prototype with S+V pattern

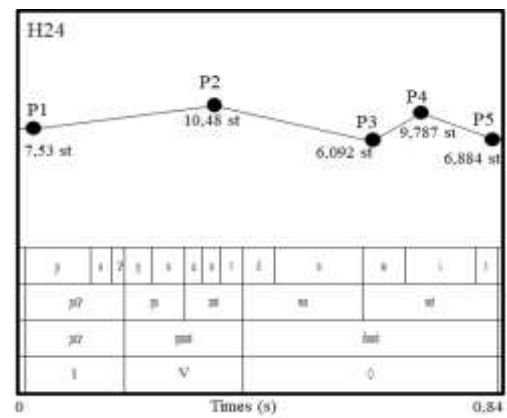


Figure 3. Lampungese Neutral Intonation Prototype with S+V+O pattern

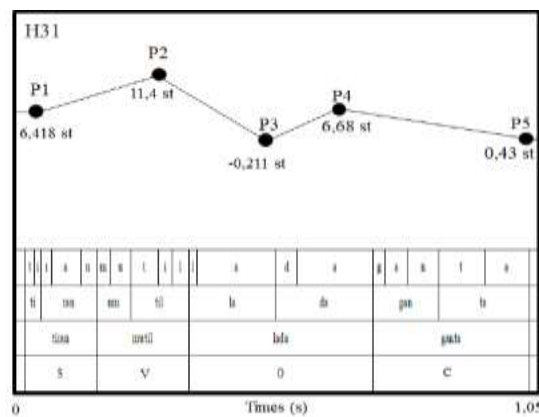
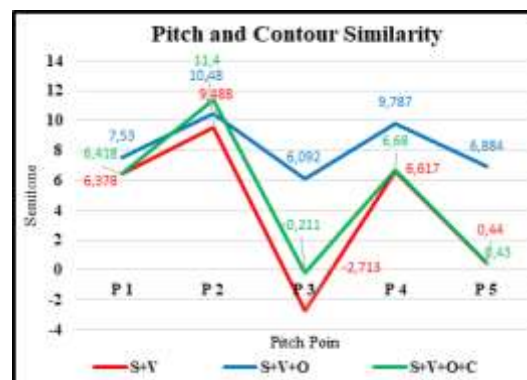


Figure 4. Lampungese Neutral Intonation Prototype with S+V+O+C pattern

The figures above contain some similar acoustic parameters among Lampungese neutral intonation in different structure patterns. First, there are five pitch points in each intonation (symbolized by P), i.e., P1, P2, P3, P4, and P5. Moreover, these five pitch points create the same contour flow, *up-down-up-down*. The pitch heights, however, are quite similar. The pitch and contour similarity among the three intonations can be easily identified in the following graphic.



Graphic 1. Lampungese Neutral Pitch and Contour in Three Structure Pattern

Graphic 1 above indicates that the contour in Lampungnese neutral speech is not influenced by sentence structure, and that the contour flows consistently in each intonation although the structure is changed. If the pitch and contour form is compared to Indonesian intonation, we will find that the Lampungnese intonation has a higher pitch. Pitch contrast between Lampungnese (S+V) and Indonesian is 6,378 st : 0,55 st for the initial, and 0,4 st : -0,55 st for the final. In relation to the peak, Sugiyono (2007) did not calculate this directly, but according to Figure 1, the peak of Indonesian neutral intonation is less than 200 Hz while the peak of Lampungnese neutral speech (S+V) is 169,4 Hz (9,488 st). However, both peaks could not be judged as to which one is higher since the Indonesian intonation peak was not accurately counted, which influences the contrast of pitch range also. Since the Indonesian peak cannot be counted accurately so the pitch range cannot be counted either. Importantly, however, the initial and final pitch contrast of both intonations demonstrate that Lampungnese intonation has a higher pitch than Indonesian, which supports the theory of Paeschke & Sendlmeier (2000).

