

Language and Perception of Six Basic Emotions:
A Case Study of Javanese and Dutch Speakers

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*For Julius and Darius,
There is no such word as 'can't'. Believe in yourself. **You can.***

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Abstract

Bringing the Darwinian Evolution theory to another level, Ekman (1973) claims that the facial expressions are universal across species and they are labeled with the same emotional terms by the speakers of languages of the world. On the contrary, experimental studies done by Barrett et al. (2007) show that facial expressions cannot stand for the emotion alone and that contexts, consisted of social situation, body postures, language, culture, among others, influence which emotion being expressed and perceived by others.

Replicating Senft's (2012) experimental research on expressions of emotion in the Kilivila, the language of the Trobriand Islanders of Papua Guinea, this study was done in Javanese and Dutch language groups. There are two stimuli used in this study, i.e. Ekman face images (1975) and Mind Reading Emotions Library clips (Baron-Cohen, 2003) with different types of measurements, i.e. questionnaires as qualitative measurement, reaction time as a behavioral measurement and self-report task. In general, the results show that the Javanese find it harder to recognize the emotions under investigation presented by both stimuli than their Dutch counterparts. The Javanese mask their emotions by smile (Heider, 2006), making them rather difficult to perceive emotional cues from the facial expressions, even when being compared to their Dutch counterparts. All data elicited, both from qualitative and behavioral measurements, indicates that culture shapes the way we perceive and express our emotions.

I. Introduction

There has been a long debate on basic emotions with respect to the question whether they are universal or cultural specific. According to the Darwinian view, human basic emotions are universal and hard-wired physiologically, this is said to hold specifically for facial expressions. That means, each emotion is depicted by a certain facial expression and others who perceive it from the one who displays the emotion will recognize the emotion the other person is feeling. Ekman (1973) initially postulates that there are six basic emotions shared across cultures, i.e. anger, disgust, fear, sadness, happiness and surprise. He affirms that specific facial expressions represent and express these emotions, that they are recognized by all human beings as codifying these emotions and that they are referred to in a similar way across all languages of the world. To confirm his postulation, he designed photographs showing Caucasian males and females with facial expressions described and defined as expressing the six basic emotions and experimented them across cultures.

However, Russell (1994) and Senft (2012), among others, demonstrate otherwise. Their empirical evidence shows that despite the fact that the six basic emotions might be universal, the descriptions are not. Ekman and his colleagues consider emotions as being universal when every human being agrees to label a certain stimulus depicting a certain basic emotion with a word that has the same meaning in all languages. That means all human beings perceive a certain emotion display expressed in the face in the same way (see Ekman 1973). According to some experimental studies, this is not the case. In fact, findings show that members of different cultures do not always agree on recognizing the so-called basic emotions with the same labels. This signifies that the emotions under question are always not collectively perceived the same (see Russell, 1994; Wierzbicka, 1992; Senft, 2012; among others). Hence, the notion of the universality of basic human emotions needs to be revisited..

This study intends to investigate whether Ekman's postulation that the facial expressions for the aforementioned basic emotions are universally labeled with the same emotion terms across cultures and whether culture shapes the way we perceive emotions through contexts and other social cues such as body postures and social situation (Barrett et al., 2011). Further, it replicates a field study done by Senft with Kilivila, the language of the

Trobriand Islanders of Papua New Guinea and employs the same stimuli. In order to find whether there are differences in perceiving and labeling emotions across cultures, this study takes two distant languages, Javanese and Dutch, as a case.

II. Theoretical Background

The theory of universal basic emotions was first proposed by Darwin in his book *The Expression of the Emotions in Man and Animals*. The main concept he introduces was since man evolved from animals, many features existing in human may be observable and found in animals as well. Hence, emotion could be found not only in human but also in animals (see Darwin, 1872).

Emotion was once believed to be independent from cognition and to be merely behavioral. However, from the perspective of evolution, it gives living creature survival instinct. For an example, one feels fear when seeing a bear approaching. The FEAR emotion one is feeling will elicit an action tendency, i.e. whether one needs to fight or to flight. This action needs a rapid cognitive processing by taking into account several internal and external factors, for instance, whether the situation is safe or dangerous, whether the chance to fight the bear to survive is bigger than to flee, and what other options one has to escape from the danger. All of these factors lead to risk taking and decision making which involves a complex and integrated system between cognition, emotion and behavior. This is also applicable to other basic emotions. From the perspective of behavioral science, Scherer (2005:697) defines emotion as:

“an episode of interrelated, synchronized changes in the states of all or most of the five organismic subsystems in response to the evaluation of an external or internal stimulus event as relevant to major concerns of the organism.”

There are three components of emotions, i.e. expression, bodily symptoms and arousal, and subjective experience (Scherer, 2005). Facial expression is the first cue one can see in others when they are experiencing a certain emotion such as FEAR. Bodily symptoms and arousal are more subjective because when one receives a stimulus that causes FEAR, for instance, one would produce bodily reaction such as cold sweat, trembles, high-rate heart beat, etc. Subjective experience can be caused by either or both internal and external factors and it involves one's interpretation. The same stimulus might be perceived as something

scary, hence the valence is negative, or friendly, hence the valence is positive. One's valence interpretation may be shaped by one's previous experiences involving cultural, social and/or personal values.

For an illustration, snakes may be perceived as a scary creature in most cultures. Putting it into a certain religious framework, snakes may be perceived as a disgusting animal because snakes were believed to have introduced sin to mankind in Christianity. In Hinduism, conversely, the snake is perceived as holy, a representation of Lord Krishna, one of the Hindu primary gods, according to Bhagavad-Gita, the Hindu Bible. These concepts can shape one's perception and behavior towards the snakes, and in turn evoke one's emotion along with its cognitive components when seeing one. With regards to the facial expression, one may look scared or respectful when he encounters a snake. As for the bodily reactions, one may tremble, have cold sweat and rapid heartbeats or one may feel relaxed and full of admiration. From the behavioral perspective, one may run away from it or worship it.

The basic idea of the emotion recognition studies is that one's physical appearance, particularly shown in the face, reveals emotions: a smile reveals that the person is happy, crying is usually associated with sadness. Oatley and Jenkins (1992) state that the most extensive data in the research of human emotions mostly relates to facial expressions of emotion. Ever since Darwin there has been a number of psychological studies on emotion and facial expressions (Feleky, 1914; Langfeld, 1918a; Prkachin, 1992; Ekman, 1980; among others) and these studies support the claim that emotions can be recognized from facial expressions. However, other studies present evidence for their claim that facial expressions depicted by still photographs are not suitable for emotion recognition; these studies were done in Anglo-American and European cultures (e.g. Buzby, 1924; Feleky, 1922).

Based on his observation, Klineberg (1938) reports that people from different cultures use different facial expressions to express their emotions. According to his cultural study on emotion, some facial expressions of emotion could be cultural specific, e.g. Chinese people will protrude their tongue to show SURPRISE, while the similar thing is not reported from other cultures. According to him, culture might shape whether natural expressions of emotion can be displayed, exaggerated or even inhibited.

In a similar vein, in the Suba culture, from East Nusa Tenggara, Indonesia, when someone dies, all family members are prohibited to express their sadness and cry, instead all members of the family and neighbors will perform traditional dances for seven days and

nights and have meat cuisines as long as the death rituals hold (Djami, 2012). This example shows that culture could determine which emotion is experienced in a given situation. The disposition towards snakes mentioned above is a good example for this claim.

With respect to the facial expression relating to emotion, Ekman, as a Darwinian, believes that basic emotions are universal across species and therefore they should be perceived and labeled similarly across cultures (1973:220). To be specific, Ekman claims (1973:220):

“Regardless of the language, of whether the culture is ... industrialized or preliterate, facial expressions are labeled with the same emotion terms.”

Further, Ekman et al. also claim that there are basic emotions with universal expressions that reveal adaptive “affect programs” like, e.g., mating, defence and flight (see Senft, 2012). In order to prove these two far-reaching claims, Ekman et al. created facial expression stimuli that display the six basic emotions and tested them across cultures.

Russel (1994:106) redefines universality of emotions by putting forward four propositions of universality relating to facial expressions of emotion:

“(a) universality of facial movements: specific patterns of facial muscle movement occur in all human beings, (b) expressiveness of facial movements: certain facial patterns are manifestations of the same emotions in all human beings, (c) universality of attribution: observers everywhere attribute the same emotional meaning to those facial patterns (in a commonly seen phrase, those facial patterns have universal signal value), and (d) correctness of attributions: observers are correct in the emotions they (consensually) attribute to those facial patterns. The last proposition, of course, presupposes the first three.”

Since this study will only discuss the linguistic expressions and the cognitive process of emotion recognition, it will take Russel’s third and fourth propositions as guidelines for the analysis. That means, when there are variations of attribution, the emotions being studied are not that universal.

For Baron-Cohen (2003; see also Senft 2012), emotions are “states of mind that arise as a result of specific experience and drive us to take action. Although emotions exist in the mind and thus are essentially unobservable, they are frequently revealed through facial expressions, voice, posture and gesture...” (Mind Reading Emotions Library User Guide, 2004:6). This supports a constructivist point of view, Barrett et al.’s (2007) claim that

situative and linguistic context plays a role in the perception of emotions. By having a certain emotional event embedded in context, we tend to perceive the emotion expressed by someone in a similar way. Further, Barrett et al. (2011:289) conclude that:

“Unbeknown to most perceivers most of the time, context (i.e., the social situation, body postures, voices, scenes, words, and even culture) influences which emotion is seen in the face of another person. The fact that humans easily and effortlessly perceive anger, or sadness, or fear in another person’s face is not evidence that facial actions broadcast the internal state of the target person. Simply put, a face does not speak for itself.”

The aforementioned postulation can be demonstrated in the following figure.

Figure 1. Facial Expression of Emotion: Which Emotion?



Fig. 1a



Fig. 1b

When looking at Figure 1a, one might perceive and guess that the woman in the image is probably in pain. However, in Figure 1b it becomes obvious that she is not in pain, but she is in euphoria instead.¹

Senft (2012) asserts that emotions are not only depicted with facial expressions. Rather, the expression of emotions and inner feelings are results of “complex behavior patterns” (Eibesfeldt, 1989:492) that control and regulate not only emotions but also body posture and position, gesture, speech utterances, voice, personal temperature, etc. Senft

¹ The woman in the pictures is Serena Williams, taken right after she won the 2008 U.S. Open tennis finals after beating her sister, Venus Williams.

further argues that images of static facial expressions seem to be inadequate cues to elicit the descriptions of emotion and his experimental study on the Kilivila language supports his claim.

As for the experiments, Senft used the Ekman face stimuli to test Ekman's claim. He also added new stimuli, i.e. the Mind Reading Emotions Library clips of Baron-Cohen (2003) to answer some of the research question, such as how "effable" the emotions are, whether the Kilivila respondents agree with one another how they label the emotions and whether facial expressions or events are better cues for labeling emotions.

According to Senft, the Kilivila respondents were not that consistent in labeling five out of six basic emotions under investigation, i.e. ANGER, FEAR, DISGUST, SADNESS and SURPRISE with the Ekman face stimuli. The Ekman HAPPINESS stimuli were the only emotion that received consistent identification from the Kilivila respondents. As for the other five emotion stimuli, some of the Kilivila respondents interpreted them with different emotions (Senft, 2012:35):

- The ANGER stimuli were recognized as stimuli for SADNESS, SURPRISE, DISGUST and even HAPPINESS,
- The DISGUST stimuli were recognized as stimuli for ANGER, HAPPINESS and SADNESS,
- The FEAR stimuli were recognized as stimuli for ANGER and SADNESS,
- The SADNESS stimuli were recognized as stimuli for ANGER,
- The SURPRISE stimuli were recognized as stimuli for ANGER, SADNESS and FEAR.

With regards to the MREL stimuli, the Kilivila respondents yielded more the expected and uniform descriptions (Senft 2012:25):

- The ANGER, FEAR and SADNESS stimuli overall were recognized as the stimuli for ANGER, FEAR and SADNESS. However, SADNESS facial expression was also interpreted as an expression of ANGER
- The DISGUST stimuli were recognized as stimuli for SADNESS, FEAR and ANGER.
- The HAPPINESS stimuli were recognized as stimuli for SADNESS and ANGER.
- The SURPRISE stimuli did not receive expected results. The Kilivila respondents labeled them as 'clever', 'laughing' and 'showing off'.

Based on the results mentioned above, Senft (2012) concluded that the MREL clips were a more adequate tool for research on the language of emotions since the emotions were contextualized in an instance of a specific social interaction.

An experimental comparative study between Dutch and Japanese on emotion done by Tanaka et al (2010) shows that cultural saliency shapes emotional perception. They investigate multisensory recognition of emotion by asking the respondents to judge one either congruent or incongruent emotion expressed by either face or voice. Their results showed that Japanese respondents are more attuned and could recognize both congruent and incongruent emotion through audio cues more accurately compared to the Dutch respondents. Their study demonstrated that culture plays a role in emotion recognition. This implies that when Japanese are less accurate recognizing the emotion from facial expressions, it does not mean that they cannot do it. This study can be evidence that emotion recognition through facial expressions is not that universal, but cultural specific.

While the Dutch speakers recognize emotions better from the facial expressions and the Japanese speakers from the audio cues, there are some anthropological studies on emotions in Javanese culture showing that Javanese people mask their emotions, especially the strong ones such as anger and sadness, with smiles (Heider, 2006; Hood, 1963). Therefore, it can be assumed that for the Javanese respondent it would be more difficult to recognize the emotions under investigations from the facial expressions. Based on the aforementioned studies, it would be interesting to look further on the language and perception of emotion in both Javanese and Dutch to see whether they differ in perceiving basic emotions, given the fact that they are unrelated languages and have distant cultures.

There are two main research questions in this study focuses on. First, it investigates whether the six basic emotions depicted by the facial expressions are perceived universally by both Javanese and Dutch speakers. Being universal here means all speakers from both language groups agree to linguistically express and behaviorally recognize the stimuli without having disagreements or variations of respons when they react to the stimuli. However, on the basis of studies like the ones mentioned above, it could be hypothesized that it would be harder for Javanese speakers to perceive and recognize the six basic emotions from facial expressions than their Dutch counterparts. Secondly, this study examines whether it is whether the static facial expressions depicted by images or behavioral expressions – including facial expressions, body postures and gestures –

presented in contexts will provide better cues for perceiving emotions in the same way. In order to answer the second research question, two experiments were designed with two different stimuli: first, Ekman's face images (1975) and secondly, clips from the Reading Mind Emotions Library (henceforth: MREL; Baron-Cohen, 2003) which are animated, contextualized and staged by actors from mixed ethnic backgrounds. All stimuli display the six emotions under investigation.

There are three hypotheses for this study. First, although some respondents will label the emotions accurately, most emotions under investigation will be recognized and labeled with different emotions. It means the more response variations produced for one type of emotion, the higher disagreement level the members of one language group will be. When this condition exist in one language group and is later compared to the other one and the results still show a similar tendency, it means the emotion under study is far from being universal. This hypothesis is based on Senft's (2012) study. In his study, the so-called basic emotions were recognized and labeled with different emotions. For example, the ANGER emotion depicted by the Ekman face stimuli, besides labeled as ANGER, was also recognized as SADNESS, SURPRISE, DISGUST and even HAPPINESS and The HAPPINESS emotion depicted by the MREL stimuli were recognized as SADNESS and ANGER (see p. 6 in this thesis for detailed descriptions). Hence, the same kind of results is expected from both stimuli in this study. However, since the MREL stimuli provide contexts for psychological mechanism in experiencing emotions, it is expected that the results from MREL stimuli will be more uniform compared to that of the Ekman face stimuli and hence yield higher accuracy of responses.

The second hypothesis is about comparing the Ekman face and the MREL clip stimuli to prove Barrett et al.'s (2007) claim that context, language, body postures and gestures, among others, are some factors need to be taken into account to recognize an emotion accurately. The respondents from both language groups will recognize the basic emotions easier, faster and with higher accuracy with the MREL stimuli since they provide contextualized emotions in a given causal event, while the Ekman face stimuli are static and open for free interpretations. However, if the linguistic responses and recognition responses produced for both types of stimuli are not significantly different, it will imply that Barrett et al.'s (2011) claim about contexts, body postures and gestures as important factors in perception of emotion is null.

The third hypothesis is that there is an interaction between culture and emotion recognition for both language groups. Given the fact that the Javanese people tend to mask their emotions and Dutch people are more into visual cues when recognizing emotions, it can be hypothesized that the Javanese respondents will find it hard to recognize few or some emotions and perhaps they even tend to confuse them with other emotions than their Dutch counterparts.

In order to find out whether both language groups recognize and label the basic emotions similarly or differently, three different measurements are used. First is a qualitative measurement in a set of three questions for the Ekman face stimuli and four for the MREL stimuli. These questions are displayed one following another after a stimulus has been shown. By using this measurement, the linguistic expressions can be elicited and the respondents' consistency on labeling the emotions can be measured. Second is the reaction time as a behavioral measurement to calculate the response time resulted from when the respondents try to recognize and label a certain emotion stimulus. Third, the respondents are asked to do a self-report about the difficulty level of the experiments. In this task, they have to decide how easy or hard the experiments are and choose a grade of the difficulty level on a scale of 1 to 9: 1 being the easiest and 9 being the hardest.

This study will not prove whether the six basic emotions exist for they need to be studied separately. Based on the aforementioned research questions, it will limit its topic to the perception of emotion, i.e. is how members from both language groups recognize and label the emotions through linguistic and behavioral responses, whether there are variations of response and what the results indicates about the perception and recognition of emotion.

III. Methodology

III.1. Subjects

There were ten Javanese speakers (5 females, 5 males) and twelve Dutch speakers (6 females, 6 males) who participated in this study. Only one Dutch male respondent was not a Radboud university student. All the Javanese respondents have lived in the Netherlands less than 4 years, therefore they should still use their native language actively while living in the Netherlands. This requirement should help to control a possible English language bias when doing the experiments. All respondents participated in both

experiments with a break in between. There was no time limitation; however they were encouraged to finish the experiment as soon as possible.

III.2. Experiments²

The experiments consisted of two phases. The first experiment used the Ekman faces as stimuli and the second one used Mind Reading Emotions Library (MREL) as its stimuli. In order to capture the linguistic expression, a qualitative measurement in form of questions in the respondents' native language was used to translate which emotions the respondents perceived when being exposed to the stimuli and whether the emotion labels they expressed are matched with their description about the emotions they have perceived. The methodology description of each experiment is discussed below.

III.2.1. Ekman face Stimuli

III.2.1.1. Materials

The stimuli used in this experiment consisted of six facial expressions depicting the six basic emotions under investigation; they were counted as one set. There were three sets altogether depicting two Caucasian males and one Caucasian female. Each series consisted of different order of displaying the basic emotions. The first series of facial expressions (P1 – P6) consisted of six basic emotions represented by a Caucasian male in the following order:



P1: Disgust



P2: Happiness



P3: Surprise

² The experiments I am discussing in this chapter would not have been run smoothly without kind assistance of Dr. Sean Roberts, Max Planck Institute for Psycholinguistics, Nijmegen. The program I used to run the experiments with the behavioral measurements was designed by him.



P4: Anger



P5: Sadness



P6: Fear

The second series of facial expressions (F1 – F6) represented by a Caucasian female in the following order:



F1: Happiness



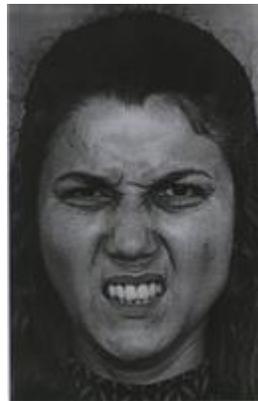
F2: Anger



F3: Fear



F4: Sadness



F5: Disgust

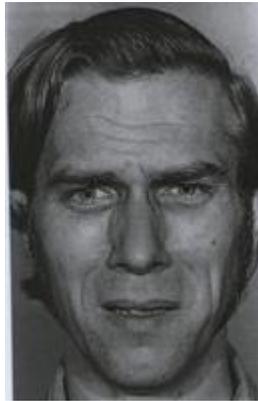


F6: Surprise

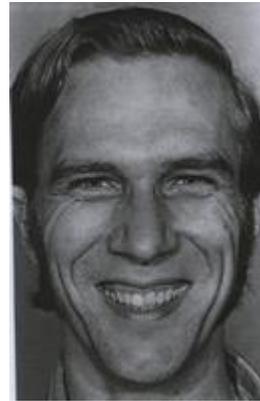
The last series of facial expression (M1 – M6) represented by a Caucasian male in the following order:



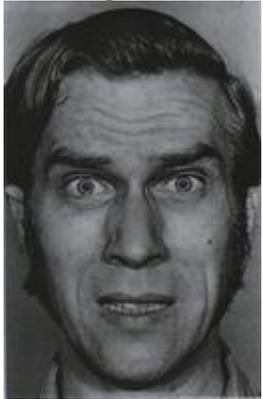
M1: Surprise



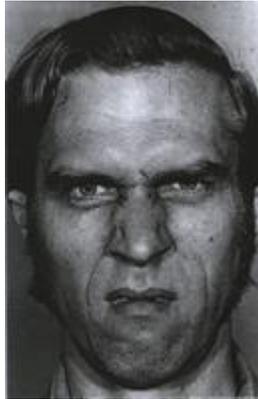
M2: Sadness



M3: Happiness



M4: Fear



M5: Disgust



M6: Anger

Therefore, there were 18 facial expression images in total. Two fillers were added showing neutral expressions. All the pictures were in black and white.

A qualitative measurement in a form of three questions was used to answer were given for one facial expression. Those questions were: 'How does he/she look?', 'How does he/she feel?' and 'Are there any words for that feeling?' The first question 'How does he/she look?' was aimed to capture the emotion depicted by a certain facial expression from the Ekman face stimuli. This was necessary to be done since, firstly, this study intended to prove Ekman's (1973) claim that regardless the language, facial expressions would be labeled the same across cultures. Secondly, facial expressions are the first emotional cues one would recognize from others when they are feeling a certain emotion. The second question 'How does he/she feel?' served as confirmation of the feelings depicted in facial expressions by the Ekman face stimuli.

Therefore, it is expected that the linguistic expressions from the Question 1 'How does he/she look?' and the Question 2 'How does he/she feel?' will yield consistent definitions for one stimulus. This type of analysis will be used throughout this thesis from now on and be referred to as pairing analysis. If the descriptions between Question 1 and

Question 2 were inconsistent, the responses would not be classified as *matched*. This would mean, the respondents failed to recognize the emotions from the given stimulus and label them consistently later during the experiments. Another implication would be that the stimuli used in the experiments were not adequate tools for the emotion study and/or Ekman's claim on the universality of the so-called basic emotions was not solid.

As for the third question, 'Are there any words for that feeling?', it was intended to ask the respondents to label each stimulus the respondents had seen. Particularly for the third question, twelve choices were given for the respondents to identify the emotions related to the given stimulus: six basic emotions being studied and six other emotions as fillers (i.e. shame, guilt, pride, hate, love and jealousy). The twelve choices of emotions were mixed randomly for each participant. The reason for incorporating these fillers in the experiments was to manipulate the respondents' choice of responses during the cognitive process of emotion recognition. This manipulation was created based on the theory of semantic saliency – that when a certain semantic concept is salient in a given culture and/or language, the speakers would be able to cognitively retrieve the information quicker than when it is not.³ I intended to see which emotions were more salient than the others in each language group and later rank them. Secondly, these extra emotions were chosen among other emotions because they are deeply discussed in behavior and psychology literature and often related to the six basic emotions. For instance, see Stearns (1989) for jealousy, Lewis (1971) for shame and guilt relationship in neurosis level, Kimmel (2004) for fear and shame relating to gender identity, Fischer (1999) for pride, shame and anger; Fitness and Fletcher (1993) on love, hate, anger and jealousy relating to cognitive appraisal analysis and Silvia (2009) on anger, confusion, disgust, pride, surprise and other emotions.

III.2.1.2. Design

The experiment instruction started with an introduction either in Javanese or Dutch, depending on the respondent's native language, and a brief explanation that the respondents would see images of facial expressions and they were asked to answer three questions for each facial expression. With the third question, there was an additional

³ In other words, the array of options dilute the respondents' saliency on emotion. See Vainik's (2006) experimental study on cognitive saliency of emotion words depicting the semantic content and episodic emotion knowledge and their relation with gender and age. The study uses free-listing task as its method.

explanation where they were asked to choose one or more emotions that represented the facial expression as well. They were also informed that if they did not find any choices of emotion suitable with the picture being displayed, they could leave the question unanswered. Later, they were told that there would be one picture of a facial expression for them to practice. After having practiced with one picture, they could immediately start the experiments, if they did not have any questions.

III.2.1.3. Procedures

The experiment was conducted with one respondent at a time. The chosen venue was based on the respondent's availability and flexibility, aiming for quiet and with as little distraction as possible. On a side note, the respondents did the experiments voluntarily. After they read the experiment instruction, they would have one practice with one image showing a neutral facial expression and followed by a series of questions, one question at a time. Participants could type their responses in a box provided underneath the facial picture in question. The picture was still being displayed until all questions had been answered. Reaction time was measured for each question; it started to measure the duration of how long each respondent worked on each question since a stimulus was first displayed to the time when the respondent give his/her response. All images were randomly presented with the following sequence: (1) first batch of six randomized images, (2) one filler of neutral expression, (3) second batch of six randomized images, (4) another filler of neutral expression and (5) the final batch of six randomized images. When the respondents had finished the first experiment, they were given a break for about 30 – 45 minutes before doing Experiment 2. There were four female Dutch respondents and one male Dutch respondent who participated on a different day working on the second experiment due to their personal schedules.

After the respondents had finished the experiment, they were asked to fill out a demographic questionnaire inquiring personal information such as age, occupation, native language, home language and other language(s). The respondents were also asked to do a self-report about the difficulty level of the Ekman face experiments by choosing one value from 1 to 9: 1 being the easiest and 9 being the hardest.

III.2.2. Mind Reading Emotions Library (MREL) Experiment

III.2.2.1. Materials

This experiment used Baron-Cohen's (2003) Mind Reading Emotions Library (MREL). Six clips displaying 6 basic emotions were chosen from the Mind Reading Emotions Library level 1.⁴ The reason why level 1 was used and not one of the other levels was because it was important to preserve the level of difficulties of both stimuli (from Experiment 1 and Experiment 2) as similar and close as possible. The actors who played the clips came from mixed ethnicities. The scene to depict each basic emotion used a causal event with the target emotion shown by the end of the clip and the causal context was very clear. Most of the scenes were acted out by two people of different genders and/or ethnicities. The duration of all the clips was not longer than 25 minutes, each clip lasting 3 – 4 minutes.

There were four questions used as qualitative measurement for this experiment. The first three questions were the same as in the first experiment. However the fourth one is as follows: 'What might he/she (the protagonist in the clip) say?'. This question aimed to capture the verbal expressions one might say when feeling a certain emotion and displaying a certain facial expression.

III.2.2.2. Design

Similar to Experiment 1, Experiment 2 started with an introduction either in Javanese or Dutch, depending on the respondent's native language, followed by a brief explanation that the respondent would watch a short clip and then be given four questions. In this experiment, the respondents did not have an extra clip to practice. No fillers were added. After reading the instruction, they were immediately asked to start the experiment if they did not have any questions.

Each video lasted 3 - 4 minutes and the last scene depicting the emotions being studied remained on the screen, then the respondents gave their responses following each video. The respondents could answer the questions and type their answers in the box provided below the clip window. The first three questions were the same like those of the Experiment 1. The fourth question required them to provide a possible utterance the

⁴ Originally, there are six levels of emotions in this library; each level has 24 emotions presented in clips some of which are contextualized.

protagonist might say. After they had finished answering all four questions, they could move to the next clip.

III.2.2.3. Procedures

Similar to Experiment 1, this experiment was conducted with one respondent at a time and in different places depending on the respondent's availability and flexibility. The chosen venue for the experiment was aimed to be quiet and with as little distraction as possible. After reading the instructions, each respondent was asked to do the experiments immediately. Reaction time was also measured for each question; measuring the duration of how long each respondent worked on each question starting from the second a clip was first displayed until the time when the respondent started to give his/her response. All clips were randomly presented for each respondent. In this experiment, four female Dutch respondents and one male Dutch respondent participated at a different day working on this experiment due to their personal schedules. The respondents were also asked to do a self-report about the difficulty level of the MREL experiment by choosing a value from 1 to 9: 1 being the easiest and 9 being the hardest.

IV. Results

In this section, the results from experiment 1 with the Ekman's face stimuli and experiment 2 with the MREL's clips will be discussed. The linguistic expressions resulting from the qualitative measurement from the Question 1 'How does he/she look?' and the Question 2 'How does he/she feel?' were paired and analyzed which is called pairing analysis. As for the Question 3, 'Are there any words for that emotion?', a different sub-section will be provided since it will involve statistical results of behavioral measurements.

Since this study aims only to discuss the basic emotions, i.e. ANGER, DISGUST, FEAR, HAPPINESS, SADNESS and SURPRISE; the other six emotions added as fillers, i.e. jealousy, pride, love, hate, guilt and shame will not be analyzed. The Question 4 'What would the protagonist say?' for the MREL experiment will also not be elaborated due to the space constraint. The whole results will be presented based on each language group and each emotion being studied in an alphabetical order: ANGER, DISGUST, FEAR, HAPPINESS, SADNESS and SURPRISE.

IV.1. Results of the data elicitation with the “Ekman’s Faces”

In this subsection, elicitations for the six basic emotions, i.e. ANGER, DISGUST, FEAR, HAPPINESS, SADNESS and SURPRISE provided by the members of both language groups will be discussed. I will first present the responses for the first two questions and later discuss the behavioral measurement results.

IV.1.1. Results of Ekman face experiment for the Javanese language group⁵

In the Javanese language group, only HAPPINESS was recognized with a higher accuracy compared to the other emotions, followed by SURPRISE. ANGER and SADNESS, clustered together, were next in order. FEAR and DISGUST came last in rank. DISGUST was very poorly recognized by the Javanese group and the Ekman face stimuli for this particular emotion were often perceived as ANGER. The linguistic data were elaborated and analyzed. The detailed discussion is presented in the following subsections.

IV.1.1.1. ANGER

Table 1 lists all linguistic descriptions of the ANGER Ekman face stimuli [F2], [M6] and [P4] produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 1. EMOTION: ANGER – Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Anger [F2]	4	nesu	angry
	1	seko rupane alise ketok nek lagi nesu. alise munggah siji. ketok banget nek lagi koyo meh ngunek ngunekke uwong	from the look of the eyebrows, she looks angry. One of her eyebrows raised just gets up from sleep and is
	1	tas tangi turu lan kaget	surprised
	1	methentheng	akimbo
	1	nyengoh	smirking
	2	elek	ugly
Anger [M6]	2	spaneng (1) / kesel (1)	annoyed
	1	medeni	scary
	3	nesu	angry
	1	ndlongop	eyes are popping out the face looks angry, but actually not angry. From the

⁵ The Javanese speakers who participated in this study were mainly divided into two major groups, i.e. Central Java and East Java. Both language groups have slightly different sets of vocabulary and language structures. The Javanese instruction was designed using the Yogyakarta dialect rather than any other dialect. The reason for this is Yogyakarta area, which is known as the seat of Javanese culture, has become the orientation for Javanese dialects and speakers outside of this particular area (see Smith-Hefner, 1989; Errington, 1985; among others for more information).