Next, Lampungnese and Indonesian neutral intonation differ in their form of contour. In Lampungnese intonation, contour starts with an up-tone while in Indonesian intonation with a down-tone. Accordingly, the up-tone is the tone that flows to the peak. In other words, the Lampungnese neutral intonation contour rises to its peak quickly. This is in the same way that Paeschke & Sendlmeier (2000) mention about the character of anger speech. On the other hand, Indonesian neutral intonation takes longer to produce than Lampungnese neutral intonation. Indonesian needs 1,29 s to produce seven syllables, while Lampungnese needs 1,05 s to produce eight syllables. This contrast is contrary to the finding of Yildirim (2004).

As discussed above, it was found that Lampungnese and Indonesian neutral speech differ in pitch and contour form. These acoustic parameters are similar to the theory of anger intonation proposed by Paeschke & Sendlmeier (2000). These differences lead nonnatives to perceive Lampungnese neutral intonation as being angry. Meanwhile, Indonesian intonation is longer than Lampungnese intonation, which is contrary to the finding of Yildirim (2004), and consequently duration is not considered the parameter that gives the impression of anger. Based on the discussion above, there were two hypotheses made:

H1: Lampungnese pitch is higher than Indonesian pitch

H2: Contour intonation in Lampungnese rises its peak quickly.

These hypotheses were then tested by an experiment to prove whether both or either should be accepted or rejected.

THE EXPERIMENT

Two experiments were conducted to test the hypotheses. For these experiments, acoustic manipulation was applied on H14. Not all data was manipulated since there were limitations of time, financial condition, and location. Additionally, some previous research has also manipulated limited data and it was considered sufficient to prove our hypotheses since a conclusion had been stated in the chapter on finding. This experiment was only to support or reject the conclusion. In this experiment, perceptual responses were the dominant response in each manipulation (all responses are attached).

The hypotheses stated that different pitch height (H1) and contour form (H2) have two acoustic parameters which give an impression of anger in Lampungnese neutral intonation to the nonnative speakers. Therefore, the manipulations were done by changing the Lampungnese

neutral intonation pitch and contours to reach the same pitch as the Indonesian neutral intonation. First, all pitches of Lampungnese intonation (P1, P2, P3, P4, and P5) were lowered based on the contrast of both initial pitches. In Indonesian, the initial pitch is 0,55 st, which was used as a benchmark for the manipulation. To reach the pitch, there were seven manipulations made. Second, manipulation lowered the pitch of P2 in the Lampungnese neutral intonation, which was done because P2 was the pitch where the first tone flow was created. P2 in Lampungnese intonation would be lowered twenty times to reach the contour with a down-tone to match the initial tone in Indonesian intonation (Sugiyono, 2007). The manipulations are shown below.

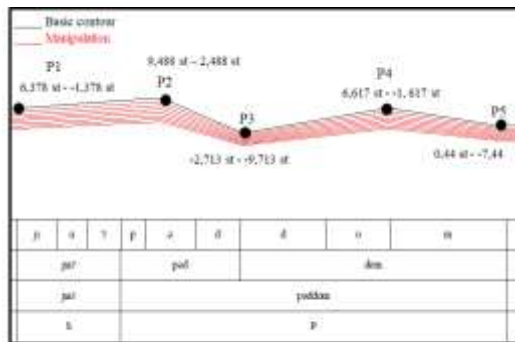


Figure 5 Lampungnese Neutral Intonation All Pitches Manipulation

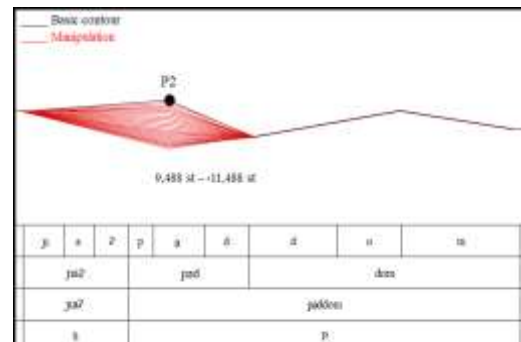


Figure 6. Lampungnese Anger Intonation Contour Manipulation

The figures above represent the manipulation of Lampungnese neutral speech. In the graphics, the black line is the basic intonation while the red one is the manipulation. After making the manipulation, a perceptual test was made by the respondents. The manipulations were done to see whether their perceptions changed or not when the intonation pitches were changed. If their perception changed for the first manipulation, it means that the pitch height was the acoustic parameter that gave the impression of anger in the Lampungnese neutral intonation to nonnatives. Similarly, if their perception changed for the second manipulation, the intonation contour then takes the role of giving an impression of anger.