	1 1	rupane rodo koyo nesu tapi janjane ora nesu. delok seko alise ora miring serius pengen nyokot	look of his eyebrows, they're not raised. serious-looking wants to bite
Anger [P4]	3 1 1 1 1 1 1 1	mrengut (1) / manyun (1) / menjep (1) nesu + kaget bingung medeni + ketoke nesu nesu alis mburi ngangkat. rodo koyo ono nesu, lambene munggah. ora jelas elek	mouth pouting angry + surprised confused scary + (he) looks angry angry the end of the eyebrow is raised. He/she looks like angry a bit. The lips are raised. unperceivable ugly

Question 1 *Piye rupane?* 'How does he/she look?' was answered by the Javanese respondents in various ways. Four Javanese respondents identified the Ekman stimuli [F2] as *nesu* 'angry', the same way as [M6] was identified by three Javanese respondents. Interestingly, there was only one who straightforwardly recognized stimulus [P4] as *nesu* 'angry'. Two other respondents also described the stimulus [P4] with *nesu*. However, one added *medeni* 'scary', which refers to ANGER expressed in the face that causes FEAR, and the other respondent combined it with a term that denotes both SURPRISE emotion and physiological reaction, i.e. *kaget* 'startled'. One respondent described the stimulus with some facial features and perceived it as someone who might feel angry: *Alis mburi ngangkat. Rodo koyo ono nesu lambene munggah* 'The end of the eyebrow is raised. She looks like angry a bit. The lips are raised'.

Specifically stimulus [F2] was described by one respondent as a facial expression of ANGER: *seko rupane alise ketok nek lagi nesu. Alise munggah siji. Ketok banget nek lagi koyo meh ngunek ngunekke uwong* 'From the look of the eyebrows, she looks angry. One of her eyebrow is raised. It seems very obvious that she is angry at someone else.' One respondent pointed out that the stimulus was similar to someone who 'Just gets up from sleep and is surprised' *tas tangi turu lan kaget*. One identified it as someone who had her arms akimbo. In Javanese, this posture is often displayed by someone who is angry; it is considered to be impolite behavior. Another respondent identified the ANGER facial expression as *nyengoh* 'smirking' and the last two respondents recognized stimulus [F2] as *elek* 'ugly'.

Three respondents described stimulus [M6] as expressing other feelings such as *spaneng* and *kesel* which both mean ‘annoyed’, one described it as *medeni* ‘scary’ – this implies that someone who is angry could inspire fear in others. The same response can be found for stimulus [P4]. Other responses described more physiological reactions and forms of aggressive behavior such as *ndlongop* ‘eyes are popping out’, *rupane rodo koyo nesu tapi janjane ora nesu. Delok seko alise ora miring* ‘the face looks angry, but actually not angry from the look of his eyebrows, they’re not raised’, *serius* ‘serious’ and *pengen nyokot* ‘wants to bite (something)’. Even more various responses with respect to facial features were produced for stimulus [P4]. Three respondents described it as someone who is *mrengut*, *manyun* and *menjep*; all three expressions mean ‘mouth pouting’.⁶ One described this facial expression as someone who looked *bingung* ‘confused’, while another perceived the emotion displayed by this particular stimulus as *ora jelas* ‘not clear’ or ‘unperceivable’. Yet another recognized the person’s look in this stimulus was *elek* ‘ugly’.

Table 2 lists all linguistic descriptions of the ANGER Ekman face stimuli [F2], [M6] and [P4] produced for the Question 1 ‘How does he/she feels?’ by the Javanese respondents.

Table 2. EMOTION: ANGER – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Anger [F2]	7	nesu (banget)	(very) angry
	1	sing dirasakke nesu + meh mbentak-mbentak.	she’s feeling angry and wanting to shout
	1	nyengoh	smirking
	1	jengkel	annoyed
Anger [M6]	1	nesu + ora sabar	angry + impatient
	2	nesu	angry
	1	pengen nesu	wants to get angry
	1	kaget	surprised
	2	kesel (1) / kekeselen (1)	annoyed / too annoyed
	1	emosi	emotional
	1	jengkel	annoyed
	1	ngelih	hungry
Anger [P4]	2	nesu	angry
	1	kaget	surprised
	1	bingung + nesu	confused + angry
	1	nesu + kuciwa	angry + disappointed
	1	ora seneng	not happy
	1	nesu + mangkel	angry + annoyed
	1	gak jelas	not clear

⁶ As mentioned earlier, Javanese has many dialects and this results in a variety of synonymous lexemes that are produced in the data elicitation sessions.

	1	gumun	perplexed
	1	pengen ngising	wants to defecate

The Question 2 *Opo sing dirasake?* ‘How does he/she feel?’ after the stimulus [F2] was given was answered by seven respondents straightforwardly with the expression *nesu* ‘angry’; this answer was also given by two respondents each for stimuli [M6] and [P4] respectively. As a reaction to stimulus [M6], one respondent combined *nesu* with *ora sabar* ‘impatient’ and one described it as *pengen nesu* ‘wants to get angry’. Another one classified it as *emosi* ‘emotional’. In Javanese and Indonesian, the lexeme *emosi* is often used to describe a strong – mostly negative – emotion so that the experiencer does not need to name it specifically. For stimulus [F2], one respondent combined the expression *nesu* with the description of a form of behavior, namely *mbentak-mbentak* ‘yelling repetitiously’.⁷ Stimulus [P4] was described by one respondent first as *bingung* and then as *nesu*, one combined *nesu* with *kuciwa* ‘disappointed’ and one combined it with *mangkel* ‘annoyed’.

The ANGER stimulus [F2] was also described by one respondent as *nyengoh* ‘smirking’, and one respondent associated it with *jengkel* ‘annoyed’. The latter expression was also produced for stimulus [M6]. Two respondents described this stimulus as *kesel* and *kekeselen*, that is *annoyed* and *annoyance*. It is common for Javanese to euphemize the level of ANGER by referring to it as *jengkel*, *kesel* / *kekeselen* ‘annoyed’; expressing negative emotions is discouraged in the Javanese culture. One respondent described the stimulus as expressing a bodily reaction which also denotes SURPRISE, *kaget*; this was also the case with stimulus [P4].

Other descriptions produced by the Javanese respondents were *ora seneng* ‘unhappy’, *gak jelas* ‘unclear’ and *gumun* ‘perplexed’. Interestingly, one respondent identified stimulus [M6] with *ngelih* ‘hungry’; stimulus [P4] was described with the phrase *pengen ngising* ‘wants to defecate’.

The three Ekman ANGER stimuli were presented to 10 Javanese respondents which yielded 30 pairs of responses from the two experimental questions. There were only 10 responses (33.3%) that straightforwardly described the stimuli with ANGER for both

⁷ In Javanese, the reduplication of verbs denotes repetitive action, reduplication of nouns denotes plurality.

questions; the other 20 responses described the stimuli with other emotion terms and/or with facial descriptions as mentioned above. This finding implies that Ekman's ANGER stimuli do not elicit the expected responses in the Javanese respondents. There were various expressions – due to different dialects the Javanese respondents are speaking – which describe subcategories of the ANGER emotion⁸, so to speak, such as *kesel / kekeselan, mangkel and jengkel* 'annoyed' but these expressions cannot be taken into account as ANGER in the strict sense of the term.

IV.1.1.2. DISGUST

Table 3 lists all linguistic descriptions of the DISGUST Ekman face stimuli [F5], [M5] and [P1] produced for the Question 1 'How does he/she look?' by the Javanese respondents.

Table 3. EMOTION: DISGUST – Question 1 'How does he/she look?'

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Disgust [F5]	1	risi	uncomfortable
	1	pegel	annoyed
	1	mringis	grimacing
	1	nesu	angry
	1	ngeri	scary
	1	rupane mringis untune, matane alise mungguh koyo wong jengkel	the teeth make it look like grimacing. the eyes and eyebrows are raised as if annoyed
	1	kaget	surprised
	1	jijik	disgusted
	1	elek	ugly
	1	sa'jak pengen nyokot	actually (she) wants to bite
Disgust [M5]	1	nesu	angry
	1	tuwek	old
	1	nyuntheng	frowning forehead
	1	gething	hateful
	1	medeni	scary
	1	lambene mbitet	the lips are pursed
	1	mrengut	pouting
	1	gak seneng / jijik	unhappy / disgusted
	1	elek	ugly
1	mbesengut	pouting	
Disgust [P1]	1	risi + ora seneng	feeling uncomfortable + unhappy
	1	tuwek lan kepegelen	old and angry
	1	mecucu	pouting lips
	1	mencibir + ngasorake	pouting lips + belittling (someone else)

⁸ See the detailed definitions of subcategories of ANGER in Russell & Fehr (1994).

1	medeni	scary
1	rupane kotak, koyo wong nyepelekké, seko lambene mbesengut.	the face is squarish, looking like the person is belittling, someone, the lips are pouting
1	nyinyir	cynical
1	nesu utawa gak seneng	angry or unhappy
1	elek	ugly
1	menjep	pouting lips

In answering Question 1 *Piye rupane?* ‘How does he/she look’, only one respondent described stimulus [F5] as DISGUST. Others respondents produced expressions that refer to other emotions or provide facial descriptions. There was one other respondent who produced the phrase *gak seneng utawa jijik* ‘unhappy or disgusted’⁹ for the stimulus [M5], but no other response described the stimuli for DIGUST with the expected term.

Stimulus [F5] was described by the Javanese respondents as the facial expression that depicted emotional state like *risi* ‘uncomfortable’, *pegel* ‘annoyed’, *ngeri* ‘scary’, *kaget* ‘surprised’ and *nesu* ‘angry’. One respondent described it as expressing a possible aggressive behavior, i.e. *sa’jak pengen nyokot* ‘actually (she) wanted to bite (something).’ Other reactions to stimulus [M5] include *nesu* ‘angry’ and *gething* ‘hateful’ and facial descriptions that will be discussed below. As for stimulus [P1], the Javanese respondents described it as *risi lan ora seneng* ‘uncomfortable and unhappy’, *tuwek lan kepegelan* ‘old and angry’, *medeni* ‘scary’, *nyinyir* ‘cynical’ and *nesu utawa gak seneng* ‘angry or unhappy’.

Some respondents also gave only facial descriptions for the Ekman DISGUST stimuli. The [F5] stimulus was described by the respondents as *elek* ‘ugly’, *mringis* ‘grimacing’ – this refers to the facial expression produced when one is feeling pain or is disappointed, or in an attempt to mock another person. Another description produced for this stimulus was *rupane mringis untune, matane alise mungguh koyo wong jengkel* ‘the teeth makes it look like grimacing. The eyes and eyebrows are raised as if annoyed’. Again the facial expression *mringis* ‘grimacing’ is expressed here. Other responses with facial descriptions to the DISGUST stimuli included *tuwek* ‘old’, *nyuntheng* ‘frowned forehead’, *lambene mbitet* ‘the lips are pursed’, *mrengut* and *mbesengut* which both meant ‘lips pouting’ and *elek* ‘ugly’,

⁹ This response was counted as a predicted reaction to the stimulus of DISGUST, despite the fact that the respondent first mentioned another emotion *gak seneng* ‘unhappy’ and only then produced the expression *jijik* ‘disgusted’ This response was a consistent reaction to the two experimental questions.

mecucu ‘pouting lips’, *mencibir*, *ngasorake* ‘pouting lips, belittling (someone else)’, *rupane kotak*, *koyo wong nyepelekke*, *seko lambene mbesengut* ‘the face is squarish, looking like the person is belittling, someone, the lips are pouting’, *elek* ‘ugly’ and *menjep* ‘pouting lips’.

Table 4 lists all linguistic descriptions of the DISGUST Ekman face stimuli [F5], [M5] and [P1] produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 4. EMOTION: DISGUST – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Disgust [F5]	1	jijik + ora seneng banget	disgusted + very unhappy
	4	jijik	disgusted
	1	ora seneng	unhappy
	1	jengkel + nesu	annoyed + angry
	1	kaget	surprised
	1	gumun	perplexed
	1	ngelih	hungry
Disgust [M5]	1	nesu banget + kuciwa	very angry + disappointed
	1	gething	hateful
	1	jijik	disgusted
	1	nesu	angry
	1	ngeri	scary
	1	koyo risi karo sing didelok mrengut	as if feeling uncomfortable being gazed at
	1	gak seneng utawa jijik	pouting
	1	gumun	unhappy or disgusted
	1	ora seneng	perplexed
Disgust [P1]	1	ora seneng + nyepelekake ngenyek	not happy + spiteful
	1	nesu / gak seneng	sneering
	1	sombong	angry / unhappy
	1	nesu	arrogant
	2	ngeremehke	angry
	1	rodo sengit, akeh le nyepelekke	belittling (someone) rather fierce, belittling someone
	1	nyinyir	
	1	jijik	cynical
	1		disgusted

When encountering experimental Question 2, *Opo sing dirasakke?* ‘How does he/she feel?’, more respondents identified the DISGUST stimuli with *jijik* ‘disgusted’ than in Question 1. There were four respondents who straightforwardly described stimulus [F5] as *jijik* ‘disgusted’ and one added the phrase *ora seneng banget* ‘very unhappy’. Interestingly, there was only one *jijik* ‘disgusted’ response for stimuli [M5] and [P1] respectively. There

was another response to stimulus [M5] which included the production of *jijik* 'disgusted', but a different emotion was mentioned first, i.e. *gak seneng utawa jijik* 'unhappy or disgusted'. The fact that the participant used the conjunction *utawa* 'or' shows that he/she was unsure whether the emotion depicted by this particular stimulus was UNHAPPINESS or DISGUST.

Other descriptions elicited for the DISGUST stimuli [F5], [M5] and [P1] were *ora seneng* 'unhappy', *jengkel*, *nesu* 'annoyed, angry', *kaget* 'surprised', *gumun* 'perplexed' and *ngelih* 'hungry' for stimulus [F5]; *nesu banget*, *kuciwa* 'very angry, disappointed', *gething* 'hateful', *nesu* 'angry', *ngeri* 'scary', *gumun* 'perplexed', *ora seneng* 'unhappy' and a phrase *koyo risi karo sing didelok* 'he/she looked uncomfortable with the one he/she's looking at'; *ora seneng*, *nyepelekake* 'not happy, spiteful', *ngenyek* 'sneering', *nesu utawa gak seneng* 'angry or unhappy', *sombong* 'arrogant', two responses of *nesu* 'angry', *ngeremehke* 'belittling (someone)', *rodo sengit*, *akeh le nyepelekke* 'rather fierce, belittling someone', *nyinyir* 'cynical'. The frequency of the expression *ora seneng* 'unhappy' is higher than that of the DISGUST expression, *jijik* 'disgusted', i.e. 6 : 1 times. This indicates that the Ekman DISGUST emotion expressed in stimuli [F5], [M5] and [P1] was actually identified as UNHAPPINESS and that the Ekman facial expression for the emotion DISGUST is identified by the Javanese respondents as depicting the emotion states of unhappiness and/or disliking others.

With the pairing analysis for both Questions 1 and 2, there are only two Javanese respondents who consistently recognized and labeled stimuli [F5], [M5] and [P1] as DISGUST, i.e. 7% of the Javanese respondents who participated in this experiment. This indicates that the DISGUST facial expressions displayed by the Ekman stimuli were not recognized by the Javanese respondents in the way predicted by Ekman and his colleagues.

IV.1.1.3. FEAR

Table 5 lists all linguistic descriptions of the FEAR Ekman face stimuli [F3], [M4] and [P6] produced for the Question 1 'How does he/she feel?' by the Javanese respondents.

Table 5. EMOTION: FEAR – Question 1 'How does he/she look?'

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Fear [F3]	4	kaget	surprised
	1	medeni	scary
	1	mendelik	eyes dilated
	1	bingung	confused
	1		

	2	rupane ketok nek wedi. mripate mendolo koyo meh ucol wedi	The face looks scared. The eyes look like about to pop out scared
Fear [M4]	3 1 1 1 1 1 1 1 1	kaget tuwek + kurang turu mringis medeni rupane koyo wong kaget utowo wedi jijik lucu gepeng	surprised old + not getting enough sleep grimacing scary the face looks surprised or scared disgusted funny flat
Fear [P6]	2 1 3 1 1 1 1 1	kaget (1) / terkejut (1) tuwek mendelik medeni matane mendolo, arep interaksi karo wong rodo angel aneh elek	surprised old eyes dilated scary the eyes are open wide, as if interacting with a difficult person weird ugly

For the experimental Question 1, *Piye rupane?* ‘How does he/she look?’ asked with stimulus [F3], only one response identified it with wedi ‘fear’. With stimulus [M4] there were no direct responses showing the recognition of the emotion fear. However, there were two responses that mentioned *wedi* ‘fear’ embedded in a facial description. The first one was elicited for stimulus [F3], i.e. *rupane ketok nek wedi. Mripate mendolo koyo meh ucol* ‘the face looks scared. The eyes look like they are about to pop out’; the second one was elicited with stimulus [M4]; it runs: *rupane koyo wong kaget utowo wedi* ‘the face looked surprised or scared’. No recognition of fear could be elicited with stimulus [P6] whatsoever.

Instead, these stimuli were interpreted as depicting other emotions; the most frequent emotion associated with the fear stimuli [F3], [M4] and [P6] was surprise. There were 4 straightforward responses of *kaget* for stimulus [F3], 3 for stimulus [M4] and 2 for stimulus [P6] with 2 variants, i.e. *kaget* and *terkejut*, which both mean ‘surprise(d)’ but the latter is a Bahasa Indonesia word¹⁰. Interestingly, rather than labeling the stimuli as fear, they were perceived as *medeni* ‘scary’, a scary look to be precise. One *medeni* response could

¹⁰ Javanese is located in Indonesia. It is common for many speakers from different ethnic groups to be multilingual, speaking their own native language and the national language. However, there is no clear explanation why this particular respondent yielded an Indonesian (*Bahasa Indonesia*) lexeme here.

be found for each stimulus. Other reactions to the stimuli produced were *bingung* ‘confused’ (for stimulus [F3]) and *jijik* ‘disgusted’ (for stimulus [M4]). The other responses were in the form of adjectives such as *lucu* ‘funny’ and *gepeng* ‘flat’ and a phrase *tuwek, kurang turu* ‘old, lacked of sleeps’ (for stimulus [M4]) and *tuwek* ‘old’ also could be found (for stimulus [P6]), besides *aneh* ‘strange’ and *elek* ‘ugly’.

Some facial descriptions were also elicited for all the Ekman fear stimulus, i.e. *mendelik* ‘eyes dilated’ for both stimuli [F3] and [P6]. A phrase was also elicited, i.e. *matane mendolo, arep interaksi karo wong rodo angel* ‘the eyes are open wide, as if interacting with a difficult person’.

Table 6 lists all linguistic descriptions of the FEAR Ekman face stimuli [F3], [M4] and [P6] produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 6. EMOTION: FEAR – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Fear [F3]	1	gumun + wedi	perplexed + scared
	1	kaget + ndak nyangka	surprised + not expecting something
	3	kaget	surprised
	1	bingung + kaget	confused + surprised
	1	keweden karo sing didelok	scared of what she sees
	3	wedi	scared
Fear [M4]	1	gumun + gelo + susah	perplexed + troubled + sad
	2	jijik	disgusted
	1	bingung	confused
	1	sedih + ngeri	sad + horrified
	1	sing dirasakke deg-degan, alise mungguh, mringis bener-bener keweden	heart pounding, eyebrows casted, grimacing like scared
	3	(sa’jak) kaget	surprised
	1	wedi	scared
Fear [P6]	1	kaget + gelo	surprised + disappointed
	1	kaget + gak nyongko	surprised + not expecting something
	3	kaget (2) / terkejut (1)	surprised
	1	bingungan koyo wong keweden.	confused, as if scared
	2	gumun	perplexed
	1	aneh	weird
	1	pengen fokus	wants to focus

As for the Question 2, *Opo sing dirasake?* ‘How does he/she feel?’, the respondents produced the expression *wedi* ‘scared’ more often than in their reactions to the first question; however, *kaget* ‘surprised’ still dominated the response frequency. Three respondents

straightforwardly identified stimulus [F3] as *wedi* 'scared', one respondent combined it with another emotion, i.e. *gumun* 'perplexed' and one produced the phrase, i.e. *keweden karo sing didelok* 'scared of what she sees'. There was only one explicit *wedi* response that could be found for stimulus [M4] and another one with a phrase describing what the person was feeling using the lexeme *keweden*, the noun form of *wedi*, i.e. *sing dirasakke deg dekan, alise mungguh, mringis bener-bener keweden* 'what he/she is feeling is heart pounding, eyebrows casted, grimacing like scared'. One participant gave a mixed response of *sedih, ngeri* 'sad, worried'. As for stimulus [P6], the response involving *wedi* was produced in a phrase but again using *keweden*: *bingungan koyo wong keweden* 'confused, as if scared'.

As mentioned earlier, *kaget* 'surprised' still surpassed *wedi* 'scared' in terms of response frequency. There were three straightforward responses of *kaget* 'surprised' for stimulus [F3], one response in a phrase, i.e. *kaget, ndak nyangka* 'surprised, did not predict (something to happen)' and another added *kaget* 'surprised' to *bingung* 'confused'. A number of descriptions of various emotional states could be elicited with stimulus [M4]; three respondents explicitly recognized it as *kaget* 'surprised' – one of them added the adverb *sa'jak* 'actually' in the response. Two respondents identified the stimulus as DISGUST and therefore labeled it as *jijik*. Other emotion states elicited with this particular stimulus were *gumun, gelo, susah* 'perplexed, troubled, sad' and *bingung* 'confused'. The response *kaget* 'surprised' more frequently occurred with stimulus [P6]. There were two straightforward responses of *kaget* and another one with *terkejut*, which also means 'surprised' but in Indonesian. There were two more *kaget* responses, but they were mixed with other emotion states, namely *gelo* 'disappointed' and *gak nyongko*¹¹ 'did not predict (something to happen)'. Two respondents described this stimulus as *gumun* 'perplexed', one identified the FEAR facial expression as *aneh* 'strange' and another one described it as *pengen focus* 'wants to focus'.

The pairing analysis for the experimental Questions 1 and 2 shows that there were only four (13.3%) out of thirty responses that consistently recognizing the stimuli with

¹¹ The same response can be found in the elicitation of stimulus [F3], i.e. *kaget, ndak nyangka*. The response *ndak nyangka* elicited for this specific stimulus and the response *gak nyongko* collected for stimulus [P6] are only variations, i.e. *ndak* is a negative particle and *gak* is its abbreviated version, and *nyongko* is a writing variation of *nyangka* 'expect'. The explanation for the latter variation is that in Javanese, most words containing /a/ are read with /ɔ/.

FEAR. Interestingly, the FEAR stimuli were also labeled as *kaget* ‘surprised’ five times (17%). This means that the Javanese respondents gravitate towards perceiving the Ekman FEAR facial expressions as SURPRISE than FEAR.

IV.1.1.4. HAPPINESS

Table 7 lists all linguistic descriptions of the FEAR Ekman face stimuli [F1], [M3] and [P2] produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 7. EMOTION: HAPPINESS – Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Happiness [F1]	3	seneng	happy
	1	ayu	pretty
	2	sumringah	joyful look
	1	rupane seneng tapi ngapusi	the face looks happy but deceitful
	1	sumeh	smiling
	1	apik	good
	1	nyenengke	pleasant
Happiness [M3]	2	seneng	happy
	1	luwih ngganteng	more handsome
	1	mrenes	smile
	1	ngguyu + seneng	laughing, happy
	2	sumringah	joyful look
	1	rupane bahagia, ketok seko kerutan neng pinggir mripate	the face looks happy, there are lines on the ends of the eyes
	1	apik	good
1	ngguyu	laughing	
Happiness [P2]	4	seneng (3) / bungah (1)	happy / joyful
	1	tuwek	old
	1	sumringah	joyful look
	1	ramah	friendly
	1	rupane ketok wong lagi kesenangan didelok soko kerut mripate, ngguyu	the face looks overjoyed, there are lines on the eyes, laughing
	1	sumeh	smiling
	1	ngguyu, ketok untune	laughing, showing some teeth

The Javanese responses elicited for the Ekman HAPPINESS stimuli with Question 1, *Piye rupane?* ‘How does he/she look?’, included the following expressions. For stimulus [F1], there were three responses of *seneng* ‘happy, content’, two responses of *sumringah* ‘joyful look’ and one response of *sumeh* ‘smile’; one response was the phrase *rupane seneng tapi ngapusi* ‘the face looks happy but deceitful’. There were more variations with respect to stimulus [M3] – two respondents identified it as *seneng* ‘happy, content’, one, as *ngguyu*

'laughing', two respondents labeled it as *sumringah* 'joyful look', one identified it as *mrenges* 'smiling' and one labeled it only with *ngguyu* 'laughing'. Another description of HAPPINESS for this particular stimulus was also elicited, namely, *rupane bahagia, ketok seko kerutan neng pinggir mripate* 'the face looks happy, there are lines on the ends of the eyes'. The HAPPINESS stimulus [P2] was four times identified explicitly as *seneng* 'happy, content' and once as *bungah* 'joyful'. A Javanese happiness term, *kesenengan* 'very happy' together with the facial description *ngguyu* 'laughing' was elicited in the following phrase, *rupane ketok wong lagi kesenengan didelok soko kerut mripate, ngguyu* 'the face looks overjoyed, there are lines on the eyes, laughing'. Some other respondents also identified this stimulus with facial descriptions such as *sumringah* 'joyful look', *sumeh* 'smiling' and *ngguyu ketok untune* 'laughing, showing some teeth'.

There were some other responses that did not identify the HAPPINESS facial expression in the given stimuli but provided simple facial descriptions. For stimulus [F1], one respondent recognized it as *ayu* 'pretty', one perceived it as *nyenengke* 'pleasant' and another one as *apik* 'good'. The latter expression also appeared with stimulus [M3]. Another description not related to HAPPINESS was *luwih ngganteng* 'more handsome' – in comparison to another facial expression depicted by the same person earlier in the experiment session. With stimulus [P2] the expressions, *tuwek* 'old' and *ramah* 'friendly' were elicited.

Table 8 lists all linguistic descriptions of the FEAR Ekman face stimuli [F1], [M3] and [P2] produced for the Question 2 'How does he/she feel?' by the Javanese respondents.

Table 8. EMOTION: HAPPINESS – Question 2 'How does he/she feel?'

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Happiness [F1]	1	seneng + bungah + lega	happy + joyful + relieved
	7	seneng	happy
	1	koyo seneng tapi ora tenanan	as if she looks happy but
	1	bungah	pretending joyful
Happiness [M3]	1	seneng + bungah	happy + joyful
	1	sumringah	joyful look
	7	seneng	happy
	1	seneng + sumringah	happy + joyful look
Happiness [P2]	1	bungah + seneng atine	joyful + his heart was happy
	7	seneng	happy
	1	seneng lan sumringah	happy and joyful look
	1	ngguyu	laughing

All of the responses for Question 2, *Opo sing dirasake?* ‘How does he/she feel?’ defined the HAPPINESS facial expression depicted by the stimuli with either the emotion terms and/or facial descriptions that indicated HAPPINESS. For each stimulus [F1], [M3] and [P2], there were seven respondents who accurately identified it as *seneng* ‘happy, content’. Specifically for stimulus [F1], one respondent mixed *seneng* with *bungah* ‘joyful’ and *lega* ‘relieved’, one simply recognized it as *bungah* ‘joyful’ and one described the HAPPINESS stimulus as *koyo seneng tapi ora tenanan* ‘as if he looks happy but pretending’. HAPPINESS responses were also found for stimulus [M3]. One respondent perceived it as *seneng, bungah* ‘happy, joyful’, one identified it as *seneng, sumringah* ‘happy, joyful look’, another one only labeled it with *sumringah* ‘joyful look’. *Seneng lan sumringah* was elicited again for stimulus [P2], together with other responses: *bungah, seneng atine* ‘joyful, his heart is happy’, and *ngguyu* ‘laughing’.

The pairing analysis for the experimental Questions 1 and 2 shows an interesting finding. Of the total 30 responses there were 23 (77%) matched responses which consistently identified HAPPINESS for the respective stimuli.

IV.1.1.5. SADNESS

Table 9 lists all linguistic descriptions of the FEAR Ekman face stimuli [F4], [M2] and [P5] produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 9. EMOTION: SADNESS – Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Sadness [F4]	4	susah (3) / sedih (1)	sad
	1	kakehan masalah	too much problems
	1	pusing	stressed out
	1	rupane lagi mendem sesuatu. alaise tengah munggah. koyo akeh pikiran	it looks like she is keeping smth. the eyebrows are frowning, as if thinking so much
	1	soro	suffering
	1	elek	ugly
	1	mrengut	pouting
Sadness [M2]	1	susah	sad
	1	pegel lan kaget	annoyance and surprised
	1	mimbik-mimbik	glassy eyes
	1	rumongso salah	feeling guilty
	1	mesake	pitiful
	1	rupane lagi bingung mikirke sesuatu. ndelok seko mripate ketip siji. alaise medun,	looks like he is in confused, thinking about something. one of the eyes is downcast, one of

		lambene koyo ngemut sesuatu	the eyebrows is down, the lips look like he is chewing on something
	1	soro	suffering
	1	arep nangis	about to cry
	1	elek	ugly
	1	biasa wae	just casual (look)
Sadness [P5]	1	gelo	disappointed
	2	ngesakno (1) / mesake (1)	pitiful
	1	mbesengut	pouting
	2	susah	sad
	1	ekspresi datar tapi rodo gaya.	(a) flat expression but a bit acting
	1	wuyung	in love
	1	elek	ugly
	1	njembembek	about-to-cry look

With the Ekman SADNESS stimuli, the experimental Question 1 *Piye rupane* ‘How does he/she look’ was met with various responses involving emotion states and facial descriptions. On the recognition itself, there were only four responses that straightforwardly identified it as SADNESS, albeit with two different words for it, i.e. *susah* and *sedih*,¹² which both mean ‘sad’ for stimulus [F4], one response that recognized stimulus [M2] as *susah* ‘sad’ and two *susah* responses for stimulus [P5].

Some of the respondents seemed to give causal interpretations for the SADNESS facial expression, rather than label the emotion immediately. For instance, one respondent stated that stimulus [F4] depicted someone who looked like having ‘too many problems’ through *kakehan masalah* expression. Others described the stimulus as depicting someone who is *pusing* ‘stressed out’ or *soro* ‘suffering’. As for stimulus [M2], *soro* ‘suffering’ was also elicited, which can be seen as a cause for displaying the SADNESS facial expression. One respondent described how the facial expression could cause observers to feel ‘pitiful’ towards the person, describing the stimulus with the lexeme *mesake*. Similar responses were also found for stimulus [P5], i.e. *ngesakno* and *mesake*, which both mean ‘pitiful’, causing the observers to feel sorry for the person with the SADNESS facial expression.

There were some other emotions identified for the SADNESS stimuli rather than *susah*, namely, *pegel lan kaget* ‘annoyed and surprised’ and *rumongso salah* ‘feeling guilty’ (for stimulus [M2]). Furthermore, *gelo* ‘disappointed’ and *wuyung* ‘in love’ were different

¹² The latter is an Indonesian lexeme for SADNESS. This case is similar to the FEAR responses, see the explanation on footnote no. 9.

emotion states elicited for stimulus [P5]. As for the facial descriptions provided by the respondents, they also varied and some were (un)related to SADNESS. Those responses relating to SADNESS were *mrengut* ‘mouth pouting (due to sadness and/or annoyance)’ for stimulus [F4], *mimbik-mimbik* ‘glassy eyes’ and *arep nangis* ‘almost crying’ for stimulus [M2] and *mbesengut* ‘mouth pouting’ and *njembembek* ‘about-to-cry look’ for stimulus [P5]. Some facial descriptions that were not related to SADNESS were *elek* ‘ugly’ for stimulus [F4], which was also elicited for stimulus [M2] and [P5]. Neutral facial descriptions occurred for stimulus [M2] *biasa wae* ‘just casual (look)’ and stimulus [P5] *ekspresi datar tapi rodo gaya* ‘(a) flat expression but a bit acting’. Longer facial descriptions were also found for stimulus [F4]: *rupane lagi mendem sesuatu. Alise tengah munggah. koyo akeh pikiran* ‘it looks like she is keeping something. The eyebrows are frowning, as if thinking so much’ and stimulus [M2]: *rupane lagi bingung mikirke sesuatu. Ndelok seko mripate ketip siji. Alise medun, lambene koyo ngemut sesuatu* ‘looks like he is confused, thinking about something. One of the eyes is downcast, one of the eyebrows is down, and the lips look like he is chewing on something’. The lexeme *mendem* in the response for stimulus [F4] means ‘to keep thoughts or feelings deep in one’s heart and not share it with others’, whereas the lexeme *mikirke sesuatu* denotes a condition when one is contemplating something.

Table 10 lists all linguistic descriptions of the FEAR Ekman face stimuli [F4], [M2] and [P5] produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 10. EMOTION: SADNESS – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Sadness [F4]	1	susah banget + kuciwa	so troubled + disappointed
	1	bingung + pasrah + ngarep	confused + surrendering + hopeful
	5	susah (3) / kasusahan (1) / sedih (1)	sad
	1	mumet, akeh beban, koyo mendem hal sing angel dilakoni.	stressed, so much pressure, like holding back something that is hard to do
	1		suffering
	1	soro ngalamunke bojone	thinking about the spouse
Sadness [M2]	1	susah banget + gelo	so troubled + disappointed
	2	bingung	confused
	4	susah (3) / sedih (1)	sad
	1	koyo sedih meh nangis	looks like sad, almost crying
	1	arep nangis	about to cry
	1	mikir	thinking

Sadness [P5]	1	kuciwa + nesu sitik	disappointed + a bit angry
	7	susah (4) / sedih (3)	sad
	1	rodo gaya, rodo nyepeleкке. rodo males	a bit acting, a bit spiteful, a bit reluctant
	1	soro	suffering

When answering the Question 2, *Opo sing dirasake?* 'How does he/she feel?', most the Javanese respondents tended to be more direct in labeling the SADNESS facial expression with SADNESS lexemes. There were five responses labeling stimulus [F4] with *susah*, *kasusahan* and *sedih*,¹³ which means 'sad', 'sadness' and 'sad' respectively. There was one response with mixed emotions of 'very sad' and 'disappointed' for the same stimulus, *susah banget*, *kuciwa*. As for stimulus [M2], there were three responses of *susah* and one response of *sedih*; that demonstrated that there were four straightforward 'sad' responses labeling the SADNESS facial expression. One response with mixed emotion of 'very sad' and 'disappointed', *susah banget*, *gelo*, was also elicited for this stimulus. Another respondent mixed 'sad' with the facial description "cry, *koyo sedih meh nangis*" 'looks like sad, almost crying'. Interestingly, the number of responses that labeled stimulus [P5] with *susah* or *sedih* 'sad', is higher than for the other two stimuli.

Again, respondents mentioned other emotions for the Ekman SADNESS stimuli. One respondent identified stimulus [F4] as *bingung*, *pasrah*, *ngarep* 'confused, surrendering, hopeful', two identified stimulus [M2] as simply *bingung* 'confused', and one recognized stimulus [P5] as *kuciwa*, *nesu sitik* 'disappointed, a bit angry'.

Some behavioral descriptions found in the responses are *ngalamunke bojone* 'thinking about the spouse' for stimulus [F4], *mikir* 'thinking' and *arep nangis* 'almost crying' for stimulus [M2] and *rodo gaya*, *rodo nyepeleкке*, *rodo males* 'a bit acting, a bit spiteful, a bit reluctant' for stimulus [P5]. A situational description occurred for stimulus [F4], i.e. *mumet*, *akeh beban*, *koyo mendem hal sing angel dilakoni* 'stressed, so much pressure, like holding back something that is hard to do'. Also, one respondent made a causal interpretation for the SADNESS facial expression, i.e. *soro* 'suffering'.

¹³ Again we find *sedih*, a *Bahasa Indonesia* lexeme for 'sad' here. Further, detailed frequency for the lexemes of *susah*, *kasusahan* and *sedih* can be found in Table no. 10.

There were 10 matched responses out of thirty responses, which is 33.3% of the total responses. Again, this number shows that not all Javanese respondents perceived the Ekman SADNESS facial expressions as SADNESS consistently.

IV.1.1.6. SURPRISE

Table 11 lists all linguistic descriptions of the FEAR Ekman face stimuli [F6], [M1] and [P3] produced for the Question 1 'How does he/she look?' by the Javanese respondents.

Table 11. EMOTION: SURPRISE – Question 1 'How does he/she look?'

IMAGES	RESPONSE S	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Surprise [F6]	3	kaget	surprised
	1	kurang turu	lacking of sleeps
	1	mlongo	gawking
	1	ngeh	noticed (something)
	1	rupane bunder, ketok nek kui awak wonge lemu. Motone mendelik. alise munggah. kerutan neng mbathuk koyo wong ora percoyo karo wong sing diajak ketemu.	the face is round, like a chubby person. The eyes are popped out, the eyebrows raised up. The lines on the forehead makes it seem as if she distrust the person she is meeting
	2	gumun	perplexed
	1	biasa wae	just neutral
Surprise [M1]	6	kaget (5) / terkejut (1)	surprised
	1	koyo murid	looks like a student
	1	rupane ketok koyo kaget karo wedi seko mripate mendolo alisi munggah kabeh, kerut mbathuk e munggah. lambene mbukak sithik	looks like he is surprised and scared because the eyes are open wide, the eyebrows are slanted. The lines on the forehead are up. The lips are slightly ajar
	1	gumun	perplexed
	1	mlongo	gawking
Surprise [P3]	5	kaget (5)	surprised
	1	tuwek	old
	1	mendelik	eyes dilated
	1	mripate, mendolo koyo wong ora trimo	the eyes are open wide as if he cannot accept (an unpleasant fact)
	1	gumun	perplexed
	1	lucu	funny

The Ekman SURPRISE stimuli [F6], [M1] and [P3] received straightforward three, six and five SURPRISE responses respectively for experimental Question 1, *Piye rupane* 'How does he/she look?'. One respondent described stimulus [F6] with an elaborate facial description as *rupane bunder, ketok nek kui awak wonge lemu. Motone mendelik. Alise*

mungghah. Kerutan neng mbathuk koyo wong ora percoyo karo wong sing diajak ketemu ‘the face is round, like a chubby person. The eyes are popped out, the eyebrows raised up. The lines on the forehead make it seem as if he/she distrusts the person he/she is meeting’. The phrase *koyo wong ora percoyo* ‘like someone who distrusted’ described an attitude of someone who’s surprised due to his own disbelief. For stimulus [M1], one description recognized the SURPRISE emotion although it combined it with FEAR, *kaget* ‘surprised’ and *wedi* ‘scared’ in the sentence *rupane ketok koyo kaget karo wedi seko mripate mendolo alisi mungghah kabeh, kerut mbathuk e mungghah. Lambene mbukak sithik* ‘Looks like he is surprised and scared because the eyes are open wide, the eyebrows are slanted. The lines on the forehead are up. The lips are slightly ajar’.

Some other emotion states also occurred. For stimulus [F6], these were responses like *ngeh* ‘noticed (something)’, *biasa wae* ‘just neutral’ and *gumun* ‘perplexed’, which was also elicited for stimuli [M1] and [P3].

The participants also produced facial descriptions for the given stimuli. For stimuli [F6], and [M1] respondents expressed the SURPRISE emotion with *mlongo* ‘gawking’. As for stimulus [P3], the facial description was more about the eyes than the entire face, giving *mendelik* ‘eyes dilated’. Other responses were *kurang turu* ‘lacking of sleep’ for stimulus [F6], *koyo murid* ‘looks like a student’ for stimulus [M1], *tuwek* ‘old’, *lucu* ‘cute’ and a phrase *mripate, mendolo koyo wong ora trimo* ‘the eyes are open wide as if he/she cannot accept (an unpleasant fact)’. The latter response is indirectly depicting the SURPRISE emotion without actually labeling it; instead it describes the possible cause of it.

Table 12 lists all linguistic descriptions of the FEAR Ekman face stimuli [F6], [M1] and [P3] produced for the Question 2 *Opo sing dirasake?* ‘How does he/she feel?’ by the Javanese respondents.

Table 12. EMOTION: SURPRISE – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
Surprise [F6]	4	kaget	surprised
	1	bingung	confused
	1	pengen ngerti	wants to understand
	1	biasa	neutral
	1	sing dirasakke koyo ora percoyo karo wong sing neng ngarepane	what is felt is distrust from one who she puts trust in
	1	gumun	perplexed
	1	ngelih	hungry

Surprise [M1]	2	gumun (banget)	very perplexed
	1	koyo wong nemu jawaban	like someone who's found answers
	6	kaget	surprised
	1	koyo wong kaget + wedi + bingung	like surprised, scared, confused
Surprise [P3]	1	kaget + seneng + lego	surprised + happy + relieved
	4	kaget	surprised
	1	bingung	confused
	1	koyo wong ora trimo	like someone who cannot accept (an unpleasant fact)
	2	gumun	perplexed
	1	wedi	scared

In the responses collected for Question 2 *Opo sing dirasake?* 'How does he/she feel?', the responses that labeled the Ekman SURPRISE stimuli in the expected way slightly decreased by number. For stimulus [F6], there were only four responses that immediately recognized the emotion depicted, five for stimulus [M1] and another four for stimulus [P3]. Some other emotions and/or mixed ones were also expressed to identify the emotion under investigation: *biasa* 'neutral', *bingung* 'confused' – which could also be found for stimulus [P3], *ngelih* 'hungry' and *gumun* 'perplexed' for stimulus [F6]. As for the latter, there were two similar responses for stimuli [M1] and [P3] respectively. The SURPRISE facial expression was also explicitly identified as *wedi* 'scared' for stimulus [P3]. Mixed emotions could only be elicited for stimulus [M1], i.e. *koyo wong kaget, wedi, bingung* 'surprised, scared, confused' and *kaget, seneng, lego* 'surprised, happy, relieved' for stimulus [P3].

Some situational descriptions were also extracted for all stimuli. One respondent described stimulus [F6] as someone who *sing dirasakke koyo ora percoyo karo wong sing neng ngarepane* 'what is felt is distrust from one who she puts trust in'; as someone who *koyo wong nemu jawaban* 'like someone who's found answers' for stimulus [M1] and *koyo wong ora trimo* 'like someone who cannot accept (an unpleasant fact)' for stimulus [P3].

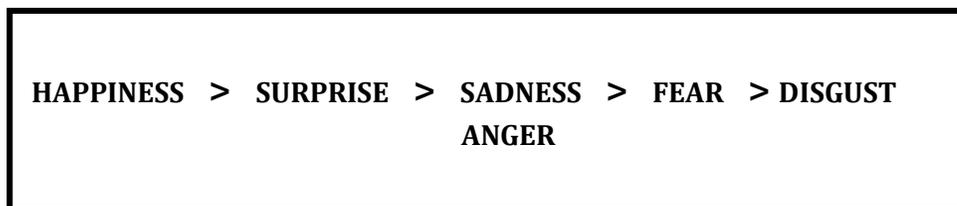
The pairing analysis of Questions 1 and 2 shows that there were 12 matched responses identifying the SURPRISE stimuli accurately, which is exactly 40% of the total responses. However, the result is not strong enough to support Ekman's claim on universal labels of basic emotions. When scrutinizing the database of the Javanese respondents for this

particular emotion, one can still find different emotions other than SURPRISE when being confronted with the image stimuli.

IV.1.1.7. Discussion

From all the six basic emotions under investigation for the Javanese language group, the HAPPINESS emotion received the highest number of matched responses (77%), followed by SURPRISE (40%), ANGER (33.3%) and SADNESS (33.3%), FEAR (13.3%) and DISGUST (7%). To sum up, the hierarchy of the perception of emotion in Javanese could be posited as follows.

Figure 2. Hierarchy of the six basic emotions for the Javanese language group (Ekman faces)



This hierarchy shows that to the Javanese respondents, HAPPINESS was relatively easier to perceive and recognize, contrary to the other emotions. However, there were a small number of responses that labeled the HAPPINESS stimuli as a posterior effect of the emotion recognition, such as *nyenengke* 'make others feel pleasant' and *apik*¹⁴ 'good'.

SURPRISE takes on the second position in the hierarchy after HAPPINESS, but note that only 40% of the respondents described the facial expressions for this emotion as expected by Ekman and his colleagues. Some respondents also recognized the SURPRISE stimuli as *seneng* 'happy', HAPPINESS, and *wedi* 'scared', FEAR. The fact that the SURPRISE stimulus was also recognized as FEAR is interesting because it supports Keeler's (1983) claim that Javanese people particularly fear unexpected conflicts in any kind of encounters

With regards to ANGER, only 33.3% of the respondents' reactions described the stimuli in the expected way. Here the FEAR perception, *medeni* 'scary' is identified as well. This implies that the ANGER facial expression for ANGER is considered as scary. Further, the Javanese respondents described the ANGER facial expression as denoting other emotions such as *kaget* 'surprised, SURPRISE and as; *ora seneng* 'unhappy', the opposite of HAPPINESS.

¹⁴ The adjective *apik* is often used in natural Javanese discourse to confirm a positive emotion expression and/or good behaviors that conform to the cultural norms.

The Javanese respondents perceived the SADNESS stimuli as *susah* and *sedih* with only 33.3% accuracy and both mean ‘sad’, but they did this rather rarely. Some respondents interpreted the stimuli by giving the cause of the SADNESS instead, namely *soro* ‘suffering’ and the emotional reaction, like for example “compassionate”, experienced by the respondents when they saw the stimuli: *mesake* and *ngesakno*, both mean ‘pitiful’. All in all, the SADNESS stimuli were not described in the way expected by Ekman and his colleagues.

With regards to FEAR with 7% accurate recognition of emotion, there were few Javanese respondents who recognized the emotion from the stimuli and labeled it as *wedi* ‘scared’, the majority of the respondents interpreted them as SURPRISE (17% of the total responses for FEAR) instead. This shows that the Ekman FEAR stimuli did not receive the reactions that Ekman and his colleagues would have predicted.

Lastly, the vast majority of the Javanese respondents did not have a strong recognition towards the Ekman DISGUST stimuli as expressing the claimed emotion. This is demonstrated by a very small number of responses containing the lexeme *jijik* ‘disgust’. The respondents described the facial expressions for DISGUST as expressing the emotions. However, some of the responses identified the stimuli as ANGER, FEAR, SURPRISE and UNHAPPINESS instead.

IV.1.2. Results of Ekman face experiment for the Dutch language group

Similar to the Javanese language group, HAPPINESS is also the most recognized emotion for the Ekman face stimuli, followed by SADNESS, SURPRISE, ANGER, DISGUST and FEAR. The hierarchy of the basic emotions in the Dutch language group is a bit different from that of the Javanese. The linguistic data are elaborated, analyzed and their detailed discussion are presented in the following subsections.

IV.1.2.1. ANGER

Table 13 lists all linguistic descriptions of the FEAR Ekman face stimuli [F2], [M6] and [P4] produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 13. EMOTION: ANGER – Question 1 ‘How does he/she look?’

IMAGES	FREQUENCY	DUTCH EXPRESSION	ENGLISH TRANSLATION
Anger [F2]	6	boos	angry
	1	grappig	funny
	1	streng	severely
	1	als een moslima	as a (female) Muslim
	1	agressief	aggressive

	1	boos, tanden ontbloot en gespannen	angry, teeth bared and tense
	1	verbaasd en boos	surprised and angry
Anger [M6]	5	boos (2), bozig (1), boos / afkeurend (1), gespannen en boos (1)	angry, angrily, angry / disapproving, tense and angry
	1	apathisch	apathetic
	1	lage wenkbrauwen	low eyebrows
	1	wenkbrauwen gefronst	eyebrows frowned
	1	alsof hij angst wil creeren	as if he wants to create fear
	1	onprettig	unpleasantly
	1	clownesk	clownish
	1	agressief	aggressive
Anger [P4]	1	observerend	observing
	1	beetje saai	little boring
	1	een wenkbrauw gefronst	one eyebrow furrowed
	1	chagrijnig	grumpy
	2	boos (en opstandig)	angry (and rebellious)
	1	neerslachtig	downcast
	1	Duits of Brits	German or British
	1	geconcentreerd	concentrated
	1	soort van verbaasd/verafschuwd	kind of surprised / horrified
	1	vreemd	strange
	1	wenkbrauwen wijzen naar beneden	eyebrows pointing down

For Question 1 *Hoe ziet haar gezicht kijken?* ‘How does he/she look?’ with the images Anger [F2], [M6] and [P4], there were six, five and two Dutch respondents who accurately labeled them with *boos* ‘angry’ respectively. The other Dutch respondents perceived the images as different emotions such as *grapping* ‘funny’, *streng* ‘severely’, *agressief* ‘aggressive’, *apathisch* ‘apathetic’, *onprettig* ‘unpleasantly’, *clownesk* ‘clownish’ and *verbaasd en boos* ‘surprised and angry’. Some other respondents described the stimuli with physical descriptions such as *wenkbrauwen gefronst* ‘eyebrows frowned’ and *lage wenkbrauwen* ‘low eyebrows’ and *tanden ontbloot en gespannen* ‘teeth bared and tense’, among others. The fact that Dutch respondents perceived various emotions when they were confronted with the Ekman stimuli for a strong emotion such as ANGER instead of straightforwardly labeling them as *boos* shows that they did not perceive the Ekman inanimate ANGER facial expression in the same way.¹⁵ Interestingly, the total population of

¹⁵ It is a natural reaction when some respondents provided physical descriptions instead of a label of a certain emotion, but specific research on this phenomenon is out of the scope of this study.

those who labeled the stimuli as *boos* is much smaller than those who did not for these particular stimuli. It can be argued that since the stimuli lack context, the interpretation of the ANGER facial expression is rather vague and less straightforward.

Table 14 lists all linguistic descriptions of the ANGER Ekman face stimuli [F2], [M6] and [P4] produced for the Question 2 ‘How does he/she feel?’ by the Dutch respondents.

Table 14. EMOTION: ANGER – Question 2 ‘How does he/she feel?’

IMAGES	FREQUENCY	DUTCH EXPRESSION	ENGLISH TRANSLATION
Anger [F2]	1	kwaad	evil
	7	boos (6), boos + naar (1)	angry, angry + horrible
	1	walging	disgust
	1	woedend	furious
	1	verontwaardigd (onterecht)	indignant (unfairly)
	1	aangevallen	attacked
Anger [M6]	1	verongelijkt	wronged
	5	boos	angry
	1	boos, ongelukkig	angry, unhappy
	1	hij keurt gedrag af	he inspects behavior of (someone)
	1	boos, wil intimideren	angry, want to bully (someone)
	1	niet begripvol	not being understanding
	1	gespannen	tense
1	in de war	in the confusion	
Anger [P4]	1	verafschuwd	hated
	1	raar	strange
	3	boos (2), bozig (1)	angry, angrily
	1	ongelukkig	unhappy
	2	verdrietig	sad
	1	serieus	serious
	1	superieur, geirriteerd	superior, irritability
	1	verbaasd	surprised
	1	gespannen, boos	tense, angry

When given Question 2 *Hoe voelt ze zich?* ‘How does he/she feel?’ together with the Ekman ANGER stimuli [F2], [M6], [P4]; 7 respondents identified it as *boos* ‘angry’ and 1 recognized it as *kwaad* ‘evil, bad, malicious, wicked, vicious’¹⁶ and 1 labeled it as *woedend* ‘furious’¹⁷ for stimulus [F2]; 5 respondents recognized it as *boos* ‘angry’, yet one added *ongelukkig* ‘unhappy’ and another one added a phrase *wil intimideren* ‘wanting to bully

¹⁶ According to the Dutch dictionary *Van Dale*, *boos* is synonymous with *kwaad*. The lexeme *kwaad* is actually the second meaning of *boos* in Dutch.

¹⁷ In English, *angry* can be synonymous with *furious*, but in Dutch these are two separate emotions and not overlapping. *Woedend* is when feeling a stronger and burning anger.

(someone)' for stimulus [M6]; and 3 respondents identified it as *boos* 'angry' and *bozig* 'angrily' combined, one recognized it as *gespannen* 'tense' and added *boos* for stimulus [P4]. While the question stimulus is very clear and the ANGER emotion is one of the strongest emotions in humans with a distinct facial expression, it is interesting to find out that the frequency of labeling the ANGER emotion is not that consistent among the Dutch respondents either.

The other emotions perceived by the respondents for the ANGER stimuli were *walging* 'disgust', *verontwaardigd (onterecht)* 'indignant (unfairly)', and *aangevallen* 'attacked' for stimulus [F2]; *verongelijkt* 'wronged', *hij keurt gedrag af* 'he inspect the behavior of (someone)', *niet begripvol* 'not being understanding', *gespannen* 'tense', *in de war* 'confused' for stimulus [M6]; and *verafschuwd* 'hated', *raar* 'strange', *ongelukkig* 'unhappy', *verdrietig* 'sad', *serieus* 'serious', *superieur*, *geirriteerd* 'superior, irritability' and *verbaasd* 'surprised' for stimulus [P4].

It is interesting to find that two respondents identified ANGER as 'sad' and one as 'surprised'. From physiological descriptions of ANGER, SADNESS and SURPRISE emotions, the facial features displayed when one feels one of these emotions are different. When one is feeling angry, one's eyebrows go down and together, the eyes glare and lips are narrowed; when one is feeling sad, one's eyelids are dropping, there is no focus in one's eyes and lip corners are slightly pulled down; and when being surprised, one's eyebrows are raised and eyes and mouth are wide open (Ekman, 2007). This indicates that the perception of the ANGER emotion among Dutch speakers is not consistent and that Ekman's claim on the universality of facial expressions is not conclusive even among the speakers within the same language group.

The three Ekman ANGER stimuli presented to twelve Dutch respondents yielded 36 pairs of responses for the two experiment questions. There were only nine responses (25%) that straightforwardly identified the stimuli with ANGER in both questions; other 26 respondents identified them with other emotions and/or with facial descriptions as mentioned above. This finding implies that the ANGER facial expressions displayed by the Ekman stimuli do not elicit the expected same responses in the Dutch respondents.

IV.1.2.2. DISGUST

Table 15 lists all linguistic descriptions of the DISGUST Ekman face stimuli [F5], [M5] and [P1] produced for the Question 1 'How does he/she look?' by the Dutch respondents.

Table 15. EMOTION: DISGUST - Question 1 'How does he/she look?'

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Disgust [F5]	4	boos	angry
	1	verkrompen	convulsed
	1	vooral veel tanden	especially many teeth
	1	gekreukeld	creased
	1	Spaans	Spanish
	1	kwaad	evil
	1	ze kijkt vies	she looks filthy
	1	boos en afschuw	anger and disgust
	1	boos, walgend	angry, disgusted
Disgust [M5]	1	walgend	disgusted, disgust
	1	eng	scary
	1	gezicht is een beetje samengeknepen alsof hij iets	face is a little pinched as if he sees something gross
	1	vies ziet	disgust
	2	walging	hilarious
	1	hilarisch	hateful
	1	haatvol	horrible
	1	afschuwelijk	full of disgust
	1	vol van walging	disgust and rebellious
	1	vol afschuw en opstandigheid opgetrokken mond en neus, samengetrokken wenkbrauwen	erected mouth and nose, frowning eyebrows
Disgust [P1]	1	walgend	disgusted
	1	hilarisch	hilarious
	1	mondhoeken naar beneden	mouth corners down
	1	afkeurend	disapprovingly
	1	verbaasd	surprised
	1	somber	sombre
	1	Duits of Frans of een ander naar volk	German or French or other unpleasant people
	1	weezinwekkend	repulsive
	1	vol afschuw	disgust
	1	afkeer, negatief	aversion, negative
	1	vol afschuw, mondhoeken naar beneden	horrified, mouth down
	1	opgetrokken mond	erected mouth

In Dutch culture, DISGUST is a very strong emotion and the speakers try to avoid expressing it altogether or being very careful expressing it. This behavior towards this particular emotion is in strong contrast with the behavior of Javanese speakers discussed

above. From three stimuli of Ekman faces, the DISGUST stimuli [F5], [M5] and [P1], with Question 1 *Hoe ziet haar gezicht kijken?* 'How does he/she look?', there were only two Dutch respondents who accurately labeled them as *afschuw* and *walgend* – both expressions mean 'disgust' – but they also added another motion expression, i.e. *boos* 'anger' for stimulus [F5], four Dutch respondents labeled *walgend*, *walging*, *vol van walging* and *vol afschew*, one respondent added *opstandigheid* 'rebellious' for stimulus [M5] and only one respondent accurately labeled stimulus [P1] as *walgend* 'disgust'. The other Dutch respondents perceived and identified the Ekman DISGUST stimuli as different emotions, such as *boos* 'angry', *kwaad* 'evil', *verkrompen* 'convulsed', *gekreukeld* 'creased', *hilarisch* 'hilarious', *verbaasd* 'surprised' and *somber* 'sombre, sad, gloomy', *weezinwekkend* 'repulsive'. It is found that DISGUST is perceived and labeled as *somber* by two respondents. *Somber* is often perceived as SADNESS. Interestingly, *somber* was produced for one of the SADNESS stimuli as well as for the DISGUST stimulus and vice versa, although by different respondents. Ekman (2007) claims that when one is feeling disgusted, one's nose is wrinkling and the upper lip is raised, while when feeling sad, one's upper eyelids drop, eyes are losing their focus and the lip corners are pulled down.

However, with the Ekman stimuli for the facial expression of DISGUST, Dutch respondents perceive other emotions than disgust itself. One respondent perceived one of the stimuli as *eng* 'scary'. Another one perceived the DISGUST facial expression as *haatvol* 'hateful'. Thus, it can be assumed that the Ekman DISGUST facial expression stimuli also inspire feelings of FEAR or HATE in Dutch culture.¹⁸ Others gave some physical descriptions of the face such as *vol afschuw*¹⁹, *mondhoeken naar beneden* 'mouth corners down', *opgetrokken mond en neus, samengetrokken wenkbrauwen* 'erected mouth and nose, frowning eyebrows' and *ze kijkt vies* 'she looks dirty', among others.

Table 16 lists all linguistic descriptions of the DISGUST Ekman face stimuli [F5], [M5] and [P1] produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

¹⁸ To verify this assumption, further investigation is needed that involves a larger number of respondents.

¹⁹ *Afschuw* in Dutch denotes two different semantic meaning, i.e. 'horror' and 'disgust'. Both semantic domains are sometimes blended in natural discourses, depending on the context.

Table 16. EMOTION: DISGUST – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Disgust [F5]	5	boos	angry
	1	niet zo lekker	not so tasty
	1	boos, walgend	angry, disgusted
	1	pijnlijk	painful
	1	verafschuwd	detest
	1	walging	disgust
	1	ze walgt ergens van	she loathes something
	1	walging, afkeer	disgust, revulsion
Disgust [M5]	4	(vol) walging (3), walgend (1)	disgust, disgusted
	3	boos	angry
	1	hij keurt iets af	he inspects something
	1	boos/teleurgesteld	angry / disappointed
	1	geirriteerd	annoyed
	1	drammerig als een vervelend kind dat niet zijn zin krijgt	pushy like an annoying child who doesn't get his way
	1	onprettig	unpleasantly
Disgust [P1]	3	vol walging (1), walgend (1), vol afkeer (1)	full of disgust, disgust, disgust
	1	verheven	superior
	1	verdrietig	sad
	1	naar	horrible
	1	hij is het ergens niet mee eens	he does not agree with smth
	1	verbaasd, onzeker	puzzled, uncertain
	1	neutraal	neutral
	1	verafschuwd	hated
	1	teleurgesteld	disappointed
	1	hij walgt van het een of ander	he is disgusted by smth or other

As for the Question 2, *Hoe voelt ze zich?* ‘How does he/she feel?’, there was only one respondent straightforwardly identified stimulus [F5] as DISGUST, one described it with a phrase *ze walgt ergens van* ‘she loathes somewhere’, one added *afkeer* ‘revulsion’ after disgust; but for stimulus [M5], there are four respondents who recognized and labeled it as *(vol) walging* ‘disgust’, *walgend* ‘disgusted’ and 3 respondents labeled the DISGUST stimulus [P1] as *vol walging*, *vol afkeer*, both means ‘disgust’ and *walgend* ‘disgusted’.

DISGUST was also recognized and perceived as other emotions by the Dutch respondents. It is profoundly interesting to find that DISGUST is labeled as *boos* ‘angry’ more often than as ‘disgust’ itself by the majority of Dutch respondents. There were five respectively three respondents who identified the DISGUST stimuli [F5] and [P1] as *boos*. Some other interesting different emotions identified by the respondents for these stimuli were *pijnlijk* ‘painful’, *verafschuwd* ‘hated’, *boos/teleurgesteld* ‘angry / disappointed’, *geirriteerd* ‘annoyed’, *onprettig* ‘unpleasantly’, *verheven* ‘elevated’, *verdrietig* ‘sad’, *verbaasd, onzeker*

‘surprised, uncertain’, *neutral* ‘neutral’, *verafschuwd* ‘hated’, *teleurgesteld* ‘disappointed’. Others described the DISGUST stimuli by giving some phrases such as *niet zo lekker* ‘not so good’, *hij keurt iets af* ‘he approves something’, *drammerig als een vervelend kind dat niet zijn zin krijgt* ‘pushy like an annoying child who doesn’t get his way’, *hij is het ergens niet mee eens* ‘he does not agree with something’, *hij walgt van het een of ander* ‘he is disgusted by something or other’.

From all the three Ekman DISGUST stimuli, out of 36 responses there were only four paired responses (11.1%) that straightforwardly associated the stimuli with DISGUST for both questions; the other 26 identified them with other emotions and/or with facial descriptions as mentioned above. The fact that many of the respondents recognized and labeled them as ANGER (14% of the paired responses), more than they could recognize DISGUST, i.e. 5:4 paired responses, suggests that both DISGUST and ANGER could be perceived and recognized interchangeably or that one emotion is overlapping with the other in Dutch culture.