After conducting the test, responses were gathered. The figures below represent the responses to both manipulations. In these figures, each contour color represents the dominant response to the manipulation. Green is for the neutral response, red for the anger response, blue for the unknown/unacceptable responses, and black for the basic contour (Lampungnese neutral speech which is precepted as anger speech).

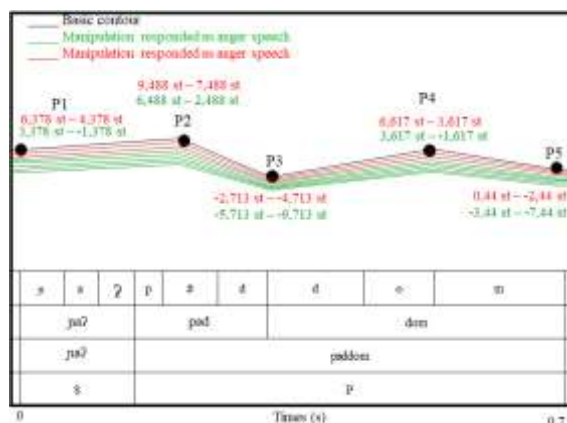


Figure 7. Response to Lampungnese Neutral Intonation: All Pitch Manipulation

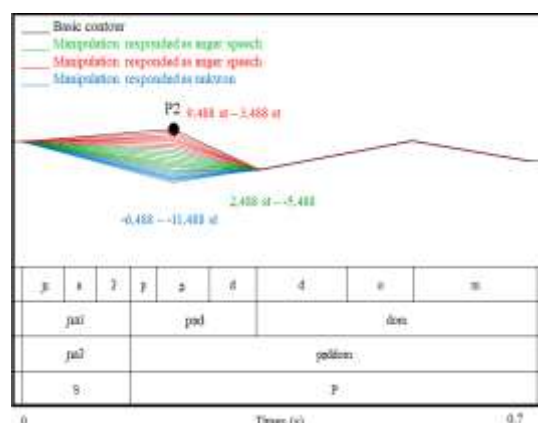


Figure 8. Response to Lampungnese Anger Intonation: Contour Manipulation

In Figure 7, Lampungnese neutral speech that was previously considered as anger-speech (black and red lines) was considered neutral speech when its pitches were lowered (green lines). When Lampungnese neutral speech was manipulated three semitones lower than its original height, the nonnatives comprehended its true meaning. This means pitch height is an acoustic parameter which gives an impression of anger in Lampungnese neutral speech, which supports H1.

Secondly, Figure 8 explains that the initial contour flow also plays a part in giving an impression of anger in Lampungnese neutral speech for nonnatives. Previously, Lampungnese neutral speech (black lines) was perceived as angry speech when its contour-flow rises initially to the P2 peak of intonation. However, when P2 is lowered to create down-flow, the perception of the speech is changed to neutral speech (green lines), exactly where the P2 tone high of 2,488 st is reduced to -5,488 st; higher pitch than that is still perceived as angry speech. On the other hand, when P2 is -4,488 st and below, the perception changes to unknown or unacceptable (blue lines) since it sounds like a person speaking with a voice problem, according to the opinion of one respondent. However, this demonstrates that the up-flow in the initial flow of intonation is one of the acoustic parameters that gives an impression of anger in Lampungnese neutral speech. From this test, it was taken that H2 is also accepted.