IV.1.2.3. FEAR

Table 17 lists all linguistic descriptions of the FEAR Ekman face stimuli [F3], [M4] and [P6] produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 17. EMOTION: FEAR – Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Fear [F3]	1	geagiteerd	agitated
	2	grote ogen	big eyes
	1	grote ogen, wenkbrauwen hoog	big eyes, high eyebrows
	1	angstig	anxious(ly)
	1	verbaast	amazed
	1	als een oude Spaanse vrouw	like an old Spanish woman
	1	geschrokken	shocked (due to fear)
	1	verafschuwd	detest
	1	verbaasd, geschokt	amazed, shocked
	1	doodsbang	terrified
	1	gerimpeld voorhoofd, opengesperde ogen	wrinkled forehead, wide-eyed
Fear [M4]	1	bang	scared
	1	opgetrokken wenkbrauwen	raised eyebrows
	3	geschrokken	shocked (due to fear)
	2	angstig	anxiously
	1	verrast	surprised
	1	nog steeds oud en lelijk	still old and ugly

	1 1 1	bangig verbaasd en gespannen gerimpeld voorhoofd, open mond, opgetrokken neus	kind of scared surprised and tense wrinkled forehead, open mouth, raised nose
Fear [P6]	3 2 2 1 1 1 1 1	geschrokken ook weer grote ogen, hele grote ogen verbaasd neutraal bizar zeer grote ogen, erg geschrokken verschrikt verdrietig	shocked (due to fear) again big eyes, very big eyes surprised neutral bizarre very large eyes, very shocked fright sad

FEAR is one of the primitive emotions needed for survival when being exposed to danger and hence it is considered to be one of the strongest emotions across species. It is expected that the facial expression of FEAR can be perceived and understood similarly by most of living creatures. However, in general, the Dutch respondents did not perceive the Ekman FEAR stimuli as expressions of people who feel scared. For the Ekman Fear stimuli with Question 1 *Hoe ziet haar gezicht kijken?* ‘how does he/she look?’, there was only one respondent who correctly labeled image [F3] as *doodsbang* ‘terrified’; two respondents labeled image [M4] as *bang* and *bangig* ‘scared’ and ‘kind of scared’ respectively and only one respondent perceived image [P6] as *verschrikt* ‘frightened’. Others labeled the aforementioned stimuli with different emotions such as *angstig* ‘anxious’, *verbaast/verbaasd* ‘amazed’/‘surprised’, *geschrokken* ‘shocked (due to fear)’, *verafschuwd* ‘full of hate’, and *geschokt* ‘shocked’. The respondents also reacted to these facial expression stimuli with the descriptions *verdrietig* ‘sad’ or even *neutraal* ‘neutral’.

Other descriptions of facial expressions also occurred, such *grote ogen, wenkbrauwen hoog* ‘big eyes, high eyebrows’, *gerimpeld voorhoofd*, ‘wrinkled forehead’ *opengesperde ogen* ‘wide-eyed’, *opgetrokken neus*, ‘raised nose’. Physical descriptions were also given, such as *nog steeds oud en lelijk* ‘still old and ugly’ and *as als een oude Spaanse vrouw* ‘like an old Spanish woman’.

Table 18 lists all linguistic descriptions of the FEAR Ekman face stimuli [F3], [M4] and [P6] produced for the Question 2 ‘How does he/she feel?’ by the Dutch respondents.

Table 18. EMOTION: FEAR – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Fear [F3]	4	bang	scared
	3	geschrokken	shocked (due to fear)
	1	bang, geschrokken	scared, frightened
	1	bang, onzeker	scared, uncertain
	1	ongemakkelijk	uncomfortable
	1	verbaasd, geschrokken en walgend	surprised, shocked (due to fear) and disgusted
	1	geschokt, verdrietig	shocked, sad
Fear [M4]	5	bang	scared
	1	verschrikt	fright
	1	geschrokken	shocked (due to fear)
	1	verbaasd	surprised
	1	gespannen	tense
	1	ongemakkelijk	uncomfortable
	1	geen specifiek gevoel, hij trekt deze gekke bek voor een fotoshoot, dat is zijn werk	no specific sense, he pulls this funny face for a photo shoot, that's his job
Fear [P6]	1	geschrokken	Shocked (due to fear)
	1	overvallen	raided
	1	schuldig	guilty
	1	bang, verdrietig	scared, sad
	1	bang	scared
	1	verrast	surprised
	1	verdrietig / terneergeslagen	sad / depressed
	2	verbaasd	surprised
	1	geschrokken	shocked (due to fear)
	1	geschokt, op een zeer negatieve manier	shocked, in a very negative way
	1	geschokt	shocked

With Question 2 *Hoe voelt ze zich?* ‘How does he/she feel’, more Dutch respondents identified the Ekman stimuli with the expression of FEAR. For stimulus [F3], there were five respondents who directly recognized it as *bang* ‘scared’, one respondent answered *geschrokken* ‘shocked (because of fear)’ and another one produced *onzeker* ‘uncertain’. Three respondents identified it simply as *geschrokken* ‘shocked (because of fear)’. *Geschrokken* ‘shocked’ refers more to the physical reaction one experiences when being exposed to outside stimuli that cause fear. It does not describe the FEAR emotion itself. Other emotions elicited from this stimulus were *ongemakkelijk* ‘uncomfortable’, *verbaasd*, *geschrokken en walgend* ‘surprised, shocked and disgusted’, *geschokt, verdrietig* ‘shocked, sad’. Apparently, to some respondents, this particular stimulus was not directly perceived as displaying FEAR. As for stimulus [M4], six respondents labeled it as *bang* ‘scared’ but one

added it with *geschrokken* ‘shocked’/‘shocked’, one recognized it as *verschrikt* ‘fright’ while others labeled it with different emotions such as *verbaasd* ‘surprised’, *gespannen* ‘tense’, *ongemakkelijk* ‘uncomfortable’ and one did not label it with any emotion expression but gave an unrelated description instead. Interestingly, with stimulus [P6], there were only two respondents who recognized and labeled it as *bang* ‘scared’, one of them produced the expression *verdrietig* ‘sad’ and one labeled it with *geschrokken* ‘shocked’. Others came with various responses, such as *schuldig* ‘guilty’, *verrast* ‘surprised’, *verbaasd* ‘surprised’, *verdrietig/terneergeslagen* ‘sad / depressed’, and two identified it as a physical reaction *geschokt* ‘shocked’ and one referred to it with a phrase *op een zeer negatieve manier* ‘in a very negative way’. Finally, one respondent identified it with a cause for fear, namely *overvallen* ‘raid’. There is no particular explanation for this relatively big variation across the Dutch respondents’ reactions in identifying this particular stimulus. It could well be that the facial expression depicting FEAR produced by the male Caucasian does not express FEAR as vividly as stimuli [F3] and [M4]. But this would falsify Ekman’s claims with respect to the description and the expression of this “universal” emotion, too.

The pairing analysis resulted in 9 matched responses, i.e. 25% out of 36 responses, which are consistently identified the stimuli with FEAR. This means that the Ekman stimuli do not elicit the expected homogeneous reaction and recognition of the emotion FEAR. Interestingly, FEAR was also identified as SADNESS and SURPRISE. It could also be that the way Dutch respondents express their fear could be different from American ones. Still, this interpretation implies that facial expressions may be more cultural-specific than previously assumed.

IV.1.2.4. HAPPINESS

Table 19 lists all linguistic descriptions of the FEAR Ekman face stimuli [F1], [M3] and [P2] produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 19. EMOTION: HAPPINESS– Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Happiness [F1]	1	mooi	beautiful
	4	breed/vrolijk/blij (en) grote lachend	broadly/cheerfully, happy, big laughing
	5	blij, vrolijk	joyful, cheerful
	1	Spaans	Spanish

	1	vriendelijk	friendly
Happiness [M3]	1	lachen als een boer met kiespijn	laughing like a farmer with toothache
	1	lachrimpels	laugh wrinkles
	5	blij, gelukkig, (heel) vrolijk	joyful, happy, (very) cheerful
	1	open	open
	1	clownesk	clownish
	1	breed lachend, vrolijk	wide smiling, cheerful
	1	blij, grote lachend	happy, big laughter
	1	vrolijk en lachend	cheerful and smiling
Happiness [P2]	4	(vrolijk), (open mond), (erg blij, grote) lachend	(cheerfully), (open mouth), (very happy, big) laughing
	1	heel aardig	very nice
	6	vrolijk, blij	cheerful, joyful
	1	Amerikaans	American

As to the Ekman HAPPINESS stimuli and Question 1 *Hoe ziet haar gezicht kijken?* 'how does he/she look?', many of the Dutch respondents identified the Ekman HAPPINESS stimuli with *blij* 'joyful', *vrolijk* 'cheerful' and *gelukkig* 'happy'; many others described the emotion with an emotional reaction such as 'to laugh' together with emotive adjectives and adverbs, such as 'cheerfully'. The descriptions for this particular emotion do not vary too much. This suggests that the stimuli for HAPPINESS are very well recognized by Dutch speakers as expressing this emotion. For stimulus image [F1], there were five respondents who identified it as *blij* 'joyful' and *vrolijk* 'joyful' combined. As for stimulus images [M3] and [P2], five respondents and six respondents respectively labeled these as *blij*, *gelukkig*, and (*heel*) *vrolijk* all combined. Rather than mentioning facial features like in the aforementioned descriptions, respondents described the stimulus images with behaviors such as *vrolijk lachend* 'cheerfully laughing' and *grote lach* 'big laughter', for instance. Four respondents labeled stimulus image [F1] as *breed/vrolijk/blij (en) grote lachend* 'broad/cheerful/joyful (and) big laughter', three respondents and four respondents respectively labeled stimulus images [M3] and [P2] with quite similar descriptions. The rest of the respondents identified the HAPPINESS stimuli as *mooi* 'beautiful', *vriendelijk* 'friendly', *open* 'open', *heel aardig* 'very nice', *Spaans* 'Spanishes' and *Amerikaans* 'Americans'. Interestingly, there is one idiom found in the elicitation of HAPPINESS expressions in Dutch, i.e. *lachen al seen boer kiespijn*, which means

laughing like a farmer with toothache.²⁰ Most respondents reacted to the Ekman HAPPINESS stimuli in the way predicted by Ekman and his colleagues.

Table 20 lists all linguistic descriptions of the HAPPINESS Ekman face stimuli [F1], [M3] and [P2] produced for the Question 2 ‘How does he/she feel?’

Table 20. EMOTION: HAPPINESS – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Happiness [F1]	8	blij	joyful
	2	gelukkig	happy
	1	vrolijk	cheerful
	1	als een Pharrell Williams liedje (happy)	like a Pharrell Williams song (happy)
Happiness [M3]	5	blij	joyful
	1	tevreden	satisfied
	1	gelukkig + vrolijk	happy, cheerful
	2	blij/gelukkig	joyful/happy
	1	ongemakkelijk	uncomfortable
	1	vrolijk	cheerful
Happiness [P2]	1	superhappy	super happy
	4	blij	joyful
	1	goed	good
	2	gelukkig	happy
	1	blij + gelukkig + lekker	joyful, happy, good
	1	blij + gelukkig	joyful, happy
	1	blij en opgetogen	joyful and elated
	1	opgewekt, trots, nationalistisch	excited, proud, nationalistic
1	vrolijk	cheerful	

The Dutch responses to Question 2 *Hoe voelt ze zich?* ‘how does he/she feel?’ with respect to the HAPPINESS stimuli [F1], [M3] and [P2] were as follows: eight respondents recognized them as *blij* ‘joyful’, two identified them with *gelukkig* ‘happy’ and one with *vrolijk* ‘cheerful’ for stimulus [F1]; five respondents labeled stimulus [M3] with *blij* ‘joyful’, one with *vrolijk* ‘cheerful’, one identified them as *superhappy* ‘super happy’, three mixed two feelings, i.e. one recognized them as *gelukkig, vrolijk* ‘happy, cheerful’ and the other two perceived it as *blij/gelukkig* ‘joyful/happy’. Two respondents provided different expressions: one recognized them as *tevreden* ‘satisfied’ and another one even identified them as *ongemakkelijk* ‘uncomfortable’; as for stimulus [P2], four respondents perceived it as *blij*

²⁰ This idiom conveys the meaning of insincere laughter made by someone during a conversation with an interlocutor for politeness reason only.

'joyful', two identified it as *gelukkig* 'happy', 1 as *vrolijk* 'cheerful' and 1 as *goed* 'goed'. Four respondents provided mixed emotions. One identified it with *blij, gelukkig* 'joyful, happy', *blij, gelukkig, lekker* 'joyful, happy, good', *blij en opgetogen* 'joyful and elated' and *opgewekt, trots, nationalistisch* 'excited, proud, nationalistic'. Overall, most of the Dutch respondents perceived the stimuli as HAPPINESS and labeled them with terms that have 'happy' connotations.

The pairing analysis of Questions 1 and 2 shows that there are 25 (69.4%) of the total 36 responses that are matched. This matching index is higher than the indices for the other emotions that were discussed so far within the Dutch language group. This indicates that most of the Dutch respondents agreed that the Ekman HAPPINESS stimuli represent the HAPPINESS emotion. Thus, the Ekman stimuli for HAPPINESS are recognized in the Dutch culture as predicted; this does not hold for the stimuli for the emotions ANGER, DISGUST and FEAR.

IV.1.2.5. SADNESS

Table 21 lists all linguistic descriptions of the SADNESS Ekman face stimuli [F4], [M2] and [P5] produced for the Question 1 'How does he/she look?' by the Dutch respondents.

Table 21. EMOTION: SADNESS – Question 1 'How does he/she look?'

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Sadness [F4]	1	medelijden	pity
	1	beetje scheef, hangende oogleden	little crooked, drooping eyelids
	1	mondhoeken naar beneden	mouth corners down
	4	verdrietig	sad
	1	ongelukkig	unhappy
	1	als een hele zieke oude Spaanse vrouw	like a very sick old Spanish woman
	1	treurig	sad
	1	vol medelijden bijeengetrokken wenkbrauwen	compassionately pulled together eyebrows
Sadness [M2]	1	vol afgrijzen	horror
	1	nog steeds veel rimpels	still many wrinkles
	1	ogen dichtgeknepen	eyes closed tightly
	1	verschrompeld	withered
	1	zielig	pathetic
	1	triest	sad
	1	oud en lelijk	old and ugly
	1	ontevreden	dissatisfied
	1	verdrietig	sad
	1	verdrietig, ongelooft	sad, disbelief

	1	verontwaardigd, afschuw	indignation, disgust
	1	sippe mond	gloomy mouth
Sadness [P5]	1	moeilijk	difficult
	1	hangende ogen	dropping eyes
	1	ogen een beetje dichtgeknepen	eyes slightly narrowed
	2	treurig	sad
	1	sneu	died
	1	triest	sad
	1	zielig	pathetic
	1	ongelukkig	unhappy
	1	verdrietig	sad
	1	verdrietig (hangende mondhoeken)	sad, dropping mouth
	1	sip	gloomy

The Dutch words for SADNESS elicited from the stimuli images [F4], [M2] and [P5], with Question 1 *Hoe ziet haar gezicht kijken?* 'How does he/she look?', were *triest* 'sad, murky, gloomy', *treurig* 'sad, sorrowful, mournful', *verdrietig* 'sad', *sip* 'gloomy' and *zielig* 'pathetic'. Stimulus image [F4] was identified as *verdrietig* and *treurig* 'sad' by five respondents. The other emotions elicited for this stimulus are *ongelukkig* 'unhappy', *(vol) medelijden* 'compassionate(ly)'. There were descriptions of facial features and appearance elicited for this particular stimulus such as *beetje scheef*, *hangende oogleden* 'little crooked, drooping eyelids' and *mondhoeken naar beneden* 'mouth corners down' and *als een hele zieke oude Spaanse vrouw* 'like a very sick old Spanish woman'. Interestingly, stimulus image [M2] received more variation of descriptions. There were only 3 respondents who identified it simply as *triest* and *verdrietig* 'sad', and one of them added *ongeloof* 'disbelief'. This stimulus was also labeled with other emotion expressions, such as *vol afgrijzen* 'horror', *verschrompeld* 'withered', *zielig* 'pathetic', *ontevreden* 'dissatisfied' and – uniquely – as *verontwaardigd, afschuw* 'indignation, disgust'. As to the DISGUST label for this SADNESS stimulus, it was found earlier in the DISGUST section for Dutch language group (see p. 42) that one of the DISGUST stimuli was identified as *somber* 'sombre, sad' by two Dutch respondents. The fact that both SADNESS and DISGUST stimuli were identified by different Dutch respondents interchangeably, even though the frequency of occurrence was not high, may imply that the Ekman facial expressions for DISGUST and SADNESS may be displayed conversely among the Dutch. However, further investigation would be needed to validate this hypothesis.

Table 22 lists all linguistic descriptions of the SADNESS Ekman face stimuli [F4], [M2] and [P5] produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

Table 22. EMOTION: SADNESS – Question 2 ‘How does he/she feel?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Sadness [F4]	9	verdrietig	sad
	1	triest	sad
	1	gecompassioneerd	compassionately
	1	beroerd	bad
Sadness [M2]	6	(heel) verdrietig	sad
	1	verdrietig, geschokt	sad, shocked
	1	teleurgesteld	disappointed
	1	walging	disgust
	1	vreselijk slecht	terribly bad
	1	verontwaardigd	indignantly
	1	bang en verdrietig	afraid and sad
Sadness [P5]	8	verdrietig	sad
	1	ongelukkig	unhappy
	1	teleurgesteld	disappointed
	1	niet goed	not good
	1	neutraal	neutral

As for Question 2 *Hoe voelt ze zich?* ‘How does he/she feel?’, more Dutch respondents identified stimuli [F4], [M2] and [P5] straightforwardly as SADNESS. For stimulus [F4], nine respondents recognized it as *verdrietig* ‘sad’ and one as *triest* ‘sad’. The other two labeled it as *gecompassioneerd* ‘compassionately’ and *beroerd* ‘bad’. There is more variation in the description of stimulus [M2]: only six respondents identified it as SADNESS. One respondent added *geschokt* ‘shocked’ to *verdrietig* ‘sad’, others recognized it as *teleurgesteld* ‘disappointed’, *vreselijk slecht* ‘terribly bad’, *verontwaardigd* ‘indignantly’ and one preferred to label it as *bang* ‘afraid’ first and then added *verdrietig* ‘sad’. Interestingly, again, one recognized it as *walging* ‘disgust’. This implies that even the SADNESS stimuli may be perceived together with other emotions by the Dutch respondents. With eight responses, stimulus [P5] received a higher frequency for *verdrietig* ‘sad’. Others identified it as *ongelukkig* ‘unhappy’, *teleurgesteld* ‘disappointed’, *niet goed* ‘not good’ and even *neutraal* ‘neutral’.

Despite the fact that the Dutch respondents identified the stimuli as SADNESS more often in answering Question 2 than in answering Question 1, the pairing analysis for both stimuli Question 1 and Question 2 shows that there were 14 matched responses. That means it was only 39% out of 36 responses that identified the SADNESS stimuli as accurately.

IV.1.2.6. SURPRISE

Table 23 lists all linguistic descriptions of the SADNESS Ekman face stimuli [F6], [M1] and [P3] produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 23. EMOTION: SURPRISE – Question 1 ‘How does he/she look?’

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Surprise [F6]	1	glimlach met opgetrokken wenkbrauwen	smile with raised eyebrows
	1	grote ogen, open mond	big eyes, open mouth
	1	wenkbrauwen hoog opgetrokken	eyebrows raised high
	4	verbaasd	surprised
	1	onschuldig	innocent
	1	uiting van blijheid	expressing joy
	1	rond en vermoeid	round and tired
	1	opgelucht en misschien verbaasd	relieved and perhaps surprised
	1	opgetrokken wenkbrauwen	raised eyebrows
Surprise [M1]	3	geschrokken (erg grote ogen)	shocked (due to fear) (very big eyes)
	4	verbaasd (gerimpeld voorhoofd)	surprised (wrinkled forehead)
	1	schuldig	guilty
	1	grote ogen, veel rimpels	big eyes, lots of wrinkles
	1	angstig	anxiously
	1	verschrikt, grote ogen	fright, big eyes
	1	komisch	comic
Surprise [P3]	1	gek	crazy
	1	grote ogen, mooi haar	big eyes, beautiful hair
	1	voorhoofd gefronst	forehead furrowed
	3	verbaasd,	surprised
	2	verrast	surprised
	1	Brits	British
	1	onnatuurlijk, verbaasd	unnatural, surprised
	1	verbaasd, grote ogen	surprised, big eyes
1	verbaasd, opengesperde ogen	surprised, his eyes wide	

Javanese has only one lexeme to describe the emotion of SURPRISE with respect to both emotion and physical reaction, namely *kaget*, but Dutch has the expressions *verassen* and *verbazen*. *Verassen* denotes ‘overtake, take aback and rush’ besides ‘surprise’ itself and *verbazen* conveys ‘amaze, astonish, startle and wonder’. *Verassen* is more neutral and it does not have positive nor negative connotations; *verbazen*, however, connotes with ‘wondering’. Question 1 *Hoe ziet haar gezicht kijken?* ‘how does he/she look?’ asked in connection with the SURPRISE stimulus image [F6], was answered by four respondents as *verbaasd* (*verbazen*) ‘surprised’; only one labeled it as *verassen* and combined it with ‘relief’

in the expression *opgelucht en misschien verbaasd* 'relieved and perhaps surprised'. The fact that there was *misschien* 'perhaps' before *verbaasd* indicates that the respondent was not entirely sure that this particular facial expression displayed the SURPRISE emotion. However, this stimulus was identified by other respondents with emotions other than SURPRISE, such as *uiting van blijheid* 'expressing joy', *rond en vermoeid*, 'round and tired' and *onschuldig* 'innocent'. The SURPRISE stimulus image [M1] was described as *verbazen* by four respondents but also identified as expressing different emotions such as *schuldig* 'guilty', *angstig* 'anxious', and *komisch* 'funny, weird, unusual'. Interestingly, no respondents perceived this particular stimulus as *verassen*. As for stimulus image [P3], five respondents identified it as *verbazen* or *verassen* only. One respondent added the adjective *onnatuurlijk* 'unnatural'. There was only one respondent who described the stimulus image as *gek* 'crazy', a mental state.

There were also respondents who described the stimuli using facial features such as *grote/opengesperde ogen* 'big/wide-open eyes', *gimlach met opgetrokken wenkbrauwen* 'smiling with raised eyebrows', *veel rimpels* 'lots of wrinkles', *gerimpeld voorhoofd* 'wrinkled forehead', *voorhoofd gefronst* 'forehead furrowed'.

Table 24 lists all linguistic descriptions of the SADNESS Ekman face stimuli [F6], [M1] and [P3] produced for the Question 2 'How does he/she look?' by the Dutch respondents.

Table 24. EMOTION: SURPRISE – Question 2 'How does he/she feel?'

IMAGES	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
Surprise [F6]	6	verbaasd	surprised
	1	geschrokken	shocked (due to fear)
	1	verbaasd, maar blij	surprised but happy
	1	opgelucht	relieved
	1	betrapt	caught
	2	positief verrast, blij verrast	(positive), (happy), surprised
Surprise [M1]	1	bang	scared
	4	verbaasd	surprised
	1	schuldbewust	guilty
	1	niet zo blij	not so joyful
	1	verbaasd, bang	puzzled, scared
	2	geschrokken	shocked (due to fear)
	1	verbaasd op een theatrale manier	surprised in a theatrical way
	1	geschokt	shocked
Surprise [P3]	6	verbaasd	surprised
	1	walging	disgust
	1	verbaasd, niet heel ongelukkig	surprised, not very unhappy

	1	verrast, verbaasd op een positieve manier	surprised, surprised in a positive way
	1	geschrokken/bang	shocked (due to fear) / scared
	1	geschrokken	shocked (due to fear)
	1	geschokt	shocked

With respect to Question 2, *Hoe voelt ze zich?* 'how does he/she feel?', there were six respondents who described stimulus [F6] as *verbaasd* 'surprised' and *positief verrast* 'positive surprise', two respondents labeled it as *positieve verrast* 'positively surprised' and *blij surprise* 'happily surprised', one identified it as *geschrokken* 'shocked (due to fear)', one perceived it as *opgelucht* 'relieved', one labeled it as *betragt* 'caught' and one came with a phrase, i.e. *verbaasd, maar blij* 'surprised but happy'. In general, the SURPRISE [F6] stimulus is perceived as positive surprise by the Dutch respondents. For stimulus [M2], there were only four respondents who identified it as *verbaasd* 'surprised', two respondents perceived it as *geschrokken* 'shocked (due to fear)' and one provided the phrase *verbaasd op een theatrale manier*, which means 'surprised in a theatrical way'. The other respondents' answers were more varied: they provided the descriptions '*schuldbewust* 'guilty', *geschokt* 'shocked', *niet zo blij* 'not so joyful', *verbaasd, bang* 'surprised, scared'. As to the last stimulus [P5], six respondents referred to it as SURPRISE, one recognized it as *geschrokken* 'shocked (due to fear)', one labeled it as *geschokt* 'shocked', two provided a phrase: *verbaasd, niet heel ongelukkig* 'surprised, not very unhappy' and *verrast, verbaasd op een positieve manier* 'surprised, surprised in a positive way'. Interestingly, one identified it as *walging* 'disgust' and another one was undecided between two emotions, i.e. *geschrokken/bang* 'shocked (due to fear)/scared'.

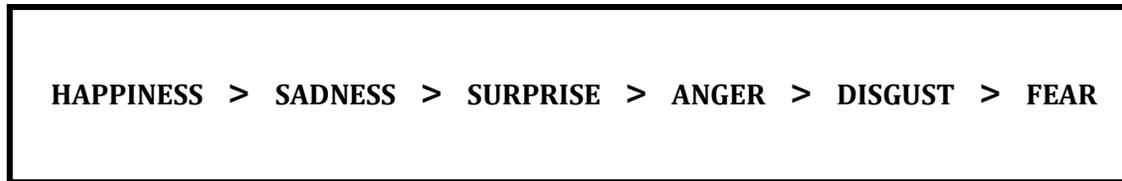
With the pairing analysis for Questions 1 and 2, there were 13 (36.1%) out of 36 responses which matched. This shows that the SURPRISE stimuli are easier recognized by the Dutch respondents than the stimuli for ANGER, DISGUST, FEAR. The stimuli for the emotions HAPPINESS and SADNESS, however, were easiest to recognize for this group of respondents.

IV.1.2.7. Discussion

In the Dutch groups, the six basic emotions rank differently. The HAPPINESS emotion received the highest number of matched responses (66.66%), followed by SADNESS (44.44%), SURPRISE (36.11%) ANGER (27.77%), DISGUST (11.11%) and FEAR (25%). To sum up,

the hierarchy of the perception of emotions in the Dutch language group is presented below in the figure below.

Figure 3. Hierarchy of the six basic emotions for the Dutch language group (Ekman faces)



Similar to the Javanese language group, the most recognized emotion from the Ekman stimuli is HAPPINESS. Specifically for the HAPPINESS emotion, the Dutch responses elicited were *blij* 'joyful', *vrolijk* 'cheerful', *gelukkig* 'happy' and *lachend* 'laughter'. The HAPPINESS emotion stimuli were not mixed up with other emotions in the Dutch language group.

SADNESS is ranked on the second position in the emotion hierarchy. Apart from the fact that it was identified as SADNESS and labeled with the expressions such as *verdrietig*, *treurig*, *triest* – which all means 'sad' and *sip* 'gloom'; it was also recognized as DISGUST, FEAR and UNHAPPINESS. Not even half of the respondents recognized the SADNESS stimuli in the expected way.

The Dutch respondents identified SURPRISE with *verbaasd* and *verrast*, which both means 'surprised' but the former one has a connotation of 'wonder' while the latter is neutral. Other Dutch respondents also recognized the SURPRISE stimuli with other emotions, such as ANGER, FEAR, HAPPINESS and DISGUST. This finding shows that the responses were not yielding the results that Ekman et al. have expected.

ANGER received only a small number of accurate identifications from the Dutch respondents despite of the fact that it is one of the strongest human emotions. The lexemes elicited with the ANGER stimuli were e.g. *boos* 'anger' and its adjective form, *bozig* 'angry'. Further, there were some respondents who rather recognized it as DISGUST, SADNESS, SURPRISE and UNHAPPINESS.

Interestingly, the response elicitation for the Ekman DISGUST stimuli shows that DISGUST, expressed with *walging* 'disgust' and *walgend* 'disgusted', was also identified as ANGER, *boos*. The number of the responses that labeled the stimuli as DISGUST and as ANGER is exactly the same. As mentioned earlier, this suggests that DISGUST and ANGER may overlap for the Dutch respondents. However this would need further investigation. Other emotions

recognized for the DISGUST stimuli were FEAR, SADNESS and SURPRISE. Again, the Ekman stimuli for DISGUST were not perceived in the predicted way by the Dutch respondents.

Like the DISGUST stimuli, the FEAR stimuli were only described by 11.11% in the predicted way. The respondents here used the expressions *bang* ‘scared’ and *verschrikt* ‘fright’. The FEAR emotion stimuli were also interpreted as SADNESS and SURPRISE.

IV.2. Results of the data elicitation with the “MREL clips”

From the data elicitation for the second experiment with the MREL clips as stimuli, the respondents for both Javanese and Dutch tended to be more precise in identifying the basic emotions under investigation. In this experiment they had to answer three questions in their own native language after being shown the stimuli. Those questions were ‘How does he/she look?’, ‘How does he/she feel?’ and ‘what may the protagonist say?’ The results and analysis of emotion recognition of both language groups for Question 1 and Question 2 will be matched and analyzed below. Since all the scenes in the clip stimuli embed a causal event, most of these clips show how emotions change due to the given event. For instance, in the HAPPINESS clip, one will see that there is a woman who looks very happy to see someone. Later they have to say goodbye and she feels sad about it. Therefore, there are two emotions being shown in this clip, i.e. HAPPINESS and SADNESS as a result of the causal event. The analysis for this experiment will take into account all emotions recognized in one stimulus.

IV.2.1. Results of MREL experiment for the Javanese language group

For the Javanese language group, some emotions such as ANGER, DISGUST, HAPPINESS and SADNESS are clustered together, while FEAR received less recognition (40% of the total responses) and SURPRISE was so poorly recognized. The detailed discussion is elaborated below.

IV.2.1.1. ANGER

Table 25 lists all linguistic descriptions of the ANGER MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 25. EMOTION: ANGER – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL	5	nesu	angry
[anger]	1	lumayan	not bad

	1	medeni	scary
	1	mbesengut, kagol	sulking, disappointed
	1	elek	ugly
	1	elek, nesu	ugly, angry

Five Javanese respondents identified the MREL ANGER stimulus for Question 1 *Piye rupane* ‘How does he/she look?’ with accurate responses, i.e. *nesu* ‘angry’ and one added an adjective, *elek* ‘ugly’. One respondent interpreted the stimulus as *medeni* ‘scary’, which was more into how one would feel when one perceives an angry person in Javanese culture. One response described it with both facial description and an emotion, i.e. *mbesengut, kagol* ‘sulking, disappointed’.

Table 26 lists all linguistic descriptions of the ANGER MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 26. EMOTION: ANGER – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [anger]	1	nesu banget + jijik	very angry + disgusted
	5	nesu	angry
	3	jengkel / kesel	annoyed
	1	sing dirasakke kagol lan nesu	what he’s feeling is disappointed and angry

For Question 2 *Opo sing dirasake* ‘How does he/she feel?’, there were also five respondents who straightforwardly recognized it as *nesu* ‘angry’. One respondent added DISGUST by using *jijik* ‘disgusted’, 2 respondents labeled the stimulus as *jengkel* and *kesel*, which both mean ‘annoyed’ and 1 described it with the phrase *sing dirasakke kagol lan nesu* ‘what he feels is disappointed and angry’.

The pairing analysis for Questions 1 and 2 shows that there were 5 matched responses out of 10, which is 50% from the total responses. The other five responses, such as *jengkel* and *kesel* ‘annoyed’, *kagol* ‘disappointed’, were not consistently matched since they fall into types of subcategorical emotion of ANGER (see Russell and Fehr, 1994) instead of ANGER itself.

IV.2.1.2. DISGUST

Table 27 lists all linguistic descriptions of the DISGUST MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 27. EMOTION: DISGUST – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [disgust]	3	jijik	disgusted
	1	koyok wong stress	looks like a stressed out person
	1	mesake	pitiful
	1	kaget nek ono uler	surprised because there’s a snake
	1	ngelih	hungry
	1	gak seneng + jijik	unhappy + disgusted
	1	elek	ugly
	1	mblenek	nauseatic

The MREL DISGUST for Question 1, *Piye rupane?* ‘How does he/she look?, was identified straightforwardly as DISGUST only by three Javanese respondents. Others perceived it as *mesake* ‘pitiful’, *kaget* ‘surprised’, *mblenek* ‘nauseatic’. One respondent mixed *jijik* ‘disgusted’ with *gak seneng* ‘unhappy’. The rest of responses were not relating to any emotions or look.

Table 28 lists all linguistic descriptions of the DISGUST MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 28. EMOTION: DISGUST – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [disgust]	1	risi banget + eneg	uncomfortable, nauseous
	1	koyok wong stress, kaget, jijik	like a stressed out person, surprised, disgusted
	1	jijik + arep gumoh	disgusted + wants to vomit
	3	jijik	disgusted
	1	jengkel + jijik	upset + disgusted
	1	muntah	throwing up
	1	gak seneng + jijik	unhappy + disgusted
	1	eneg	nauseous

Responses to Question 2, *Opo sing dirasake* ‘How does he/she feel?’ were similar to those to Question 1. There were only three responses that directly labeled the stimulus as *jijik* ‘disgusted’, four respondents mixed it with other emotions such as *kaget* ‘surprised’, *jengkel* ‘annoyed’, *gak seneng* ‘unhappy’ and one mixed it with a phrase describing a physical reaction: *arep gumoh* ‘wants to vomit’.

There were 5 matched responses from the total elicitation of DISGUST as the result of the pairing analysis for Question 1 and 2, which is 50% from the total responses. Other emotions recognized for the MREL DISGUST stimulus were SURPRISE and UNHAPPINESS.

IV.2.1.3. FEAR

Table 29 lists all linguistic descriptions of the FEAR MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 29. EMOTION: FEAR – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [fear]	1	susah	sad
	1	ayu	pretty
	2	wedi	scared
	1	kaget, wedi	surprised, scared
	1	kaget, lambene nyinyir	surprised, the lips are pouted
	1	jenggirat	gets up and stand up directly
	1	jijik, wedi	disgusted, scared
	1	kaget	surprised
	1	gilo	disgusting

Interestingly, there were only 2 straightforward responses for the FEAR stimulus, expressed with the *wedi* ‘scared’. The other 2 responses referred to different emotions, i.e. *kaget* ‘surprised’ and *jijik* ‘disgusted’, respectively. Interestingly, FEAR was also identified as DISGUST, labeled with *gilo* ‘disgusting and SURPRISE, labeled with *kaget* ‘surprised’, and as SADNESS labeled with the expression *susah* ‘sad’.

Table 30 lists all linguistic descriptions of the FEAR MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 30. EMOTION: FEAR – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [fear]	1	kaget + risi + wedi	surprised, uncomfortable, scared
	1	kaget + jijik	surprised, disgusted
	2	jijik + wedi	surprised, scared
	1	wedi + jijik	scared, disgusted
	1	wedi karo mencit	scared of a mouse
	1	wedi+ jijik + kaget	scared, disgusted, surprised
	2	wedi	scared
	1	jijik	disgusted

The Javanese respondents not only recognized FEAR with the given stimulus, but also SURPRISE and DISGUST. There was only one response that directly identified the stimulus as FEAR. The other 6 were paired with either *kaget* ‘surprise’ and/or *jijik* ‘disgusted’. In the following table, the responses and their frequencies are presented.

The pairing analysis for Questions 1 and 2 shows that there were 4 responses that recognized the FEAR emotion consistently, although they came with other emotions. Similar

to the first two mentioned emotions, the recognized FEAR emotions are 40% of the total responses. Other dominant emotions identified were SURPRISE and DISGUST.

IV.2.1.4. HAPPINESS

Table 31 lists all linguistic descriptions of the HAPPINESS MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 31. EMOTION: HAPPINESS – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [happiness]	5	seneng / bungah	happy / joyful
	1	ayu lan nyempluk	pretty and chubby
	1	sumringah	joyful look
	1	kaget, seneng	surprised, happy
	1	rupane koyo ora seneng tapi kudu ngapusi seneng	it looks like she is not happy but must pretend to be happy
	1	basa-basi	wishy-washy

The HAPPINESS stimulus received more varied responses for Question 1, *Piye rupane?* ‘How does he/she look?’, however there were five respondents who straightforwardly perceived it as *seneng* ‘happy’ and *bungah* ‘joyful’. One happy facial expression was elicited, i.e. *sumringah* ‘joyful look’ and one added *kaget* ‘surprised’ to the *seneng* ‘happy’ response.

Table 32 lists all linguistic descriptions of the HAPPINESS MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 32. EMOTION: HAPPINESS – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [happiness]	2	seneng, bungah (banget)	happy, (so) joyful
	1	kaget, seneng, tresno	surprised, happy, in love
	1	kaget, seneng	surprised, happy
	2	seneng	Happy
	1	tombo kangen	missing someone
	1	mendem hal tapi kudu ketok seneng	hiding something but has to look happy
	1	biasa wae	just normal
	1	tresno	in love

With regard to Question 2, *Opo sing dirasake?* ‘How does he/she feel?’ most of the responses were mixed with other emotions. There were two straightforward responses identifying the HAPPINESS stimulus as *seneng* ‘happy’ and two responses recognized it as *seneng, bungah* ‘happy, joyful’. Further, there were three mixed responses, two consisted of

kaget, seneng ‘surprised, happy’ and one consisted of *kaget, seneng, tresno* ‘surprised, happy, love’. One response was with an expression *tresno* ‘love’. Others were less relevant to the stimulus.

Similar to the other MREL emotion stimuli discussed so far within the Javanese language group, the HAPPINESS stimulus also received 5 matched responses; this means that 50% of the respondents accurately identified the HAPPINESS stimulus. It should be noted that the HAPPINESS stimuli were also interpreted as SURPRISE and LOVE.

IV.2.1.5. SADNESS

Table 33 lists all linguistic descriptions of the SADNESS MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 33. EMOTION: SADNESS – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [sadness]	1	wedi	scared
	1	ayu, mesakno	pretty, pitiful
	2	mbrambangi	glassy eyes
	1	sedih, cemas	sad, worried
	1	rupane koyo wong kelangan, ra percoyo	it looks like someone who has lost sth, sth.smth., she couldn’t believe it.
	3	sedih / susah	sad
	1	bungah	happy

There were only three respondents who immediately identified the SADNESS stimulus as *sedih, susah* ‘sad’ for Question 1. One combined *sedih* ‘sad’ with *cemas* ‘worried’. Two other gave a physical reaction by describing when someone was about to cry, i.e. *mbrambangi*²¹ ‘glassy eyes’. One respondent perceived the SADNESS stimulus as FEAR by using the expression *wedi* ‘scared’, one described it *mesakno* ‘pitiful’. As for the latter, the respondent described what the respondent herself would be feeling, when she saw the scene. Interestingly, one respondent described the SADNESS stimulus it as *bungah* ‘joyful’ here.

Table 34 lists all linguistic descriptions of the SADNESS MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

²¹ *Mbrambangi* has a root ‘brambang’ means ‘shallot’. The respondent make an analogy of the event in the stimulus, that it makes someone cries, with a situation when someone peel onions or shallots.

Table 34. EMOTION: SADNESS – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [sadness]	1	khawatir, susah, wedi	worried, sad, scared
	1	seneng, susah, kangen, gak pingin pisah	happy, sad, missing someone, not wanting to be separated
	1	sedih, trenyuh	sad, touched
	4	sedih / susah	sad
	1	sedih, cemas	sad, worried
	1	sedih, seneng	sad, happy
	1	kelangan	losing something

With respect to Question 2, *Opo sing dirasakke?* ‘How does he/she feel?’, there were more elicitation responses with the lexeme *sedih, susah* ‘sad’, but some of them were combined with other emotions again. There were four responses that directly identified the SADNESS stimulus as *sedih* ‘sad’. Other respondents further, others described it as *khawatir, susah, wedi* ‘worried, sad, scared’; *seneng, susah, kangen, gak pingin pisah* ‘happy, sad, missing someone, not wanting to be separated’; *sedih, trenyuh* ‘sad, touched’; *sedih, cemas* ‘sad, worried’; *sedih, seneng* ‘sad, happy’ and the last expression described the cause of the SADNESS emotion, i.e. *kelangan* ‘losing something’. Other emotions that were with mentioned for Question 2 were FEAR and HAPPINESS. The possible explanation for the HAPPINESS expression here is due to the causal event embedded in the HAPPINESS clip, i.e. there is a woman who is happy to see someone but then she feels sad because they had to say good bye.

The results of the pairing analysis for Questions 1 and 2 show that there were only 5 matched responses for this stimulus; that are only 50% of the total responses. Other emotions that were identified for the SADNESS stimulus were HAPPINESS and FEAR.

IV.2.1.6. SURPRISE

Table 35 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Javanese respondents.

Table 35. EMOTION: SURPRISE – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [surprise]	1	seneng	happy
	1	koyok wong tangi turu	looks like someone who just woke up
	1	mlongo	gawking
	2	kaget, seneng	surprised, happy
	2	lucu	funny
	1	lumrah, aneh, ra percoyo	it’s usual but also strange, he disbelieved
	2	kaget	it surprised

Two Javanese respondents recognized the SURPRISE stimulus immediately with *kaget* ‘surprised’, while others gave various responses such as *kaget*, *seneng* ‘surprised, happy’; *seneng* ‘happy’ and *mlongo* ‘gawking’. The other responses were less relevant to the SURPRISE emotion.

Table 36 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Javanese respondents.

Table 36. EMOTION: SURPRISE – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	JAVANESE EXPRESSION	ENGLISH TRANSLATION
MREL [surprise]	1	kaget + bingung + seneng	surprised, confused, happy
	3	kaget + seneng	surprised, happy
	3	seneng	happy
	2	kaget	surprised
	1	ora percoyo entuk duit	disbelief after receiving money

As for Question 2, *Opo sing dirasake?* ‘How does he/she feel?’ the Javanese respondents produced the lexeme *kaget* ‘surprised’ more often than they did for Question 1: there were two straightforward mentions of *kaget* and another three respondents recognized the SURPRISE stimulus as HAPPINESS. One respondent recognized it as SURPRISE, HAPPINESS and CONFUSION who expressed them with lexemes *seneng* ‘happy’, *kaget* ‘surprised’ and *bingung* ‘confused’.

With the pairing analysis for Questions 1 and 2, it turns out that the matched response for this SURPRISE stimulus is only one, which is 10% of the total responses. The possible explanation for the Javanese respondents failing to label the SURPRISE stimulus accurately is the causal event embedded in the clip. The scene is about a man who finds some money accidentally. Therefore there are two emotions involved in the scene, i.e. SURPRISE and HAPPINESS. However, since SURPRISE is a short-termed emotion and HAPPINESS tends to stay longer, the Javanese respondents seemed to choose HAPPINESS over SURPRISE for this particular stimulus.

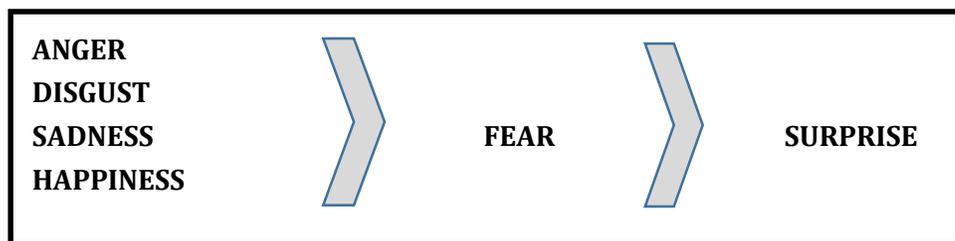
IV.2.1.7. Discussion

In the MREL experiment, the so-called basic emotions have a different rank in the Javanese group from that of Ekman's face experiment. Based on the pairing analysis for the whole matched responses of the emotions under investigation, for ANGER, DISGUST, SADNESS

and HAPPINESS there are 50% accurately matched responses. FEAR follows with 40% of matched responses and SURPRISE with only 10% of matched response. On the contrary, the basic emotions resulting from the Ekman face experiment for the Javanese are ranked as follow: ANGER, DISGUST, HAPPINESS and SADNESS stay in the same level, followed by FEAR and SURPRISE. The following figure demonstrates the hierarchy of the emotions in Javanese the language group for this experiment.

The fact that most of the Javanese respondents combined their emotion recognition for the given stimuli with other emotions may be due to the causal events embedded in the clips, and not because of their misinterpretation. The MREL clips represent a natural psychological mechanism of human emotion display when experiencing a certain meaningful event. This kind of event is demonstrated by the protagonist who changes his/her emotional reaction as a result of cause and effect relations.

Figure 4. Hierarchy of the six basic emotions for the Javanese language group (MREL)



In **Error! Reference source not found.** we can see that some emotions under investigations such ANGER, DISGUST, SADNESS and HAPPINESS are perceived and recognized with the same percentage of matched responses, i.e. 50%. I cannot provide an explanation why FEAR was not well perceived by the Javanese respondents in this experiment.²² With the fact that some emotions, such as ANGER, DISGUST, HAPPINESS and SADNESS are clustered together for the MREL experiment, it supports Barrett et al.'s claim (2007) that some other factors, such as context, causal events and body postures, are taken into account when perceiving emotions accurately.

²² The MREL FEAR stimulus might have been interpreted differently by the Javanese respondents due to cultural perception. The clip shows a woman who sees a mouse and feels scared of it. In Javanese, a mouse is not considered as a scary animal. Instead, it is thought to be disgusting. Therefore, most of the responses realized the lexeme *jijik* 'disgusted' and not the lexeme *wedi* 'scared'.

IV.2.2. Results of MREL experiment for the Dutch language group

The Dutch language group yielded higher results of matched responses for the MREL experiments when being compared to the Ekman face experiment. The HAPPINESS and ANGER emotions did not receive other emotion labels in the MREL elicitation, but FEAR was also identified as DISGUST and SADNESS, and SADNESS together with SURPRISE were also labeled as HAPPINESS. The main reason for this mixture of emotions is because the MREL clips embed causal events as the context for emotion recognition. More detailed discussion for each emotion is available in the following subsections.

IV.2.2.1. ANGER

Table 37 lists all linguistic descriptions of the ANGER MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 37. EMOTION: ANGER – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [anger]	2	(erg) kwaad	(very) angry
	1	agressief	aggressive
	1	mondhoeken naar beneden getrokken, ogen staan boos, veel rimpels	mouth drawn down, eyes are angry, lots of wrinkles
	1	neusvleugels opgetrokken, mondhoeken naar beneden, beetje eng	nostrils raised, mouth down, bit scary
	1	eerste geschrokken dan heel kwaad	first he got very shocked (due to fear), then very mad
	2		angry
	1	boos	mouth pulled down, brows pinched
	1	mond naar beneden getrokken, wenkbrauwen samengeknepen	furious
	1	woedend	angry, hateful
	1	boos + vol haat monsterlijk	monstrous

With respect to the Question 1 *Hoe ziet haar gezicht kijken?* ‘How does he/she look?’ the MREL stimulus received only two straightforward responses of *boos* ‘anger’, one response combined it with *vol haat* ‘hateful’ and one identified it as *woedend* ‘furious’. One response gave a facial description involving the lexeme *boos* ‘angry’. Others responses labeled the stimuli with *kwaad* ‘mad’ and *eerste geschrokken dan heel kwaad* ‘first he got very shocked, then very ‘mad’, *agressief* ‘aggressive’, *monsterlijk* ‘monstrous’. Other responses were more into facial descriptions without involving any emotions displayed by the actor in the stimulus.

Table 38 lists all linguistic descriptions of the ANGER MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Dutch respondents.

Table 38. EMOTION: ANGER – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [anger]	1	kwaad	mad
	1	geschrokken en echt heel boos	really shocked (due to fear) and very angry
	1	boos, verdrietig	angry, sad
	1	boos en geirriteerd	angry and irritated
	4	woedend (2), razend (1), woest (1)	furious
	4	boos	angry

With regard to the Question 2, *Hoe voelt ze zich?* ‘How does he/she feel?’ the Dutch respondents gave more uniform identifications for the stimulus. There are four immediate responses with *boos* ‘angry’, the other three mixed it with *geirriteerd* ‘irritated’, *verdrietig* ‘sad’ and *geschrokken* ‘shocked’. There were four responses involving synonyms of ‘furious’, i.e. *woedend*, *razend* and *woest*.

The pairing analysis for the Question 1 and Question 2 shows that there were eight matched responses. That means 67% of the total responses were accurately identified. The Dutch respondents did not label the ANGER stimulus with other emotion expressions. The reason for unmatched responses were that some of the Dutch respondents did not produce clear descriptions that correlated to ANGER.

IV.2.2.2. DISGUST

Table 39 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 39. EMOTION: DISGUST – Question 1 ‘How does he/she look?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [disgust]	1	verwongen van walging	distorted with disgust
	1	weezinwekkend	repulsive
	1	samengetrokken, wenkbrauwen naar beneden, mond samengeknepen	pursed, eyebrows down, mouth pursed
	1	rimpels boven de neus, best mooi	wrinkles above the nose, quite beautiful
	1	eerst ongeïnteresseerd, als ze doorheeft dat er een beest in haar eten zit geschrokken en trekt ze een vies gezicht	first disinterested, but as she realizes that there is a beast in her food she is startled and she gurns a grimace
	1		disgusted

	1	walgend samengetrokken wenkbrouwen,	eyebrows and lips drawn together
	1	lippen op elkaar	detest
	2	verafschuwd	full of disgust
	1	vol walging	distorted
	1	verwongen	beautiful
		mooi	

With respect to Question 1, *Hoe ziet haar gezicht kijken?* 'How does he/she look?', there were only three Dutch respondents who straightforwardly recognized the DISGUST stimulus with *vol waging* 'disgust' and *walgend* 'disgusted'. One gave a phrasal description *verwongen van walging* 'distorted with disgust'. One identified it as *verafschuwd* 'detest' and one labeled it as *weezinwekkend* 'repulsive'. The other responses were simply descriptions of facial expressions without emotion labels.

Table 40 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

Table 40. EMOTION: DISGUST – Question 2 'How does he/she feel?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [disgust]	1	vol walging + misselijk	full of disgust, nauseous
	1	vol walging	full of disgust
	1	onwel	unwell
	1	geschrokken, walgend van het eten dat ze ziet	shocked (due to fear), disgusted by the food she sees
	1	verdrietig + geschrokken + misselijk	sad + shocked + nauseous
	1	alsof ze iets vies eet	looks like she eats something dirty
	1	ze walgt van haar eten	she is disgusted because of her
	2	misselijk	food
	1	vies en vol walging	nauseous
	1	walging	dirty and full of disgust
	1	ze walgt van de made	disgust she is disgusted because of the maggot

Similar to Question 1, the responses for Question 2, *Hoe voelt ze zich?* 'How does he/she feel?', produced more lexemes with DISGUST connotations. There is only one immediate response, i.e. *walging* 'disgust', one combined it with *misselijk* 'nauseous', one with *vies* 'dirty' and three gave a phrasal description, i.e. *geschrokken, walgend van het eten dat ze ziet* '(she is) 'shocked, disgusted by the food she sees', *ze walgt van haar eten* 'she's disgusted by her food' and *ze walgt van de made* 'she's disgusted by the maggot'. Two

responses identified the stimulus as *misselijk* 'nauseous', one mixed it with other emotions such as *SADNESS*, *verdrietig* 'sad' and *geschrokken* 'shocked (due to fear)'. The lexeme *onwel*, which means 'sick' and/or 'nauseous' was also recognized for this stimulus.

The pairing analysis for Question 1 and Question 2 yielded only four matched responses, which is 33.3% of the total responses. The reason why the matched responses are less than even half of the total respondents is because the descriptions for Question 1 mostly were merely facial descriptions without containing any *DISGUST* connotation(s). The *SADNESS* emotion was also identified for this stimulus.

IV.2.2.3. FEAR

Table 41 lists all linguistic descriptions of the FEAR MREL stimulus produced for the Question 1 'How does he/she look?' by the Dutch respondents.

Table 41. EMOTION: FEAR – Question 1 'How does he/she look?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [fear]	1	verwongen	distorted
	2	geschrokken	shocked (due to fear)
	1	ogen dicht, beetje rimpels	eyes, little wrinkles
	1	alsof ze jeuk heeft	as if she itches
	1	angstig	anxiously
	1	opengesperde ogen, samengetrokken wenkbrauwen	saucer-eyed, frowning eyebrows
	1	walgend	disgusted
	1	bang + geschrokken	scared + shocked (due to fear)
	2	bang	scared
	1	mooi	beautiful

The FEAR stimulus for the Question 1, *Hoe ziet haar gezicht kijken?* 'How does he/she look?', only received two immediate FEAR responses with the lexeme *bang* 'scared' and *DISGUST*, *walgend* 'disgusted'. Other responses were not directly related to the FEAR emotion and some of them described the facial expressions but did not involve any connotation of the FEAR emotion.

Table 42 lists all linguistic descriptions of the FEAR MREL stimulus produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

Table 42. EMOTION: FEAR – Question 2 'How does he/she feel?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [fear]	2	geschrokken	shocked
	6	bang	scared
	1	geschrokken en angstig	shocked (due to fear) and anxious

	1	bang + geschrokken + verdrietig	scared + shocked + sad
	1	vies	dirty
	1	eerst relaxed, dan bang	first relaxed, then scared

For Question 2, *Hoe voelt ze zich?* 'How does he/she feel?' the Dutch respondents gave more straightforward responses with the lexeme *bang* 'scared' with five occurrences and one mixed it with *geschrokken* and *verdrietig* 'sad'. The other two labeled it as *geschrokken* 'shocked (due to fear)'. Other responses depicting FEAR were *geschrokken en angstig* 'shocked (due to fear) and anxious', *eerst relaxed, dan bang* 'first relaxed, then scared'.

Other emotions identified for the FEAR stimulus are DISGUST and SADNESS. With regard to the pairing analysis for both Question 1 and Question 2, the matched responses were less than half of the total Dutch respondents, i.e. 5 occurrences, i.e. 42% of the total responses.

IV.2.2.4. HAPPINESS

Table 43 lists all linguistic descriptions of the HAPPINESS MREL stimulus produced for the Question 1 'How does he/she look?' by the Dutch respondents.

Table 43. EMOTION: HAPPINESS – Question 1 'how does he/she look?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [happiness]	6	(intens) gelukkig (3), blij (3)	intense happiness, joyful
	1	ogen dichtgeknepen, mondhoeken staan omhoog, lachrimpels bij haar ogen	eyes squeezed shut, mouth stand up, laugh lines in her eyes
	1	gelukzalig zou ik het willen noemen	blissful I would call it
	1	glimlachend + blij	smiling + joyful
	1	verbaasd en blij	surprised and joyful
	1	vrolijk	cheerful
	1	mooi	beautiful

The HAPPINESS stimulus received six responses consisting of *gelukkig* 'happy' and *blij* 'joyful' for the Question 1, *Hoe ziet haar gezicht kijken?* 'How does he/she look?'. Two other responses mixed *blij* 'joyful' with *glimlachend* 'smiling' and *verbaasd* 'surprised'. A few of the other responses identified it as *vrolijk* 'cheerful' and *gelukzalig* 'blissful'. The Dutch respondents did not produce other labels of emotion for this stimulus.

Table 44 lists all linguistic descriptions of the HAPPINESS MREL stimulus produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

Table 44. EMOTION: HAPPINESS – Question 2 ‘How does he/she look?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [happiness]	1	blij, opgewekt	joyful, excited
	5	(helemaal) gelukkig (3), blij (1)	(totally) happy, joyful
	2	verrast en blij	surprised and joyful
	1	blij, gelukkig	joyful, happy
	1	verbaasd, vervolgens vrolijk	surprised, then cheerfully
	1	verrast en daarna superblij	surprised and then very happy
	1	verrast, blij	surprised, joyful

With regards to Question 2, *Hoe voelt ze zich?* ‘How does he/she feel?’, this stimulus received more immediate responses with three occurrences of the lexeme *gelukkig* ‘happy’ and one occurrence of the lexeme *blij* ‘joyful’. One combined both, others had *blij* ‘joyful’ with *opgewekt* ‘excited’, *verrast* ‘surprised’, *verbaasd* ‘surprised’. There were responses which identified the stimulus with *vrolijk* and mixed it with *verbaasd* ‘surprised’, or with *verrast* ‘surprised’ adding *superblij* ‘super joyful’. There were no other emotions recognized for this stimulus.

The pairing analysis shows that there are ten matched responses for the HAPPINESS stimulus, which means 83.3% of the total responses.

IV.2.2.5. SADNESS

Table 45 lists all linguistic descriptions of the SADNESS MREL stimulus produced for the Question 1 ‘How does he/she look?’ by the Dutch respondents.

Table 45. EMOTION: SADNESS – Question 1 ‘How does he/she feel?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [sadness]	1	gespannen	tense
	1	emotieloos	emotionless
	1	lachrimpels bij haar ogen, maar haar mond staat verdrietig	laugh lines at her eyes, but her mouth is sad
	1	ook wel mooi, opgetrokken wenkbrauwen, lippen beetje op elkaar	sometimes beautiful, eyebrows, little lips together
	4	verdrietig	sad
	1	redelijk neutraal	fairly neutral
	1	gelukkig maar sip	happy but gloomy
	1	blij en gelukkig, daarna verdrietig	glad and happy, then sad
	1	mooi	beautiful

There were three Dutch respondents who identified the SADNESS stimulus for the Question 1, *Hoe ziet haar gezicht kijken?* ‘How does he/she look?’ with the lexeme *verdrietig*

'sad'. Others recognized it as both, SADNESS *verdrietig* 'sad' and HAPPINESS *gelukkig* 'happy' or *blij* 'joyful'. This could happen since the SADNESS stimuli use a causal event to express sadness: there is a woman who looks very happy to meet her friend after a while, but later she feels sad because he has to leave again. Therefore, it can well be that some of the respondents identified both emotions displayed in the stimulus.

Table 46 lists all linguistic descriptions of the SADNESS MREL stimulus produced for the Question 2 'How does he/she feel?' by the Dutch respondents.

Table 46. EMOTION: SADNESS – Question 2 'How does he/she feel?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [sadness]	1	beetje verdrietig	little sad
	1	normaal	normal
	1	blij en verdrietig tegelijk	joyful and sad at the same time
	6	triest (2), verdrietig (4)	sad
	1	jammer dat hij weggaat	feels sorry that he leaves
	1	sip	gloomy
	1	eerst blij, dan verdrietig	first happy, then sad

In the elicitation for Question 2, *Hoe voelt ze zich?* 'How does he/she feel?', the SADNESS stimulus received six responses of the lexemes *triest* and *verdrietig*, which both mean 'sad'. Other responses identified it with *beetje verdrietig* 'little sad', *sip* 'gloomy', *jammer dat hij weggaat* 'feels sorry that he leaves' and two others mentioned both emotions in the following phrasal description: *blij en verdrietig tegelijk* 'joyful and sad at the same time', *eerst blij, dan verdrietig* 'first happy, then sad'.

There were seven matched responses of both the Question 1 and Question 2 based on the pairing analysis. This means 58.3% responses of the total responses accurately identified the SADNESS stimulus. The HAPPINESS emotion was also identified due to the causal event embedded in the clip.

IV.2.2.6. SURPRISE

Table 47 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 1 'How does he/she look?' by the Dutch respondents.

Table 47. EMOTION: SURPRISE – Question 1 'How does he/she look?'

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [surprise]	7	verbaasd (4), verrast (1), blij verrast (2)	surprised
	1		eyebrows raised, mouth up

	1	wenkbrauwen opgetrokken, mondhoeken omhoog	raised eyebrows and mouth
	1	opgetrokken wenkbrauwen en mondhoeken	raised eyebrows and wrinkled forehead
	1	opgetrokken wenkbrouwen en gerimpeld voorhoofd	funny
	1	grappig verbaasd, blij	surprised, joyful

The Dutch respondents could recognize the SURPRISE stimulus immediately for Question 1 *Hoe ziet haar gezicht kijken?* ‘How does he/she look?’ and labeled them with the lexemes *verbaasd* and *verrast*, which both means ‘surprise’, but the former has the connotation of wondering about something, whereas the latter does not have this connotation. There were five responses for both lexemes. Others mixed *verrast* ‘surprise’ and *verbaasd* ‘surprise’ with *blij* ‘joyful’. There were also some phrasal descriptions for the facial expressions but without emotion labels.

Table 48 lists all linguistic descriptions of the SURPRISE MREL stimulus produced for the Question 2 ‘How does he/she feel?’ by the Dutch respondents.

Table 48. EMOTION: SURPRISE – Question 2 ‘How does he/she feel?’

CLIPS	RESPONSES	DUTCH EXPRESSION	ENGLISH TRANSLATION
MREL [surprise]	1	verbaasd / blij	surprised / joyful
	3	verbaasd	surprised
	1	verrast, maar wel blij	surprised, but happy
	3	blij verrast	joyfully surprised
	1	blij verrast, vol ongeloof	joyfully surprised, disbelief
	2	blij	happy
	1	positief verrast	positively surprised

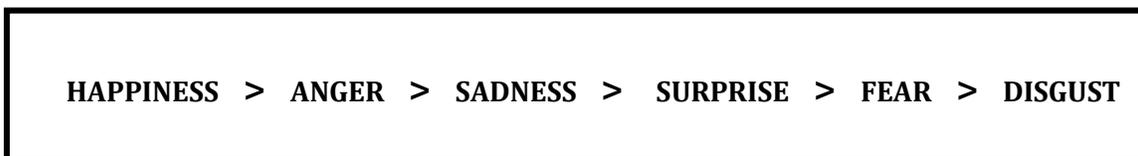
Regarding the responses for Question 2, *Hoe voelt ze zich?* ‘How does he/she feel?’ they are also more uniform; all responses yielded the lexemes *verrast* and *verbaasd* ‘surprised’ but some also had a HAPPINESS lexeme, namely *blij* ‘joyful’. The SURPRISE clip shows a man who coincidentally finds some money and the man expresses two emotions, i.e. SURPRISE and HAPPINESS. Hence, it is sensible for the respondents recognized it as *blij* ‘joyful’.