CONCLUSION

Intonation is an important suprasegmental element in the construction of speech meaning. Accordingly, the intonation system of language can be different from one language to another. For example, the intonation system for constructing neutral speech in Indonesian and Lampungnese are different, which leads to the misinterpretation of Lampungnese neutral speech by Indonesian speaking people. In this case, Indonesian speakers may perceive that Lampungnese people produce angry speech when they speak. This research showed that the difference between Lampungnese neutral and anger-intonation is only because of pitch height, anger intonation being higher pitch, while other acoustic characteristics, such as duration and contour, are insignificant by contrast. This single different acoustic characteristic opens the way for the nonnative speaker to misunderstand language intentionality. Moreover, this research revealed that the phenomenon occurred since the two acoustic parameters in Lampungnese neutral speech are similar to the intonation of anger speech in general (Paeschke & Sendlmeier, 2000); i.e., pitch height, which is higher than Indonesian neutral speech, and contour form which rises to a peak quickly.

NOTE

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ATTACHMENT

Research Instrument

Dialog 1.

[Designed to obtain neutral and angry speech with S+V pattern]

- | | |
|---|--|
| A : <i>Bijo debingi hulun ramik wah!</i>
/biʝo dəbiŋi hulun ɤami? wah/ | ‘Yesterday many people came here’ |
| B : <i>Ulah api?</i>
/ulah api/ | ‘Why?’ |
| A : <i>Wat gubernur kidah ratong</i>
/wat gubəɤnuɤ kidah ɤatɔŋ/ | ‘Because governor came’ |
| B : <i>Wa, ngejuk duit kudo?</i>
/wa, ŋəʝu? duit kudo/ | ‘Did he give money?’ |
| A : <i>Iyulah, niku dipa bijo debingi?</i>
/ijulah, niku dipa biʝo dəbiŋi/ | ‘Of course, where were you yesterday?’ |
| B : <i>Nyak pedom</i>
/ɤa? pədom/ | ‘I sleep’ |

Dialog 2.

[Designed to obtain neutral and angry speech with S+V+O pattern]

A : *Mati muni niku mak kenahan* 'Long time no see'
/mati muni niku maʔ kenahan/

B : Nyak jak Jakarta wah
/ja? jaʔ jakarta wah

'I was in Jakarta wah 'bro''

A : Ngapi niku dudi? ‘What did you do there?’
 /ŋapi niku dudi/

B : *Nyak ngunut duit* 'I look for money'
/paʔ ɲunut duit/

Dialog 3.

[Designed to obtain neutral and angry speech with S+V+O+C pattern]

A : *Api rasan tiyan ganta?* ‘What is their activity now?’
/api rasan tian ganta/

B : *Tiyan mutil lada ganta* 'They harvest pepper now'
/tian mutil lada ganta

Result of Perceptual Tests**Responses to all pitch manipulation**

No	Manipulation	Response (n)		
		Neutral	Anger	Unknown
	Lampungnese neutral Speech before being manipulated	0	20	0
1	All pitch lowered – 1 st	2	18	0
2	All pitch lowered – 1 st	4	16	0
3	All pitch lowered – 1 st	13	7	0
4	All pitch lowered – 1 st	13	7	0
5	All pitch lowered – 1 st	20	0	0
6	All pitch lowered – 1 st	20	0	0
7	All pitch lowered – 1 st	20	0	0

Responses to all P2 manipulation

No	Manipulation	Response (n)		
		Neutral	Anger	Unknown
	Lampungnese neutral Speech before manipulated	0	20	0
1	P2 Lowered 1 st	0	20	0
2	P2 Lowered 2 st	0	20	0
3	P2 Lowered 3 st	0	20	0
4	P2 Lowered 4 st	2	18	0
5	P2 Lowered 5 st	4	16	0
6	P2 Lowered 6 st	5	15	0
7	P2 Lowered 7 st	11	9	0
8	P2 Lowered 8 st	16	4	0
9	P2 Lowered 9 st	20	0	0
10	P2 Lowered 10 st	20	0	0
11	P2 Lowered 11 st	20	0	0
12	P2 Lowered 12 st	20	0	0
13	P2 Lowered 13 st	20	0	0
14	P2 Lowered 14 st	20	0	0
15	P2 Lowered 15 st	9	0	13
16	P2 Lowered 16 st	9	0	13
17	P2 Lowered 17 st	3	0	17
18	P2 Lowered 18 st	3	0	17
19	P2 Lowered 19 st	3	0	17
20	P2 Lowered 20 st	3	0	17