The pairing analysis for both Question 1 and Question 2 resulted in six matched responses. This means, 50% of the total responses consistently identified the stimulus with accuracy. Similar with the Javanese case for this stimulus, since the clip used another causal event – a man accidentally finds some money and he does not only feel surprised about it, but also happy – it is natural that some respondents also produced the lexeme *blij* here.

IV.2.2.7. Discussion

The Dutch respondents also have a different rank of emotion for the MREL experiments than for the Ekman face experiment. Based on the pairing analysis, HAPPINESS ranks on the first position with 83.3% accurately matched responses, followed by ANGER with 67% matched responses, SADNESS with 58.3% matched responses, SURPRISE 50% with matched responses, FEAR with 42% matched responses and DISGUST with 33.3% matched responses. The hierarchy of the six basic emotions resulting from the MREL experiment is illustrated in in **Error! Reference source not found.** below.

Figure 5. Hierarchy of the six basic emotions for the Dutch language group (MREL)



In general, these results indicate that the MREL clips are better cues for emotion recognition studies than the Ekman face stimuli. The level of accuracy in emotion recognition for each emotion is higher for the MREL experiment than the Ekman face stimuli.

Only the ANGER and HAPPINESS stimuli elicited the expected descriptions. That is: most of the Dutch respondents immediately perceived both stimuli as expressing ANGER and HAPPINESS. With regards to the DISGUST clip stimulus, some of the Dutch respondents recognized and labeled it as SADNESS. Further, the SADNESS and SURPRISE clip stimuli were described as HAPPINESS.

Recognizing and labeling one emotion under investigation with other emotions for the MREL stimuli does not imply that the Dutch respondents misinterpreted the emotions displayed by the clips; this is due to the fact that the MREL stimuli are realized in causal events that may display two or more different emotions in one scene at the same time. Some of the examples of these events have already been described above.

IV.3. Statistic Results²³

IV.3.1. General Discussion

The results that will be discussed here are the statistics from Linear Mixed Models, Binominal Mixed Model and Permutation test. A number of different statistical measurements were taken because it is important to measure several independent variables to answer the aforementioned research questions, i.e. language, stimulus types, i.e., Ekman's faces and MREL clips, and emotions, i.e. ANGER, DISGUST, FEAR, HAPPINESS, SADNESS and SURPRISE.

Different tests were done to investigate different questions: whether participant responses agree with Ekman's claim that so-called basic emotions are labeled in the same way and whether they are faster or slower in different conditions and to what extent were speakers similar or different in their responses.

IV.3.2. Recognition of Emotion

IV.3.2.1. Recognition by Emotion and Language Groups

In general, there are significant differences in emotion recognition between the Javanese and Dutch language groups: the Dutch language group did it better than the Javanese language group. Following is the statistic description on each emotion compared between two languages.

²³ This chapter was thoroughly supervised by Dr. Sean Roberts, Max Planck Institute for Psycholinguistics, Nijmegen. Without his patience and careful supervision, I would have not presented this chapter as well as it is now.

Figure 6. Mean of recognition by emotion and language groups

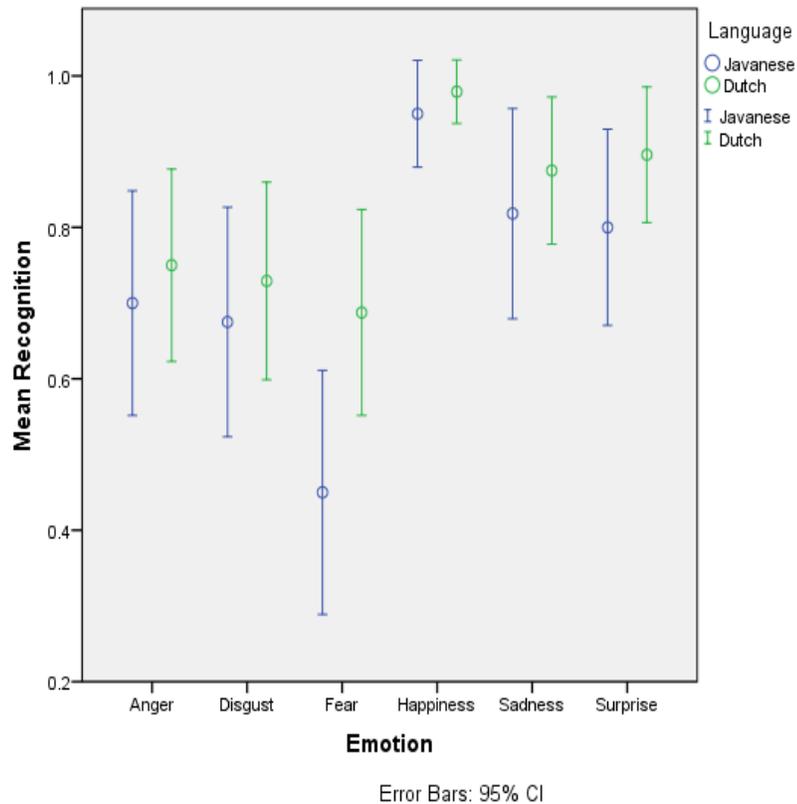


Figure 6 shows the mean recognition of each emotion and language groups. The mean values for the Javanese language group are always lower than for the Dutch language group. The mean values for each emotion and for both language groups are presented in the following table.

Table 49. Mean of recognition by emotion and language groups

Emotion (SE = 0.0084)	Javanese	Dutch
Anger	0.7	0.75
Disgust	0.68	0.73
Fear	0.45	0.69
Happiness	0.95	0.98
Sadness	0.82	0.88
Surprise	0.8	0.9

According to the statistical results, in general the Javanese do not recognize emotions better than the Dutch do. Both language groups recognize HAPPINESS, SADNESS and

SURPRISE emotions better than ANGER, DISGUST and FEAR emotions. Interestingly, the Javanese respondents do not recognize FEAR as often as the Dutch respondents.

IV.3.2.2. Recognition by Emotion and Stimulus Types

The emotion recognition by stimulus types, i.e. The Ekman face and MREL clip stimuli, has been significantly different for each emotion. This means, the stimulus type plays a role in the emotion recognition.

Figure 7. Mean of recognition by emotion and stimulus types

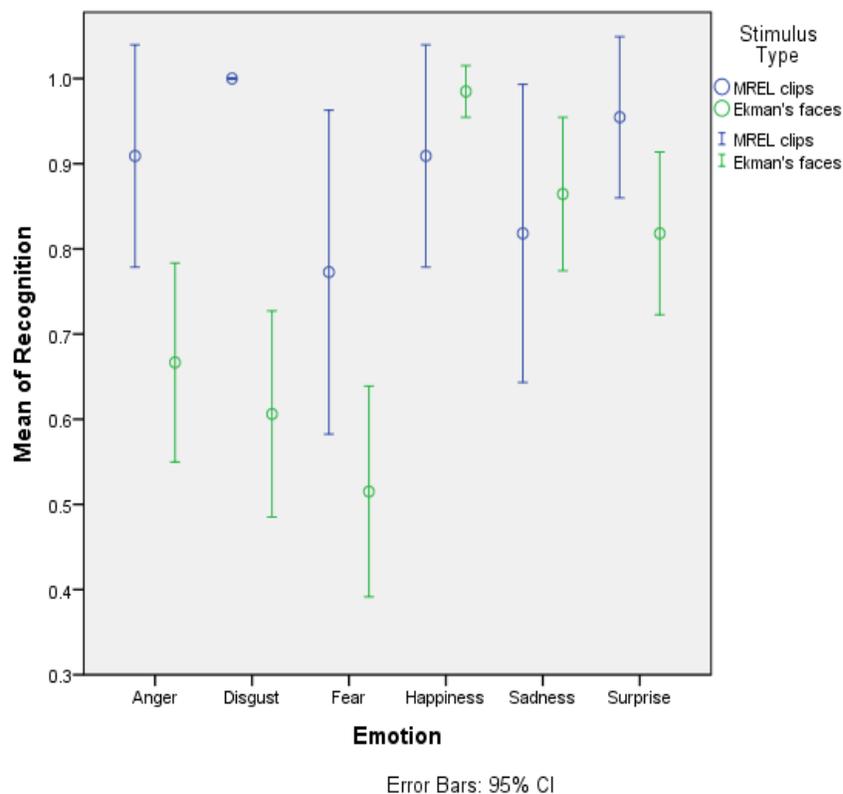


Figure 7 shows mean of recognition by emotion and stimulus type. The mean values for each emotion by stimulus type are provided in 50 below.

Table 50. Mean of recognition by emotion and stimulus types

Emotion (SE = 0.0084)	Ekman faces	MREL clips
Anger	0.61	0.92
Disgust	0.54	1
Fear	0.42	0.75
Happiness	0.99	0.92
Sadness	0.82	0.81
Surprise	0.81	0.96

The ANGER, FEAR and SURPRISE MREL clips are significantly different from the ones depicted by the Ekman face images with the same emotions. Interestingly, DISGUST depicted by the MREL clip is the only emotion that can be recognized with the highest accuracy for both language group.

For most stimuli, the MREL clips are easier to recognize, on average, except for HAPPINESS and SADNESS. The possible explanations why HAPPINESS and SADNESS with the MREL clips are hard to recognize are the causal events embedded in the clips involving both emotions.²⁴ The statistical results side with Barrett et al.'s (2011) claim that situative and linguistic context, body postures and gestures play a role in the perception of emotions and that "a face does not speak for itself" (p. 289). However, since the events in the clips are acted out by professional actors, the emotions depicted there are less natural. The results from the MREL experiment in this study – that the level of accuracy is significantly higher than that of the Ekman face stimuli – supports Senft's (2012) argument on the MREL clips. He states (2012:37):

"But I have to concede here that the emotion clips of the MREL are "staged" by professional actors – so they are not "the real thing" so to speak, but a kind of "fictive" emotion."

In order to find how far the stimulus types and emotion interact in the emotion recognition in this study, a binomial mixed effects model was run (using the lme4 package in R, Bates et al., 2014), with emotion, stimulus type and language group as fixed effects and participant as a random effect. The inclusion of random slopes did not significantly improve the fit of the model, so were not included. Main effects were tested by comparing the fit of models with and without the given variable using the likelihood ratio test. There were significant effects for stimulus type ($\beta = -1.4$, $\chi^2 = 20.218$, $df = 1$, $p < 0.0001$) and emotion ($\chi^2 = 59.983$, $df = 5$, $p < 0.0001$), but not for language ($\chi^2 = 1.5863$, $df = 1$, $p = 0.21$). There were no significant interactions with language (by emotion: $\chi^2 = 2.83$, $df = 5$, $p = 0.73$; by stimulus type: $\chi^2 = 2.65$, $df = 1$, $p = 0.10$). There was a significant interaction between

²⁴ In the HAPPINESS MREL clip, a woman meets someone whom she has not seen for some time and she feels happy to see him again, while in the SADNESS MREL clip, the same woman has to separate with the same man, so she feels sad about it.

stimulus type and emotion ($\chi^2 = 19.514$, $df = 5$, $p = 0.002$). The interaction can be explained as follows: For most emotions, the video elicited more 'correct' responses than the IMAGES (negative β coefficients for interactions between each emotion and stimuli type being image), except for SADNESS where the rates were roughly equal ($\beta = 1.51$, Wald-z = 1.59, $p = 0.1$) and HAPPINESS where the images were slightly better identified than the videos ($\beta = 3.48$, Wald-z = 2.4, $p = 0.02$).

These effects may have been driven by all participants recognizing disgust in the video — a ceiling effect which inflated the β value for disgust and the interaction between disgust and image.²⁵

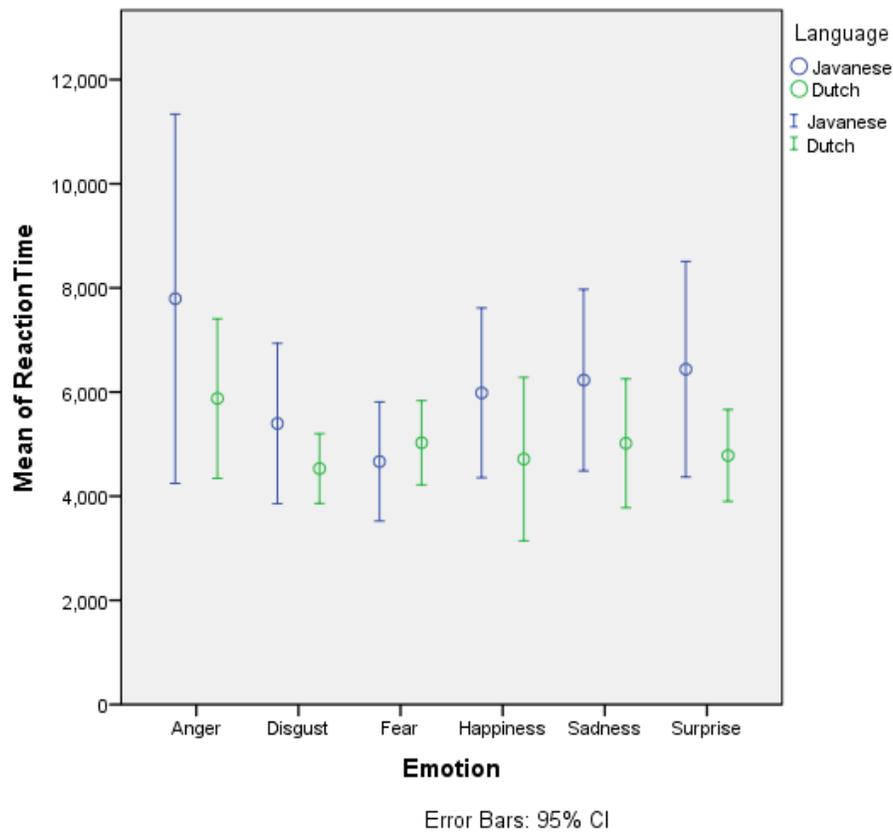
IV.3.3. Reaction Time of Emotion Recognition

IV.3.3.1. Reaction Time by Emotion and Language Groups

Overall, based on behavioral measurement of emotion recognition using the reaction time, the Dutch respondents are more similar to each other in response times compared to the Javanese respondents. This is also true when being compared to the Dutch. The statistical results are described as follow.

²⁵ However, the results were qualitatively the same when excluding disgust emotion stimuli. Therefore the results were not merely driven by disgust

Figure 8. Mean of reaction time by emotion and language groups



According to the language cluster, generally the Javanese respondents took longer duration when recognizing all emotions under investigation compared to the Dutch ones, regardless of types of stimulus. The mean values of reaction time for both languages are shown in the Table 51 below.

Table 51. Mean of reaction time by emotion and language groups

Emotion (<i>SE</i> = 166)	Javanese	Dutch
Anger	7792.5	5867.9
Disgust	5395.7	4529.9
Fear	4665	5026.8
Happiness	5983	4713
Sadness	6229	5015
Surprise	6439	4781

ANGER surpassed other emotions in terms of the length of reaction time despite of the language factor. DISGUST was perceived easily by the Dutch respondents but not by the Javanese ones, followed by FEAR and SURPRISE. FEAR was relatively easy to perceive by the Javanese respondents followed by DISGUST and HAPPINESS.

IV.3.3.2. Reaction Time by Emotion and Stimulus Type

Overall, the response time produced when processing the emotion recognition for the MREL clip stimuli is faster than for the Ekman face stimuli. This demonstrates that contexts, causal events, body postures and gestures help us to recognize the emotions expressed by others faster with higher accuracy. The statistics are described below.

Figure 9. Mean of reaction time by emotion and stimulus types

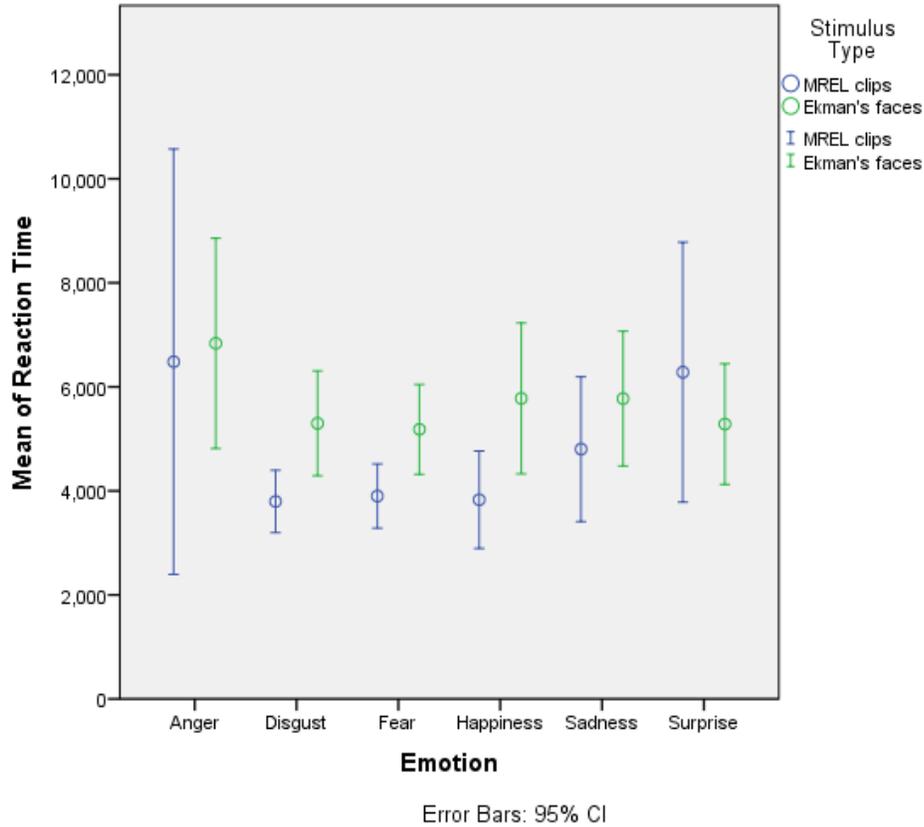


Figure 9 shows the mean of reaction time by emotion and stimulus type. The mean values for each emotion by each stimulus types are presented in Table 52 in the following.

Table 52. Mean of reaction time by stimulus types

Emotion (<i>SE</i> = 0.0084)	MREL clips	Ekman faces
Anger	4301.2	4890.8
Disgust	3609.4	4428
Fear	3716.5	4456.2
Happiness	3414.3	4420.5
Sadness	4244.8	4713
Surprise	4864	4332.1

Except for ANGER and SURPRISE, respondents reacted slower on average to the emotions shown by the Ekman's face stimuli than to the MREL clip stimuli. DISGUST shown by the MREL clip was recognized faster than shown by the Ekman face stimuli, followed by FEAR, HAPPINESS and SADNESS. This is also true when it is compared to other emotions. Interestingly, SURPRISE shown by the MREL clip stimulus took a longer response time compared to the Ekman's face stimuli. The causal event – a man finding money – embedded in the context might be the main cause for this result, since the emotions depicted in the stimulus were not only SURPRISE but also HAPPINESS.

Reaction times were investigated using a linear mixed effects model. Reaction times were log-scaled. Fixed effects included language, emotion, stimulus type and the interaction between stimulus type and emotion. There was a random effect by participant. Model comparison suggested that interactions with language should not be included as main effects and that emotion should be included as a random slope. Fixed effects were tested using model comparison. There was no effect of emotion ($\chi^2 = 2.3439$, $df = 5$, $p = 0.8$), but stimulus type significantly improved the fit of the model ($\chi^2 = 5.9$, $df = 1$, $p = 0.02$). The model predicted that IMAGES were responded to on average 740ms slower than videos. There was no significant interaction between emotion and stimulus type ($\chi^2 = 5.32$, $df = 5$, $p = 0.38$).

From all of the statistic results, it suggests that the MREL clip stimuli are better cues for the emotion recognition. However, the variances of emotion recognition represented by the bars in the statistical graph show that MREL clips are not the perfect cues for this kind of study, since variances means that there are many different responses and perhaps labels for a certain emotion within one language group. When this occurs, it means that the disagreement of recognizing and labeling an emotion is higher within one language group.

IV.3.3.3. Permutation Test

Since it was proven with the Mixed Model Analysis that there is no interaction between language and emotion, and therefore it is considered as the null hypothesis, a permutation test was run to see whether the difference between the sample means provided is sufficient to reject the null hypothesis. The differences in responses of each pairs of participants were measured, ignoring the language factor. The way the differences in

responses were being measured is illustrated as follows: supposing that there are two people who mark the following checkboxes for ANGER emotion and one tick is valued as one:

Person A : 0 0 0 1 0 0 Person B : 0 0 1 0 0 0 That is two differences.	Person A : 0 0 0 1 0 0 Person B : 0 0 1 1 0 0 That is one difference.	Person A : 0 0 0 1 0 0 Person B : 0 0 0 1 0 0 That is zero differences
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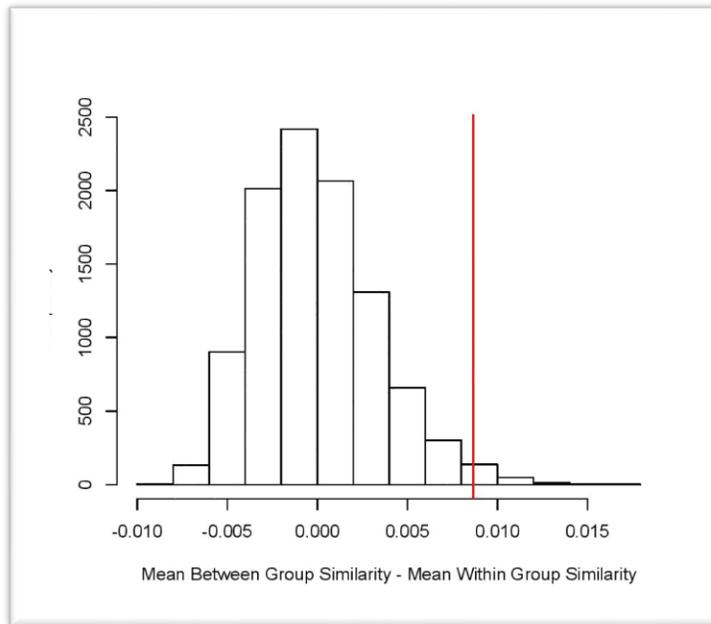
The difference measure was thus added up for all stimuli divided by the total number of possible changes. This provided an average difference measure between two participants. A permutation test was run to prove a sub-hypothesis that the difference measures for people who speak the same language are lower than the differences between languages. If differences are larger between groups than within groups, the implication is that culture is significant in emotion recognition. However, if the difference measures are higher within language groups, it means language does not play a role in the emotion recognition – although this seems unlikely to be the case. The calculation goes as follows:

W = the mean difference measure within language pairs

B = the mean difference measure between language pairs

In order to assess the significance of the difference between W and B, a permutation test was carried out. The membership of each person to a language group was randomly permuted (e.g. pretending that X from the Dutch language group is Javanese and Y from the Javanese language group is Dutch). If people are more similar within a group, then swapping people between groups should increase W value and decrease B value. This means that B - W for permuted data should be lower than the real B - W. There were 10,000 random permutations.

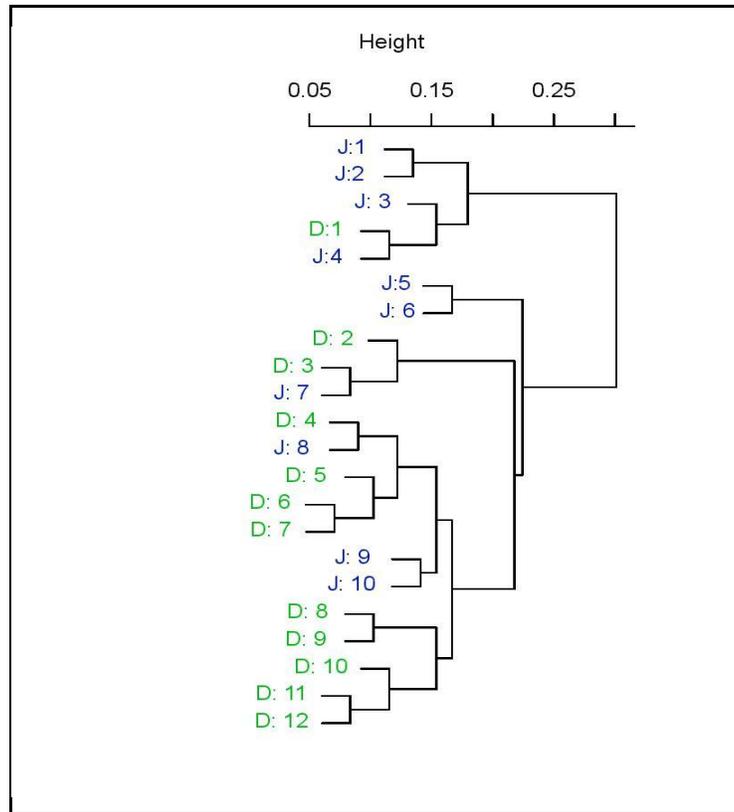
Figure 10. Mean value between group similarity and within group similarity



The graph in Figure 10 above shows the distribution of B - W in this permutation test, with a red line showing the actual value. It shows that the real value is bigger than 98.52% of permutations, that is $p = 0.0148$. Therefore, people are more similar within a language than between languages. This implies that culture is significant in emotion recognition, although it will still need a further investigation with a bigger number of population to prove this hypothesis.

A tree of participants, as another result from the permutation test, is provided below in Figure 11. This tree was created by using an algorithm that tried to place participants who are similar to each other on the same 'branch'. It can be seen that most of the Javanese respondents (J1 - J10) are clustered together on the left side and most of the Dutch respondents (D1 - D10) are clustered on the right side, but some participants are mixed in other clusters. The languages are not divided exactly into separate clusters, though there is a cluster of Dutch speakers at the bottom and a cluster of Javanese speakers at the top. Indeed, some Javanese speakers' responses are more similar to those of the Dutch respondents than to their own peers. This suggests that, while there are bigger differences between language groups than one would expect by chance (as shown by the permutation test), these differences are not completely clean-cut.

Figure 11. Similarity based on respondents' reaction



J = Javanese
 D = Dutch
 Numbers = participants

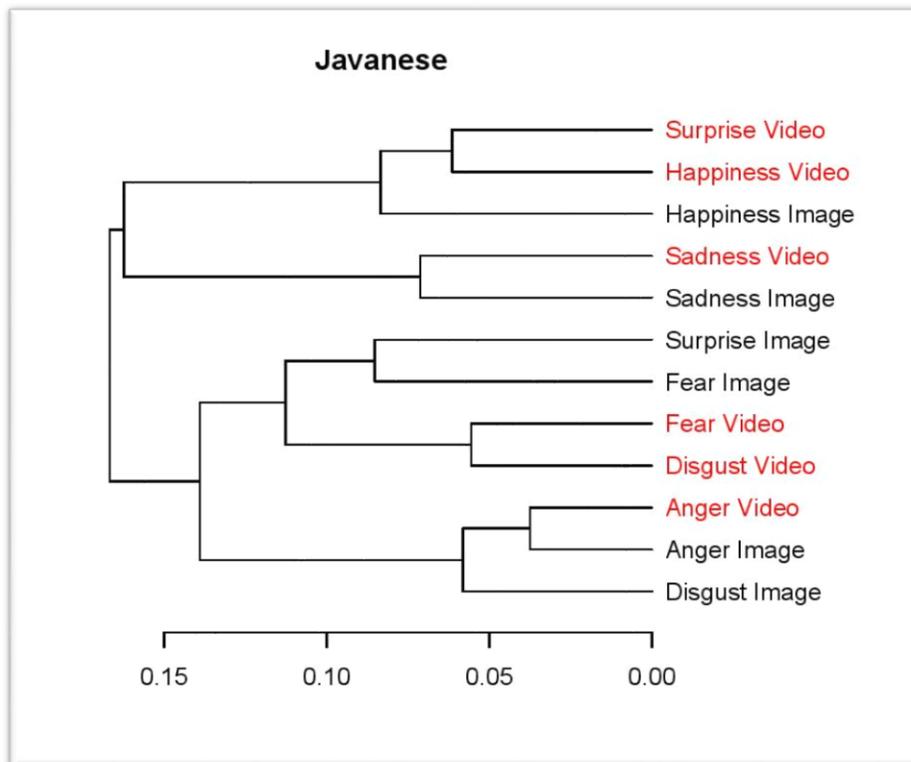
The same measures of distance can be calculated between stimuli, rather than between speakers. The differences in responses of a pair of cues regardless of the accuracy of recognition and reaction time based on the Hamming distance between responses were observed. For every cue,²⁶ the proportion of people who checked each box when they were asked to recognize and label the emotion stimulus (e.g. 44% respondents ticked ANGER when they saw the anger video) were taken into account. For a pair of cues, the mean difference in proportions was calculated. Based on the aforementioned tree of respondents, a cluster diagram was created for each language group to see how similar each respondent with another one within group. It shows that for the Javanese language group, the similarities of

²⁶ A combination between an emotion and a stimulus type (eg. Happiness video or Surprise image) is called a *cue* for this analysis.

responses are clustered by stimulus category, while for the Dutch they are clustered by emotion category as explained below.

IV.3.4. The Javanese Language Group

Figure 12. Similarity of responses for the Javanese language group



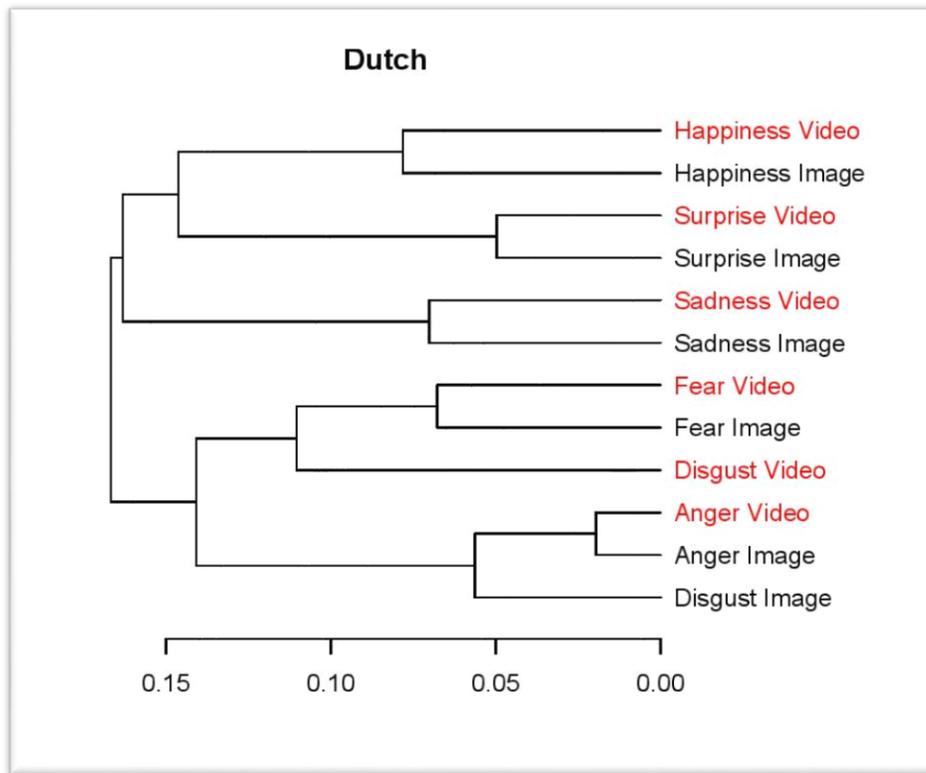
The Javanese language group behaves differently from the Dutch respondents in emotion recognition. The similarities of responses for the Javanese are clustered by the types of stimulus instead of the emotion. The tree in Figure 12 shows that FEAR and DISGUST videos are clustered together. This means that FEAR and DISGUST are not such distant emotions for the Javanese respondents. ANGER stands alone but it is attached to the FEAR and DISGUST video cluster, which means that occasionally ANGER is also perceived as FEAR and/or DISGUST. SURPRISE and HAPPINESS are clustered together. The possible explanation for this result is both videos depicting a causal event involving both emotions. On the contrary, SADNESS does not belong to any other emotion cluster and it is very distant from other emotions for the same type of stimulus.

As for the Ekman's faces stimuli, HAPPINESS and ANGER are perceived to be very distant emotions. SURPRISE image, FEAR and DISGUST clips are clustered together and however SURPRISE and FEAR are counted to be close emotions for the Javanese respondents.

Interestingly, SURPRISE clip is separated from SURPRISE images. This shows how the Javanese perceive SURPRISE differently when they perceive different stimuli. Further, SADNESS does not belong to any emotion cluster and although it is counted to be distant from the other emotions, it is not that distant when it is compared to the SADNESS video stimulus.

IV.3.5. The Dutch language group

Figure 13. Similarity of responses for the Dutch language group



Measured by Hamming distance, the tree in Figure 13 demonstrates that the stimuli HAPPINESS, SURPRISE, SADNESS are clustered by emotion, regardless of stimulus type. Although the HAPPINESS video and images are clustered together, both types of stimulus are distant compared to SURPRISE, SADNESS and FEAR. The smallest difference between stimuli type was for responses to ANGER.

As the tree shows, DISGUST and ANGER are different compared to other emotions: there is a little fuzziness between DISGUST and ANGER. The DISGUST video is closer to the FEAR cluster rather than the DISGUST images. This implies that the DISGUST video stimulus was perceived as FEAR in the Dutch language group. Interestingly, the DISGUST images are clustered together with the ANGER instead of FEAR emotion. This also implies that the Ekman's faces

stimuli for DISGUST were recognized as ANGER for the Dutch respondents. In other words, for Dutch speakers, it was mainly responses to DISGUST which were affected by having the extra context provided by the video. The latter finding supports the linguistic results produced by the Dutch respondents, i.e. they labeled the DISGUST stimuli as *boos* and *kwaad*, which both mean 'angry'.

To sum it up, all the statistic results in this particular section suggests that Javanese speakers are affected much more by the contextualized emotions presented by the MREL clips than the Dutch are. The implication for this result is that, apart from DISGUST, the Dutch respondents react similarly to the emotions for videos and images, but Javanese speakers respond quite differently to videos and images.

IV.4. Self-report Task

With respect to the self-report about the difficulty of the task, I want to discuss the following (preliminary) results. Generally, both language groups found that emotional expressions depicted by Ekman's face stimuli are more difficult to perceive and to label ($M = 5.45$) than emotions expressed in the MREL's stimuli ($M = 4$).

Comparing the two language groups showed that Dutch speakers perceived all facial expressions in both stimuli, i.e. Ekman's faces ($M = 4.6$) and MREL's stimuli ($M = 3.25$) easier than Javanese speakers (Ekman's faces, $M = 6.4$; MREL's stimuli, $M = 4.9$). All female respondents in both language groups perceived the emotions displayed by Ekman's faces and the MREL clips easier (Javanese, $M = 5.1$ and Dutch, $M = 3.54$) than the male ones (Javanese, $M = 5.8$ and Dutch, $M = 4.45$).

However, when the results were analyzed based on gender for each language group, Javanese female and male respondents agreed that the facial expressions showed by Ekman's faces are harder to perceive ($M = 6.4$, for both language group) than those that are shown in the MREL stimuli. Javanese male speakers found the basic emotions expressed in the MREL stimuli harder to perceive than the Javanese female speakers (male, $M = 5.6$; female, $M = 4.2$). In the Dutch language group, the female speakers perceived the basic emotions expressed in Ekman's face stimuli easier than the male speakers (female, $M = 4$; male, $M = 5.3$). However, both gender groups agreed that the basic emotions displayed in the MREL stimuli were easier to perceive than those in Ekman's faces, although the female

speakers would still find it easier than the male speakers (female, $M = 3$; male, $M = 4.5$). The summary of mean values described above are provided in Table 53 below.

Table 53. Comparison mean values between Ekman's Faces and MREL (self-report task)

Perception of Emotion	Ekman's Faces	MREL
General Comparison	5.45	4
Comparison between language group:		
Javanese	6.4	4.9
Dutch	4.6	3.25
General Comparison between gender:		
Female speakers	5.1	3.54
Male speakers	5.8	4.45
Comparison between gender in Javanese:		
Female speakers	6.4	4.2
Male speakers	6.4	5.6
Comparison between gender in Dutch:		
Female speakers	4	3
Male speakers	5.3	4.5

V. Conclusion

There were two main research questions focuses on in this study. First, it investigates whether basic emotions are perceived universally by both Javanese and Dutch speakers. Secondly, this study examines whether it is either the static facial expressions depicted by images or behavioral expressions – including facial expressions, body postures and gestures – presented in contexts will provide better cues for perceiving emotions in the same way. To measure both research questions, this study uses the Ekman face stimuli and MREL clip stimuli depicting the six basic emotions.

Based on the linguistic elicitations, the Javanese language group has lower percentages of matched responses compared to the Dutch. The findings show that overall there are more various linguistic descriptions within the Javanese language group compared to that of the Dutch. This result can tell us at least two things. First, the findings support the hypothesis that the Javanese respondents would find it harder to recognize the six basic emotions than their Dutch counterparts, hence the more linguistic response variants found in the Javanese language group. Secondly, the lower percentage of matched responses for an emotion under investigation in one language group, the less salient the emotion is.

As for the second research question, this study intends to find whether the static images or the animate stimuli are better tools for emotion recognition study. Again, the

statistical results support Barrett et al.'s (2007) claim that when perceiving a certain emotion, many factors must be taken into account, such as context, causal events, body language and gestures and also language. Both language groups performed better when recognizing and labeling the basic emotions with the MREL stimuli than the Ekman face stimuli. The statistical results reported above show that both language groups produced responses for the MREL stimuli with a rather higher accuracy and that these responses are more uniform than responses to the Ekman face stimuli, although it does not apply to all basic emotions. Another implication of this study is that the ability of recognizing emotions from facial expressions and expressing the perceived emotions are cultural specific rather than universal (see Klineberg 1940, Russell 1994; Jack et al. 2012).

With regards to the third hypothesis, the overall results support Senft's (2012) conclusion that The MREL stimuli are much more appropriate to elicit descriptions of emotions than the Ekman face stimuli and that "photograph of static facial expressions seem to be rather inadequate means to elicit terms for the emotions claimed to be expressed by these "frozen" facial expressions" (Senft, 2012:36). The emotions are not merely displayed by facial expressions, but the expressions of emotions and inner feelings are done in "complex behavior patterns" (Eibl-Eibesfeldt, 1989:492; as quoted by Senft, 2012:36). Senft (2012) claims that these behavioral patterns control and regulate facial expressions, body posture and position, muscular tonus, gesture, speech utterances, voice, pitch, personal distance between interactors, eye contact or its avoidance, etc. As proven in research on the expressive behavior of deaf-and-blind born children, some of the expressive motor patterns are "fixed action patterns" – they are innate, and many other of these behavioral patterns are ritualized in culture specific ways (Eibl-Eibesfeldt, 1989:546f.). Further, he states that whether we accept Ekman's claim that there are basic emotions, they are expressed not only in the face but in much more complex interactional behavior patterns, which may have evolved into (ritualized) interaction strategies (see Eibl-Eibesfeldt, 1989:520f.; 546f.). This experimental study together with that of Senft's (2012) on the Kilivila language repudiate Ekman's claim (1973:220), "[r]egardless of the language, of whether the culture is ... industrialized or preliterate, facial expressions are labeled with the same emotion terms". Both studies prove that this is not the case for both neither across languages nor within a language group, shown by the results above: they follow the expectations, i.e. the results

from the Ekman face stimuli are more various and that of the MREL stimuli are more uniform.

When a culture does not possess a label for a certain emotion or mixes between two emotions, it does not necessarily mean that its cultural members do not know how to feel that particular emotion. For an illustration, Breugelmans & Pootinga (2006) claim that The Rara'muri Indians in Mexico use one word for guilt and shame, although they do differentiate the characteristics of shame and guilt. In addition, when a certain (basic) emotion has the same equivalent in other languages, it does not signify that the cultural members experience the same exact feeling, cognitive concept and bodily reaction as the other cultural members from a different group when they are feeling it. According to an experimental study done by Fontaine et al. (2002) on Indonesian and Dutch cultures, the HAPPINESS concept, *bahagia* – in forms of joy, pleasure, gaiety, in Indonesian is close to LOVE, *cinta*, which also denotes some subconcepts such as compassion, resignation, honesty, affection, peaceful and willingness. On the other hand, in the Dutch culture, HAPPINESS *blijheid*, denotes pleasure, elation, exuberance, vreugde, opegewekt, verheuging, verassing, optimisme, among others. The branch of HAPPINESS in the Dutch culture is close to the RELIEF *opluchting* branch, which contains satisfaction, calmness and peacefulness. Therefore, Indonesians would feel happy when they can also feel other emotions that are clustered closely to their main concept of HAPPINESS and that means, they might have a different definition, bodily reaction and even cognitive perception of HAPPINESS from the Dutch people, although on a superficial level, HAPPINESS is claimed to be universal.

Having presented the research questions and major hypotheses for this study and provided all linguistic and statistical results, hence, first I claim that even though the six basic emotions might be universal, but how members of each cultural group perceive and express them differently shaped by their culture. Secondly, I suggest that the validity of Ekman's claim on emotion universality needs to be reevaluated.

VI. Recommendations and directions for future research

There are several points of recommendation I would like to make relating to the experimental stimuli, language groups and respondent types when working on cross-linguistic and cultural studies and perception of emotion.

VI.1. Stimuli

For the facial expression stimuli, I would support Senft's (2012) recommendations to use the facial expressions depicting the basic emotions by collecting images and/or clips of how cultural members' facial expressions in daily interactions rather than experiment with Ekman faces and/or MREL clips. There are several reasons for that. First, the Ekman face stimuli use Caucasian models to show emotions, which perhaps would be hard to perceive in other cultures. Secondly, some emotions might be basic and universal. However, the way the members of a given cultural group might perceive them differently from the members of different cultural groups. This study has put forward some solid results that culture shapes how we perceive emotions. Therefore, using Ekman faces would not be representative enough to capture the perception of emotion in a given culture.

VI.2. Language groups

It is always recommended to test the perception of emotion between distant languages. The notions of emotions are transmitted from one generation to another mostly to support cultural values. This might explain why in some languages from the same language family they tend to perceive and label certain emotions similarly. From the historical background, they usually come from one language group but then spread out and develop their own variations.

VI.3. Respondent types

To achieve the purest abstract concept of emotion perception in the given culture, it is recommended to run this type of study to old speakers and/or uneducated ones. There will be practical obstacles one can face; however, the results gained might have no bias from globalized education system where abstract concepts, such as emotions and the way to express them, tend to be transmitted from. I would propose to control the age, gender and education level. When it is needed to do a qualitative study, some deep and thorough interviews can be conducted.

VII. References

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Appendix I: Javanese responses of Ekman face stimuli on six basic emotions

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF1	Anger [F2]	Anger	nesu	angry	nesu banget	very angry	YES
JF1	Anger [M6]	Anger	sepaneng	annoyed	nesu, ora sabar	angry, impatient	NO
JF1	Anger [P4]	Anger	medeni, ketoke nesu	scary, (he/she) looked angry	nesu, kuciwa	angry, disappointed	YES
JF2	Anger [F2]	Anger	tas tangi turu lan kaget	gets up from sleep and surprised	nesu	angry	NO
JF2	Anger [M6]	Anger	medeni	scary	nesu	angry	NO
JF2	Anger [P4]	Anger	nesu	angry	nesu	angry	YES
JF3	Anger [F2]	Anger	methentheng	akimdo	nesu	angry	NO
JF3	Anger [M6]	Anger	ndlongop	eyes were popping out	kaget	surprised	NO
JF3	Anger [P4]	Anger	mrengut	mouth pouting	nesu	angry	NO
JF4	Anger [F2]	Anger	nesu	angry	nesu	angry	YES
JF4	Anger [M6]	Anger	nesu	angry	pengen nesu	wants to get angry	YES
JF4	Anger [P4]	Anger	nesu, kaget	angry, surprised	kaget	surprised	NO
JF5	Anger [F2]	Anger	nesu	angry	nesu	angry	YES
JF5	Anger [M6]	Anger	kesel	annoyed	kesel	annoyed	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF5	Anger [P4]	Anger	bingung	confused	bingung, nesu	confused, angry	NO
JM1	Anger [F2]	Anger	seko rupane alise ketok nek lagi nesu. Alise munggah siji. Ketok banget nek lagi koyo meh ngunek ngunekke uwong.	from the look the eyebrows, he/she looked angry. One of his/her eyebrow raised.	sing dirasakke nesu, meh mbentak mbentak.	he's feeling angry and wanting to shout	YES
JM1	Anger [M6]	Anger	rupane rodo koyo nesu tapi janjane ora nesu. delok seko alise ora miring	the face looks angry, but actually not angry. One of the eyebrows is not raised.	kekeselen	too upset	NO
JM1	Anger [P4]	Anger	alis mburi ngangkat. Rodo koyo ono nesu lambene munggah.	the end of the eyebrow is raised. It looks like angry. The lips are raised.	nesu, mangkel	angry, upset	YES
JM2	Anger [F2]	Anger	nyengoh	smirking	nyengoh	smirking	NO
JM2	Anger [M6]	Anger	nesu	angry	emosi	emotional	NO
JM2	Anger [P4]	Anger	manyun	pouting	ora seneng	unhappy	NO
JM3	Anger [F2]	Anger	nesu	angry	nesu	angry	YES
JM3	Anger [M6]	Anger	nesu	angry	nesu	angry	YES
JM3	Anger [P4]	Anger	ora jelas	unperceivable	gak jelas	not clear	NO
JM4	Anger [F2]	Anger	elek	ugly	jengkel	upset	NO
JM4	Anger [M6]	Anger	serius	serious-looking	jengkel	upset	NO
JM4	Anger [P4]	Anger	elek	ugly	gumun	perplexed	NO
JM5	Anger [F2]	Anger	elek	ugly	nesu	angry	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM5	Anger [M6]	Anger	pengen nyokot	wants to bite	ngelih	hungry	NO
JM5	Anger [P4]	Anger	menjep	pursed lips	pengen ngising	wants to defecate	NO
JF1	Disgust [F5]	Disgust	risi	feeling uncomfortable	jijik, ora seneng banget	disgusted, very unhappy	NO
JF1	Disgust [M5]	Disgust	nesu	angry	nesu banget, kuciwa	very angry, disappointed	NO
JF1	Disgust [P1]	Disgust	risi, ora seneng	feeling uncomfortable, unhappy	ora seneng, nyepelekake	unhappy, spiteful	NO
JF2	Disgust [F5]	Disgust	pegel	annoyed	jijik	disgusted	NO
JF2	Disgust [M5]	Disgust	tuwek	old	gething	hateful	NO
JF2	Disgust [P1]	Disgust	tuwek lan kepegelen	old and annoyed	ngenyek	sneering	NO
JF3	Disgust [F5]	Disgust	mringis	grimacing	jijik	disgusted	NO
JF3	Disgust [M5]	Disgust	nyuntheng	frowning forehead	jijik	disgusted	NO
JF3	Disgust [P1]	Disgust	mecucu	pouting	nesu	angry	NO
JF4	Disgust [F5]	Disgust	nesu	angry	ora seneng	unhappy	NO
JF4	Disgust [M5]	Disgust	gething	hateful	nesu	angry	NO
JF4	Disgust [P1]	Disgust	mencibir, ngasorake	pouting, belittling someone else	sombong	stuck up	NO
JF5	Disgust [F5]	Disgust	ngeri	scary	jijik	disgusted	NO
JF5	Disgust [M5]	Disgust	medeni	scary	ngeri	scary	NO
JF5	Disgust [P1]	Disgust	medeni	scary	ngeremehke	sneering	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM1	Disgust [F5]	Disgust	rupane mringis untune, matane alise munggah koyo wong jengkel	the teeth make it look like grimacing. the eyes and eyebrows are raised as if angry	jengkel, nesu	upset, angry	NO
JM1	Disgust [M5]	Disgust	lambene mbitet	the lips are pursed	koyo risi karo sing didelok	as if feeling uncomfortable being gazed at	NO
JM1	Disgust [P1]	Disgust	rupane kotak, koyo wong nyepelekke, seko lambene mbesengut.	the face is squarish, looking like the person is belittling someone. the lips are pouting	rodo sengit, akeh le yepelekke	rather fierce, belittling someone	NO
JM2	Disgust [F5]	Disgust	kaget	surprised	kaget	surprised	NO
JM2	Disgust [M5]	Disgust	mrengut	pouting	mrengut	pouting	NO
JM2	Disgust [P1]	Disgust	nyinyir	cynical	nyinyir	cynical	NO
JM3	Disgust [F5]	Disgust	jijik	disgusted	jijik	disgusted	YES
JM3	Disgust [M5]	Disgust	gak seneng / jijik	unhappy/disgusted	gak seneng / jijik	unhappy/disgusted	YES
JM3	Disgust [P1]	Disgust	nesu / gak seneng	angry/unhappy	nesu / gak seneng	angry/unhappy	NO
JM4	Disgust [F5]	Disgust	elek	ugly	gumun	perplexed	NO
JM4	Disgust [M5]	Disgust	elek	ugly	gumun	perplexed	NO
JM4	Disgust [P1]	Disgust	elek	ugly	nesu	angry	NO
JM5	Disgust [F5]	Disgust	sajak pengen nyokot	wants to bite	ngelih	hungry	NO
JM5	Disgust [M5]	Disgust	mbesengut	pouting	ora seneng	unhappy	NO
JM5	Disgust [P1]	Disgust	menjep	pursed lips	jijik	disgusted	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF1	Fear [F3]	Fear	kaget	shocked	gumun , wedi	perplexed, scared	NO
JF1	Fear [M4]	Fear	kaget	shocked	gumun, gelo, susah	perplexed, troubled, sad	NO
JF1	Fear [P6]	Fear	kaget	shocked	kaget, gelo	surprised, disappointed	NO
JF2	Fear [F3]	Fear	medeni	scary	kaget, ndak nyangka	surprised, not expecting something	NO
JF2	Fear [M4]	Fear	tuwek, kurang turu	old, not getting enough sleep	jijik	disgusted	NO
JF2	Fear [P6]	Fear	tuwek	old	kaget, gak nyongko	surprised, not expecting something	NO
JF3	Fear [F3]	Fear	mendelik	eyes dilated	kaget	surprised	NO
JF3	Fear [M4]	Fear	mringis	grimacing	jijik	disgusted	NO
JF3	Fear [P6]	Fear	mendelik	eyes dilated	kaget	surprised	NO
JF4	Fear [F3]	Fear	kaget	surprised	kaget	surprised	NO
JF4	Fear [M4]	Fear	kaget	surprised	bingung	confused	NO
JF4	Fear [P6]	Fear	terkejut	surprised	terkejut	surprised	NO
JF5	Fear [F3]	Fear	bingung	confused	bingung, kaget	confused, surprised	NO
JF5	Fear [M4]	Fear	medeni	scary	sedih, ngeri	sad, horrified	NO
JF5	Fear [P6]	Fear	medeni	scary	kaget	surprised	NO
JM1	Fear [F3]	Fear	rupane ketok nek wedi. mripate mendolo koyo meh ucol	the face looks scared. the eyes look like about to pop	keweden karo sing didelok	scared of what he/she sees	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM1	Fear [M4]	Fear	rupane koyo wong kaget utowo wedi	the face looks surprised or scared	sing dirasakke deg dekan, alise munggah, mringis bener bener keweden.	heart pounding, eyebrows casted, grimacing like scared	YES
JM1	Fear [P6]	Fear	matane mendolo, arep interaksi karo wong rodo angel	the eyes are open wide, as if interacting with a difficult person	bingungan koyo wong keweden.	confused, as if scared	NO
JM2	Fear [F3]	Fear	kaget	surprised	kaget	surprised	NO
JM2	Fear [M4]	Fear	kaget	surprised	kaget	surprised	NO
JM2	Fear [P6]	Fear	mendelik	eyes dilated	gumun	perplexed	NO
JM3	Fear [F3]	Fear	wedi	scared	wedi	scared	YES
JM3	Fear [M4]	Fear	jijik	disgusted	wedi	scared	NO
JM3	Fear [P6]	Fear	aneh	weird	aneh	weird	NO
JM4	Fear [F3]	Fear	kaget	surprised	wedi	scared	NO
JM4	Fear [M4]	Fear	lucu	funny	kaget	surprised	NO
JM4	Fear [P6]	Fear	elek	ugly	gumun	perplexed	NO
JM5	Fear [F3]	Fear	wedi	scared	wedi	scared	YES
JM5	Fear [M4]	Fear	gepeng	flat	sajak kaget	surprised	NO
JM5	Fear [P6]	Fear	mendhelik	eyes dilated	pengen fokus	wants to focus	NO
JF1	Happiness [F1]	Happiness	seneng	happy	seneng, bungah, lega	happy, joyful, relieved	YES
JF1	Happiness [M3]	Happiness	seneng	happy	seneng, bungah	happy, joyful	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF1	Happiness [P2]	Happiness	seneng	happy	bungah seneng atine	joyful, happy	YES
JF2	Happiness [F1]	Happiness	ayu	pretty	seneng	happy	NO
JF2	Happiness [M3]	Happiness	luwih ngganteng	very handsome	sumringah	joyful look	NO
JF2	Happiness [P2]	Happiness	tuwek	old	seneng	happy	NO
JF3	Happiness [F1]	Happiness	sumringah	joyful look	seneng	happy	YES
JF3	Happiness [M3]	Happiness	mrenges	smiling	seneng	happy	YES
JF3	Happiness [P2]	Happiness	sumringah	joyful look	seneng	happy	YES
JF4	Happiness [F1]	Happiness	seneng	happy	seneng	happy	YES
JF4	Happiness [M3]	Happiness	ngguyu, seneng	laughing, happy	seneng	happy	YES
JF4	Happiness [P2]	Happiness	ramah	friendly	seneng	happy	NO
JF5	Happiness [F1]	Happiness	sumringah	joyful look	seneng	happy	YES
JF5	Happiness [M3]	Happiness	sumringah	joyful look	seneng	happy	YES
JF5	Happiness [P2]	Happiness	seneng	happy	seneng	happy	YES
JM1	Happiness [F1]	Happiness	rupane seneng tapi ngapusi	the face looks happy but deceitful	koyo seneng tapi ora tenanan	as if he looks happy but pretending	YES
JM1	Happiness [M3]	Happiness	rupane bahagia, ketok seko kerutan neng pinggir mripate	the face looks happy, there are lines on the ends of the eyes	seneng, sumringah	happy, joyful look	YES
JM1	Happiness [P2]	Happiness	rupane ketok wong lagi kesenangan didelok soko kerut mripate, guyu	the face looks overjoyed, there are lines on the eyes, laughing	seneng lan sumringah	happy and joyful look	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM2	Happiness [F1]	Happiness	sumeh	smiling	seneng	happy	YES
JM2	Happiness [M3]	Happiness	sumringah	joyful look	seneng	happy	YES
JM2	Happiness [P2]	Happiness	sumeh	smiling	ngguyu	laughing	YES
JM3	Happiness [F1]	Happiness	seneng	happy	seneng	happy	YES
JM3	Happiness [M3]	Happiness	seneng	happy	seneng	happy	YES
JM3	Happiness [P2]	Happiness	seneng	happy	seneng	happy	YES
JM4	Happiness [F1]	Happiness	apik	good-looking	bungah	joyful	NO
JM4	Happiness [M3]	Happiness	apik	good-looking	seneng	happy	NO
JM4	Happiness [P2]	Happiness	bungah	joyful	seneng	happy	YES
JM5	Happiness [F1]	Happiness	nyenengke	pleasant	seneng	happy	NO
JM5	Happiness [M3]	Happiness	nguyu	laughing	seneng	happy	YES
JM5	Happiness [P2]	Happiness	nguyu ketok untune	laughing, showing some teeth	seneng	happy	YES
JF1	Sadness [F4]	Sadness	susah	sad	susah banget, kuciwa	so sad, disappointed	YES
JF1	Sadness [M2]	Sadness	susah	sad	susah banget, gelo	so sad, disappointed	YES
JF1	Sadness [P5]	Sadness	gelo	disappointed	kuciwa, nesu sitik	disappointed, a bit angry	NO
JF2	Sadness [F4]	Sadness	kakehan masalah	too much problems	bingung, pasrah, ngarep	confused, surrendering, hopeful	NO
JF2	Sadness [M2]	Sadness	pegel lan kaget	angry and surprised	bingung	confused	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF2	Sadness [P5]	Sadness	ngesakno	pitiful	susah	sad	NO
JF3	Sadness [F4]	Sadness	sedih	sad	susah	sad	YES
JF3	Sadness [M2]	Sadness	mimbik-mimbik	glassy eyes	susah	sad	YES
JF3	Sadness [P5]	Sadness	mbesengut	pouting	susah	sad	NO
JF4	Sadness [F4]	Sadness	susah	sad	kasusahan	sad	YES
JF4	Sadness [M2]	Sadness	rumongso salah	feeling guilty	susah	sad	NO
JF4	Sadness [P5]	Sadness	susah	sad	sedih	sad	YES
JF5	Sadness [F4]	Sadness	pusing	stressed out	susah	sad	NO
JF5	Sadness [M2]	Sadness	mesake	pitiful	sedih	sad	NO
JF5	Sadness [P5]	Sadness	mesake	pitiful	sedih	sad	NO
JM1	Sadness [F4]	Sadness	rupane lagi mendem sesuatu. Alise tengah munggah. koyo akeh pikiran.	it looks like he/she is hiding something. The eyebrows are frowning, as if thinking so much	mumet, Akeh beban, koyo mendem hal sing angel dilakoni.	stressed, so much pressure, like holding back something that is hard to do	NO
JM1	Sadness [M2]	Sadness	rupane lagi bingung mikirke sesuatu. ndelok seko mripate ketip siji. alise medun, lambene koyo ngemut sesuatu	looks like he/she is in deep thoughts about something. one of the eyes is downcast, one of the eyebrows is down, the lips look like he/she is chewing on something	koyo sedih meh nangis	like sad and crying	NO
JM1	Sadness [P5]	Sadness	ekspresi datar tapi rodo gaya.	no expression but a bit acting	rodo gaya, rodo nyepelekke. Rodo males..	as if pretending, as if spiteful, as if lazy	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM2	Sadness [F4]	Sadness	soro	suffering	soro	suffering	NO
JM2	Sadness [M2]	Sadness	soro	suffering	susah	sad	NO
JM2	Sadness [P5]	Sadness	wuyung	in love	soro	suffering	NO
JM3	Sadness [F4]	Sadness	susah	sad	susah	sad	YES
JM3	Sadness [M2]	Sadness	arep nangis	about to cry	arep nangis	about to cry	YES
JM3	Sadness [P5]	Sadness	susah	sad	susah	sad	YES
JM4	Sadness [F4]	Sadness	elek	ugly	sedih	sad	NO
JM4	Sadness [M2]	Sadness	elek	ugly	bingung	confused	NO
JM4	Sadness [P5]	Sadness	elek	ugly	sedih	sad	NO
JM5	Sadness [F4]	Sadness	mrengut	frowning	ngalamunke bojone	thinking about girl / boyfriend	NO
JM5	Sadness [M2]	Sadness	biasa wae	just normal	mikir	thinking	NO
JM5	Sadness [P5]	Sadness	njembemlek	about-to-cry look	susah	sad	YES
JF1	Surprise [F6]	Surprise	kaget	surprised	kaget	surprised	YES
JF1	Surprise [M1]	Surprise	kaget	surprised	gumun banget	very perplexed	YES
JF1	Surprise [P3]	Surprise	kaget	surprised	kaget seneng lego	surprised, happy, relieved	YES
JF2	Surprise [F6]	Surprise	kurang turu	not enough sleep	bingung	confused	NO
JF2	Surprise [M1]	Surprise	koyo murid	looks like a student	koyo wong nemu jawaban	like someone who's found answers	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JF2	Surprise [P3]	Surprise	tuwek	old	kaget	surprised	NO
JF3	Surprise [F6]	Surprise	mlongo	gawking	kaget	surprised	NO
JF3	Surprise [M1]	Surprise	kaget	surprised	kaget	surprised	YES
JF3	Surprise [P3]	Surprise	mendelik	eyes dilated	kaget	surprised	NO
JF4	Surprise [F6]	Surprise	kaget	surprised	pengen ngerti	wants to understand	NO
JF4	Surprise [M1]	Surprise	terkejut	surprised	kaget	surprised	YES
JF4	Surprise [P3]	Surprise	kaget	surprised	bingung	confused	NO
JF5	Surprise [F6]	Surprise	ngeh	understands	biasa	just normal	NO
JF5	Surprise [M1]	Surprise	kaget	surprised	kaget	surprised	YES
JF5	Surprise [P3]	Surprise	kaget	surprised	kaget	surprised	YES
JM1	Surprise [F6]	Surprise	rupane Bunder, Ketok nek kui awak wonge lemu. motone mendelik. Alise munggah. kerutan neng mbathuk koyo wong ora percoyo karo wong sing diajak ketemu.	the face is round, like a chubby person. The eyes are open wide, the eyebrows slanted. The lines on the forehead makes it seem as if he/she distrust the person he/she is meeting	sing dirasakke koyo ora percoyo karo wong sing neng ngarepane	what is felt is distrust from one who he/she pust trust in	NO
JM1	Surprise [M1]	Surprise	rupane ketok koyo kaget karo wedi seko mripate mendolo alisi munggah kabeh, kerut mbathuk e munggah. lambene mbukak sithik	looks like he/she is surprised and scared because the eyes are open wide, the eyebrows are slanted. The lines on the forehead are up. The lips are slightly ajar.	koyo wong kaget, wedi, Bingung	like surprised, scared, confused	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
JM1	Surprise [P3]	Surprise	mripate Mendolo koyo wong ora trimo	the eyes are open wide as if he/she cannot accept something (he/she sees)	koyo wong ora trimo	like someone who cannot accept (something that is seen)	NO
JM2	Surprise [F6]	Surprise	gumun	perplexed	gumun	perplexed	NO
JM2	Surprise [M1]	Surprise	gumun	perplexed	gumun	perplexed	NO
JM2	Surprise [P3]	Surprise	gumun	perplexed	gumun	perplexed	NO
JM3	Surprise [F6]	Surprise	kaget	surprised	kaget	surprised	YES
JM3	Surprise [M1]	Surprise	kaget	surprised	kaget	surprised	YES
JM3	Surprise [P3]	Surprise	kaget	surprised	kaget	surprised	YES
JM4	Surprise [F6]	Surprise	gumun	perplexed	kaget	surprised	NO
JM4	Surprise [M1]	Surprise	kaget	surprised	kaget	surprised	YES
JM4	Surprise [P3]	Surprise	lucu	funny	gumun	perplexed	NO
JM5	Surprise [F6]	Surprise	biasa wae	just normal	ngelih	hungry	NO
JM5	Surprise [M1]	Surprise	mlongo	gawking	kaget	surprised	NO
JM5	Surprise [P3]	Surprise	kaget	surprised	wedi	scared	NO

Appendix II: Dutch responses of Ekman face stimuli on six basic emotions

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF1	Anger [F2]	Anger	boos	angry	kwaad	evil	NO
DF1	Anger [M6]	Anger	bozig	angrily	verongelijkt	wronged	NO
DF1	Anger [P4]	Anger	soort van verbaasd / verafschuwd	kind of surprised / hated	verafschuwd	hated	NO
DF2	Anger [F2]	Anger	agressief	aggressive	boos	angry	NO
DF2	Anger [M6]	Anger	agressief	aggressive	boos	angry	NO
DF2	Anger [P4]	Anger	geconcentreerd	concentrated	raar	strange	NO
DF3	Anger [F2]	Anger	boos	angry	walging	loathing	NO
DF3	Anger [M6]	Anger	wenkbrauwen gefronst	eyebrows furrowed	boos	angry	NO
DF3	Anger [P4]	Anger	een wenkbrauw gefronst	one eyebrow furrowed	boos	angry	NO
DF4	Anger [F2]	Anger	grappig	funny	boos, naar	angry, to	NO
DF4	Anger [M6]	Anger	lage wenkbrauwen	low eyebrows	boos, ongelukkig	angry, unhappy	NO
DF4	Anger [P4]	Anger	beetje saai	little boring	ongelukkig	unhappy	NO
DF5	Anger [F2]	Anger	boos	angry	woedend	furious	YES
DF5	Anger [M6]	Anger	boos / afkeurend	angry / disapproving	hij keurt gedrag af	he inspects (someone's) behavior	NO
DF5	Anger [P4]	Anger	chagrijnig	grumpy	bozig	angrily	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF6	Anger [F2]	Anger	boos	angry	boos	angry	YES
DF6	Anger [M6]	Anger	alsof hij angst wil creeren	as if he wants to create fear	boos, wil intimideren	angry, want to bully (someone)	NO
DF6	Anger [P4]	Anger	boos	angry	gespannen, boos	tense, angry	YES
DM1	Anger [F2]	Anger	verbaasd en boos	surprised and angry	boos	angry	YES
DM1	Anger [M6]	Anger	boos	angry	boos	angry	YES
DM1	Anger [P4]	Anger	wenkbrauwen wijzen naar beneden	eyebrows pointing down	verdrietig	sad	NO
DM2	Anger [F2]	Anger	boos	angry	boos	angry	YES
DM2	Anger [M6]	Anger	apathisch	apathetic	niet begripvol	not understanding	NO
DM2	Anger [P4]	Anger	observerend	observing	serieus	serious	NO
DM3	Anger [F2]	Anger	boos, tanden ontbloot en gespannen	angry, teeth bared and tense	boos	angry	YES
DM3	Anger [M6]	Anger	gespannen en boos	tense and angry	gespannen	tense	NO
DM3	Anger [P4]	Anger	boos en opstandig	angry and rebellious	boos	angry	YES
DM4	Anger [F2]	Anger	streng	severe	boos	angry	NO
DM4	Anger [M6]	Anger	onprettig	unpleasantly	in de war	in the confusion	NO
DM4	Anger [P4]	Anger	neerslachtig	downcast	verdrietig	sad	NO
DM5	Anger [F2]	Anger	als een moslima	as a (female) Muslim	verontwaardigd (onterecht)	indignant	NO
DM5	Anger [M6]	Anger	clownesk	clownish	boos	angry	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM5	Anger [P4]	Anger	Duits of Brits	German or British	superieur, geirriteerd	superior, irritability	NO
DM6	Anger [F2]	Anger	boos	angry	aangevallen	attack	NO
DM6	Anger [M6]	Anger	boos	angry	boos	angry	YES
DM6	Anger [P4]	Anger	vreemd	strange	verbaasd	surprised	NO
DF1	Disgust [F5]	Disgust	kwaad	angry	boos	angry	NO
DF1	Disgust [M5]	Disgust	afschuwelijk	horrible	vol walging	disgust	NO
DF1	Disgust [P1]	Disgust	vol afschuw	disgust	vol walging	disgust	YES
DF2	Disgust [F5]	Disgust	boos	angry	boos	angry	NO
DF2	Disgust [M5]	Disgust	haatvol	hateful	boos	angry	NO
DF2	Disgust [P1]	Disgust	weezinwekkend	repulsive	verheven	elevated	NO
DF3	Disgust [F5]	Disgust	boos	angry	boos	angry	NO
DF3	Disgust [M5]	Disgust	gezicht is een beetje samengeknepen	face is a little pinched	walging	loathing	NO
DF3	Disgust [P1]	Disgust	mondhoeken naar beneden	mouth corners down	verdrietig	sad	NO
DF4	Disgust [F5]	Disgust	vooral veel tanden	especially many teeth	niet zo lekker	not so tasty	NO
DF4	Disgust [M5]	Disgust	eng	scary	boos	angry	NO
DF4	Disgust [P1]	Disgust	hilarisch	hilarious	naar	to	NO
DF5	Disgust [F5]	Disgust	boos	angry	boos	angry	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF5	Disgust [M5]	Disgust	alsof hij iets vies ziet	as if he sees something gross	hij keurt iets af	he inspects something	NO
DF5	Disgust [P1]	Disgust	afkeurend	disapproving	hij is het ergens niet mee eens	he does not agree with something	NO
DF6	Disgust [F5]	Disgust	boos	angry	boos, walgend	angry, disgusted	NO
DF6	Disgust [M5]	Disgust	walging	loathing	boos/teleurgesteld	angry / disappointed	NO
DF6	Disgust [P1]	Disgust	verbaasd	surprised	verbaasd, onzeker	puzzled, uncertain	NO
DM1	Disgust [F5]	Disgust	boos, walgend	angry, disgusted	boos	angry	NO
DM1	Disgust [M5]	Disgust	opgetrokken mond en neus, samengetrokken wenkbrauwen	erected mouth and nose, frowning eyebrows	geirriteerd	annoyed	NO
DM1	Disgust [P1]	Disgust	opgetrokken mond	erected mouth	neutraal	neutral	NO
DM2	Disgust [F5]	Disgust	verkrompen	convulsed	pijnlijk	painful	NO
DM2	Disgust [M5]	Disgust	walgend	disgusted	walgend	disgusted	YES
DM2	Disgust [P1]	Disgust	walgend	disgusted	walgend	disgusted	YES
DM3	Disgust [F5]	Disgust	boos en afschuw	anger and disgust	verafschuwd	hated	NO
DM3	Disgust [M5]	Disgust	vol afschuw en opstandigheid	disgust and rebelliousness	boos	angry	NO
DM3	Disgust [P1]	Disgust	vol afschuw, mondhoeken naar beneden	horrified, mouth down	verafschuwd	hated	NO
DM4	Disgust [F5]	Disgust	gekreukeld	wrinkled	walging	loathing	NO
DM4	Disgust [M5]	Disgust	walging	loathing	walging	loathing	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM4	Disgust [P1]	Disgust	somber	dreary	teleurgesteld	disappointed	NO
DM5	Disgust [F5]	Disgust	Spaans	Spanish	ze walgt ergens van	she loathes somewhere	NO
DM5	Disgust [M5]	Disgust	hilarisch	hilarious	drammerig als een vervelend kind dat niet zijn zin krijgt	pushy like an annoying child who does not get his way	NO
DM5	Disgust [P1]	Disgust	Duits of Frans of een ander naar volk	German or French or unpleasant people	hij walgt van het een of ander	he is disgusted by something or other	NO
DM6	Disgust [F5]	Disgust	ze kijkt vies	she looks dirty (nasty?)	walging, afkeer	disgust, revulsion	NO
DM6	Disgust [M5]	Disgust	vol van walging	full of disgust	onprettig	unpleasantly	NO
DM6	Disgust [P1]	Disgust	afkeer, negatief	aversion, negative	vol afkeer	disgust	NO
DF1	Fear [F3]	Fear	verafschuwd	hated	bang	scared	NO
DF1	Fear [M4]	Fear	bangig	kind of scared	bang	scared	YES
DF1	Fear [P6]	Fear	bizar	bizarre	geschrokken	shocked (due to fear)	NO
DF2	Fear [F3]	Fear	geschrokken	shocked (due to fear)	bang	scared	YES
DF2	Fear [M4]	Fear	geschrokken	shocked (due to fear)	bang	scared	YES
DF2	Fear [P6]	Fear	geschrokken	shocked (due to fear)	overvallen	raid	NO
DF3	Fear [F3]	Fear	grote ogen, wenkbrauwen hoog	big eyes, high eyebrows	geschrokken	shocked (due to fear)	NO
DF3	Fear [M4]	Fear	geschrokken	shocked (due to fear)	verschrikt	fright	YES
DF3	Fear [P6]	Fear	hele grote ogen	huge eyes	schuldig	guilty	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF4	Fear [F3]	Fear	grote ogen	big eyes	bang, geschrokken	scared, frightened	NO
DF4	Fear [M4]	Fear	opgetrokken wenkbrauwen	raised eyebrows	geschrokken	shocked (due to fear)	NO
DF4	Fear [P6]	Fear	ook weer grote ogen	again big eyes	bang, verdrietig	scared, sad	NO
DF5	Fear [F3]	Fear	grote ogen	big eyes	geschrokken	shocked (due to fear)	NO
DF5	Fear [M4]	Fear	geschrokken	shocked (due to fear)	bang	scared	YES
DF5	Fear [P6]	Fear	geschrokken	shocked (due to fear)	bang	scared	YES
DF6	Fear [F3]	Fear	angstig	anxiously	bang, onzeker	scared, uncertain	NO
DF6	Fear [M4]	Fear	angstig	anxiously	bang	scared	NO
DF6	Fear [P6]	Fear	verbaasd	surprised	verrast	surprised	NO
DM1	Fear [F3]	Fear	gerimpeld voorhoofd, opengesperde ogen	wrinkled forehead, wide-eyed	geschrokken	shocked (due to fear)	NO
DM1	Fear [M4]	Fear	gerimpeld voorhoofd, open mond, opgetrokken neus	wrinkled forehead, open mouth, raised nose	verbaasd	surprised	NO
DM1	Fear [P6]	Fear	verdrietig	sad	verdrietig / terneergeslagen	sad / depressed	NO
DM2	Fear [F3]	Fear	geagiteerd	agitated	ongemakkelijk	uncomfortable	NO
DM2	Fear [M4]	Fear	bang	scared	bang	scared	YES
DM2	Fear [P6]	Fear	geschrokken	shocked (due to fear)	verbaasd	surprised	NO
DM3	Fear [F3]	Fear	doodsbang	terrified	bang	scared	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM3	Fear [M4]	Fear	verbaasd en gespannen	surprised and tense	gespannen	tense	NO
DM3	Fear [P6]	Fear	verschrikt	fright	geschrokken	shocked (due to fear)	YES
DM4	Fear [F3]	Fear	verbaast	amazes	bang	scared	NO
DM4	Fear [M4]	Fear	verrast	surprised	ongemakkelijk	uncomfortable	NO
DM4	Fear [P6]	Fear	verbaasd	surprised	verbaasd	surprised	NO
DM5	Fear [F3]	Fear	als een oude Spaanse vrouw	like an old Spanish woman	verbaasd, geschrokken en walgend	surprised, shocked and disgusted	NO
DM5	Fear [M4]	Fear	nog steeds oud en lelijk	still old and ugly	geen specifiek gevoel, hij trekt deze gekke bek voor een fotoshoot, dat is zijn werk	no specific sense, he pulls this funny face for a photo shoot, that's his job	NO
DM5	Fear [P6]	Fear	neutraal	neutral	geschokt, op een zeer negatieve manier	shocked, in a very negative way	NO
DM6	Fear [F3]	Fear	verbaasd, geschokt	amazed, shocked	geschokt, verdrietig	shocked, sad	NO
DM6	Fear [M4]	Fear	angstig	anxiously	bang, geschrokken	scared, frightened	NO
DM6	Fear [P6]	Fear	zeer grote ogen, erg geschrokken	very large eyes, very shocked	geschokt	shocked	NO
DF1	Happiness [F1]	Happiness	vrolijk	cheerful	blij	joyful	YES
DF1	Happiness [M3]	Happiness	vrolijk	cheerful	blij	joyful	YES
DF1	Happiness [P2]	Happiness	vrolijk	cheerful	blij	joyful	YES
DF2	Happiness [F1]	Happiness	vriendelijk	friendly	gelukkig	happy	NO
DF2	Happiness [M3]	Happiness	gelukkig	happy	tevreden	satisfied	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF2	Happiness [P2]	Happiness	vrolijk	cheerful	goed	good	NO
DF3	Happiness [F1]	Happiness	breed lachend	smiling broadly	blij	joyful	NO
DF3	Happiness [M3]	Happiness	lachrimpels	laugh wrinkles	blij	joyful	NO
DF3	Happiness [P2]	Happiness	open mond, lachend	open mouth, laughing	gelukkig	happy	NO
DF4	Happiness [F1]	Happiness	mooi	beautiful	vrolijk	cheerful	NO
DF4	Happiness [M3]	Happiness	heel vrolijk	very cheerful	blij	happy	YES
DF4	Happiness [P2]	Happiness	heel aardig	very nice	blij, gelukkig, lekker	joyful, happy, yummy	NO
DF5	Happiness [F1]	Happiness	blij	joyful	blij	joyful	YES
DF5	Happiness [M3]	Happiness	blij	joyful	blij	joyful	YES
DF5	Happiness [P2]	Happiness	blij	joyful	blij	joyful	YES
DF6	Happiness [F1]	Happiness	blij	joyful	blij	joyful	YES
DF6	Happiness [M3]	Happiness	blij	joyful	gelukkig, vrolijk	happy, cheerful	YES
DF6	Happiness [P2]	Happiness	vrolijk	cheerful	blij, gelukkig	joyful, happy	YES
DM1	Happiness [F1]	Happiness	vrolijk	cheerful	gelukkig	happy	YES
DM1	Happiness [M3]	Happiness	vrolijk en lachend	cheerful and smiling	blij/gelukkig	joyful / happy	YES
DM1	Happiness [P2]	Happiness	vrolijk	cheerful	blij	joyful	YES
DM2	Happiness [F1]	Happiness	lachend	laughing	blij	joyful	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM2	Happiness [M3]	Happiness	lachen als een boer met kiespijn	laughing like a farmer with toothache	ongemakkelijk	uncomfortable	NO
DM2	Happiness [P2]	Happiness	lachend	laughing	blij	joyful	NO
DM3	Happiness [F1]	Happiness	blij, grote lach	joyful, big smile	blij	joyful	YES
DM3	Happiness [M3]	Happiness	blij, grote lach	joyful, big smile	blij en gelukkig	glad and happy	YES
DM3	Happiness [P2]	Happiness	erg blij, grote lach	Very joyful, big smile	blij en opgetogen	joyful and elated	YES
DM4	Happiness [F1]	Happiness	blij	joyful	blij	joyful	YES
DM4	Happiness [M3]	Happiness	open	open	vrolijk	cheerful	NO
DM4	Happiness [P2]	Happiness	vrolijk	cheerful	gelukkig	happy	YES
DM5	Happiness [F1]	Happiness	Spaans	Spanish	als een Pharrell Williams liedje (happy)	Pharrell Williams as a song (happy)	NO
DM5	Happiness [M3]	Happiness	clownesk	clownish	superhappy	super happy	NO
DM5	Happiness [P2]	Happiness	Amerikaans	American	opgewekt, trots, nationalistisch	excited, proud, nationalistic	NO
DM6	Happiness [F1]	Happiness	vrolijk lachend	smiling cheerfully	blij	joyful	YES
DM6	Happiness [M3]	Happiness	breed lachend, vrolijk	wide smiling, cheerful	blij	joyful	YES
DM6	Happiness [P2]	Happiness	vrolijk lachend	smiling cheerfully	vrolijk	cheerful	YES
DF1	Sadness [F4]	Sadness	treurig	sad	verdrietig	sad	YES
DF1	Sadness [M2]	Sadness	verdrietig	sad	verdrietig	sad	YES
DF1	Sadness [P5]	Sadness	treurig	sad	verdrietig	sad	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF2	Sadness [F4]	Sadness	verdrietig	sad	verdrietig	sad	YES
DF2	Sadness [M2]	Sadness	ontevreden	dissatisfied	teleurgesteld	disappointed	NO
DF2	Sadness [P5]	Sadness	ongelukkig	unhappy	ongelukkig	unhappy	NO
DF3	Sadness [F4]	Sadness	mondhoeken naar beneden	mouth corners down	verdrietig	sad	NO
DF3	Sadness [M2]	Sadness	ogen dichtgeknepen	eyes closed tightly	Walging	loathing	NO
DF3	Sadness [P5]	Sadness	ogen een beetje dichtgeknepen	eyes slightly narrowed	teleurgesteld	disappointed	NO
DF4	Sadness [F4]	Sadness	beetje scheef, hangende oogleden	little crooked, drooping eyelids	triest	sad	NO
DF4	Sadness [M2]	Sadness	nog steeds veel rimpels	still many wrinkles	heel verdrietig	very sad	NO
DF4	Sadness [P5]	Sadness	hangend ogen	hanging eyes	niet goed	not good	NO
DF5	Sadness [F4]	Sadness	verdrietig	sad	verdrietig	sad	YES
DF5	Sadness [M2]	Sadness	verschrompeld	shriveled	verdrietig	sad	NO
DF5	Sadness [P5]	Sadness	treurig	sad	verdrietig	sad	YES
DF6	Sadness [F4]	Sadness	ongelukkig	unhappy	verdrietig	sad	NO
DF6	Sadness [M2]	Sadness	zielig	pathetic	verdrietig	sad	NO
DF6	Sadness [P5]	Sadness	sneu	died	verdrietig	sad	NO
DM1	Sadness [F4]	Sadness	bijeengetrokken wenkbrauwen	eyebrows were pulled together	verdrietig	sad	NO
DM1	Sadness [M2]	Sadness	sippe mond	pouting mouth	verdrietig	sad	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM1	Sadness [P5]	Sadness	sip	gloomy	verdrietig	sad	YES
DM2	Sadness [F4]	Sadness	medelijden	pity	verdrietig	sad	NO
DM2	Sadness [M2]	Sadness	vol afgrijzen	horror	vreselijk slecht	terribly bad	NO
DM2	Sadness [P5]	Sadness	moeilijk	difficult	neutraal	neutral	NO
DM3	Sadness [F4]	Sadness	vol medelijden	compassionately	gecompassioneerd	compassionately	NO
DM3	Sadness [M2]	Sadness	verontwaardigd, afschuw	indignation, disgust	verontwaardigd	indignantly	NO
DM3	Sadness [P5]	Sadness	verdrietig, hangende mondhoeken	sad, drooping mouth	verdrietig	sad	YES
DM4	Sadness [F4]	Sadness	verdrietig	sad	verdrietig	sad	YES
DM4	Sadness [M2]	Sadness	triest	sad	verdrietig	sad	YES
DM4	Sadness [P5]	Sadness	triest	sad	verdrietig	sad	YES
DM5	Sadness [F4]	Sadness	als een hele zieke oude Spaanse vrouw	as a very sick old Spanish woman	beroerd	bad	NO
DM5	Sadness [M2]	Sadness	oud en lelijk	old and ugly	bang en verdrietig	afraid and sad	NO
DM5	Sadness [P5]	Sadness	zielig	pathetic	verdrietig	sad	NO
DM6	Sadness [F4]	Sadness	verdrietig	sad	verdrietig	sad	YES
DM6	Sadness [M2]	Sadness	verdrietig, ongeloof	sad, disbelief	verdrietig, geschokt	sad, shocked	YES
DM6	Sadness [P5]	Sadness	verdrietig	sad	verdrietig	sad	YES
DF1	Surprise [F6]	Surprise	verbaasd	surprised	verbaasd	surprised	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DF1	Surprise [M1]	Surprise	geschrokken	shocked (due to fear)	bang	scared	NO
DF1	Surprise [P3]	Surprise	verrast	surprised	verbaasd	surprised	YES
DF2	Surprise [F6]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF2	Surprise [M1]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF2	Surprise [P3]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF3	Surprise [F6]	Surprise	wenkbrauwen hoog opgetrokken	eyebrows raised high	verbaasd	surprised	NO
DF3	Surprise [M1]	Surprise	schuldig	guilty	schuldbewust	guilty	NO
DF3	Surprise [P3]	Surprise	voorhoofd gefronst	forehead furrowed	walging	loathing	NO
DF4	Surprise [F6]	Surprise	grote ogen, open mond	big eyes, open mouth	geschrokken	shocked (due to fear)	NO
DF4	Surprise [M1]	Surprise	grote ogen, veel rimpels	big eyes, lots of wrinkles	niet zo blij	not so joyful	NO
DF4	Surprise [P3]	Surprise	grote ogen, mooi haar	big eyes, beautiful hair	verbaasd, niet heel ongelukkig	surprised, not very unhappy	NO
DF5	Surprise [F6]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF5	Surprise [M1]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF5	Surprise [P3]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DF6	Surprise [F6]	Surprise	uiting van blijheid	expressing joy	positief verrast	positively surprised	NO
DF6	Surprise [M1]	Surprise	angstig	anxiously	verbaasd, bang	puzzled, scared	NO
DF6	Surprise [P3]	Surprise	verrast	surprised	verrast, verbaasd op een positieve manier	surprised, surprised in a positive way	YES

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM1	Surprise [F6]	Surprise	opgetrokken wenkbrauwen	raised eyebrows	verbaasd, maar blij	surprised but happy	NO
DM1	Surprise [M1]	Surprise	verbaasd/gerimpeld voorhoofd	amazed / wrinkled forehead	geschrokken	shocked (due to fear)	NO
DM1	Surprise [P3]	Surprise	verbaasd, opengesperde ogen	amazed, his eyes wide	geschrokken/bang	shocked (due to fear) / scared	NO
DM2	Surprise [F6]	Surprise	glimlach met opgetrokken wenkbrauwen	smile (with mouth closed) with raised eyebrows	blij verrast	joyfully surprised	NO
DM2	Surprise [M1]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DM2	Surprise [P3]	Surprise	gek	crazy	verbaasd	surprised	NO
DM3	Surprise [F6]	Surprise	opgelucht en misschien verbaasd	perhaps relieved and surprised	opgelucht	relieved	NO
DM3	Surprise [M1]	Surprise	verschrikt, grote ogen	startled, big eyes	geschrokken	shocked (due to fear)	NO
DM3	Surprise [P3]	Surprise	verbaasd, grote ogen	surprised, big eyes	verbaasd	surprised	YES
DM4	Surprise [F6]	Surprise	onschuldig	innocent	betraapt	caught	NO
DM4	Surprise [M1]	Surprise	geschrokken	shocked (due to fear)	verbaast	amazes	NO
DM4	Surprise [P3]	Surprise	verbaasd	surprised	geschrokken	shocked (due to fear)	NO
DM5	Surprise [F6]	Surprise	rond en vermoeid	round and tired	verbaasd	surprised	NO
DM5	Surprise [M1]	Surprise	komisch	comic	verbaasd op een theatrale manier	surprised by a theatrical way	NO
DM5	Surprise [P3]	Surprise	Brits	British	geschokt	shocked	NO
DM6	Surprise [F6]	Surprise	verbaasd	surprised	verbaasd	surprised	YES
DM6	Surprise [M1]	Surprise	geschrokken, erg grote ogen	shocked, very big eyes	geschokt	shocked	NO

SUBJECT	STIMULUS	EMOTIONS	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	MATCHED
DM6	Surprise [P3]	Surprise	onnatuurlijk, verbaasd	unnatural, surprised	Verbaasd	surprised	YES

Appendix III: Javanese responses of MREL stimuli on six basic emotions

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JF1	MREL [anger]	Anger	nesu	angry	nesu banget, jijik	very angry, disgusted	asem, kaosku reged, crobotenang mbake	darn it. my t-shirt now became dirty. I wish you were calmer, Miss.	YES
JF2	MREL [anger]	Anger	lumayan	not bad	nesu	angry	weh, wong iki! gak ndhelok tha lek mlaku?!	you! didn't you use your eyes when you're walking?!	NO
JF3	MREL [anger]	Anger	nesu	angry	nesu	angry	kurang ajar! pancen dasar ora ndolor! wedang kok diwutahke neng klambiku!	darn it! indeed she's not smart! How come that she spilled the drink over my t-shirt?!	YES
JF4	MREL [anger]	Anger	nesu	angry	jengkel	upset	njelehi	(she's) annoying	NO
JF5	MREL [anger]	Anger	medeni	scary	kesel	upset	kesel karo pelayan sing numpahke unjukan	he's upset with the waitress who spilled the drink on him	NO
JM1	MREL [anger]	Anger	mbesengut, kagol	sulking, disappointed	sing dirasakke kagol lan nesu	what he's feeling is disappointed and angry	arep mangan malah diregeti	my plan was to eat, instead I became dirty instead	NO
JM2	MREL [anger]	Anger	nesu	angry	nesu	angry	kurang asem wong iki	this girl!	YES
JM3	MREL [anger]	Anger	nesu	angry	nesu	angry	piye tho...!!!	what now??	YES
JM4	MREL [anger]	Anger	elek	ugly	jengkel	upset	kowe nganyelke	you're so annoying	NO

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JM5	MREL [anger]	Anger	elek, nesu	ugly, angry	nesu	angry	sembrono ki	so careless	YES
JF1	MREL [disgust]	Disgust	jijik	disgusted	risi banget, eneg	discomfort, nauseous	jijik tenan aku pengen muntah	so disgusting. I feel like throwing up.	YES
JF2	MREL [disgust]	Disgust	koyok wong stress	looks like a stressed out person	koyok wong stress, kaget, jijik	like a stressed out person, surprised, disgusted	yek, opo iki? aku mangan opo kok rupane njijiki	yucks, what's this? what am I eating, it looks disgusting	NO
JF3	MREL [disgust]	Disgust	jijik	disgusted	jijik, arep gumoh	disgusted, wants to throw up	lha nek panganan iki ana ulere, berarti aku mau mangan uler? hih, nggilani...	so, now this food has a snake in it, does it mean I want to eat it? yuck, disgusting.	YES
JF4	MREL [disgust]	Disgust	jijik	disgusted	jijik	disgusted	opo iki njijiki	what is this? It looks disgusting.	YES
JF5	MREL [disgust]	Disgust	mesake	pitiful	jijik	disgusted	mual	I feel sick	NO
JM1	MREL [disgust]	Disgust	kaget nek ono uler	surprised because there is a snake	jengkel, jijik	upset, disgusted	kurang ajar entuk panganan ono uler e	what the heck, I got food with a snake.	NO
JM2	MREL [disgust]	Disgust	ngelih	hungry	muntah	throwing up	panganan opo iki	what is this food?	NO
JM3	MREL [disgust]	Disgust	gak seneng / jijik	not happy / disgusted	gak seneng / jijik	not happy/ disgusted	gak enak	It's not delicious	YES
JM4	MREL [disgust]	Disgust	elek	ugly	eneg	nauseous	panganan iki ora enak	this food is not delicious.	NO
JM5	MREL [disgust]	Disgust	mblenek	nauseatic	jijik	disgusted	opo iki?	what's this?	YES

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JF1	MREL [fear]	Fear	susah	sad	kaget, risi, wedhi	surprised, uncomfortable, scared	wedhi tenan aku jiji banget tikuse	I'm so scared, feeling disgusted with the mouse	NO
JF2	MREL [fear]	Fear	ayu	pretty	kaget, jijik	surprised, disgusted	waduh, tikus!	No, a mouse!	NO
JF3	MREL [fear]	Fear	wedhi	scared	jijik, wedhi	surprised, scared	weh! lha kok tikus! hiiii... aku gilo...	No! A mouse! I feel disgusted..	YES
JF4	MREL [fear]	Fear	kaget, wedhi	surprised, scared	wedhi, jijik	scared, disgusted	njijiki	disgusting	YES
JF5	MREL [fear]	Fear	wedhi	scared	wedhi karo mencil	scared of a mouse	jijik, wedhi karo mencil	disgusting, I'm scared with the mouse	YES
JM1	MREL [fear]	Fear	kaget, lambene nyinyir	surprised, the lips are pouted	wedhi, jijik, kaget	scared, disgusted, surprised	Jijiki karo tikus	I'm disgusted by the mouse	NO
JM2	MREL [fear]	Fear	jenggirat	just got up	wedhi	scared	tuluung	help!	YES
JM3	MREL [fear]	Fear	jijik / wedhi	disgusted/scared	jijik / wedhi	disgusted/scared	ngalih... ngalih....	I want to move, I want to move	YES
JM4	MREL [fear]	Fear	kaget	surprised	wedhi	scared	nggilani	disgusting	NO
JM5	MREL [fear]	Fear	gilo	disgusted	jijik	disgusted	ngilani tenan	this is very disgusting	NO
JF1	MREL [happiness]	Happiness	seneng	happy	seneng, bungah banget	happy, so joyful	seneng banget ketemu pacare	She's happy to meet her boyfriend	YES
JF2	MREL [happiness]	Happiness	ayu lan nyempluk	pretty and chubby	kaget, seneg, tresno	surprised, happy, in love	walah, akhire ketemu! sueneng, aku kuangen karo kowe!	we finally met! I'm so happy, I miss you so much!	NO

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JF3	MREL [happiness]	Happiness	sumringah	joyful	kaget, seneng	surprised, happy	wah, aku ora nyangka lan seneng tenan ketemu kowe...	wow, I wouldn't have thought to meet you but I'm happy about it...	YES
JF4	MREL [happiness]	Happiness	kaget, seneng	surprised, happy	seneng	happy	seneng atiku	my heart is happy	YES
JF5	MREL [happiness]	Happiness	seneng	happy	tombo kangen	missing someone	seneng, wis suwi ora ketemu karo pacar/dulur	I'm happy, it's been awhile since I met my boyfriend / relative	NO
JM1	MREL [happiness]	Happiness	rupane koyo ora seneng tapi kudu ngapusi seneng	it looks like he/she is not happy but must pretend to be happy	mendem hal tapi kudu ketok seneng	hiding something but has to look happy	koyo ora kenenak nek ora seneng	she looks unpleasant when she's not happy	NO
JM2	MREL [happiness]	Happiness	basa-basi	wishy-washy	biasa wae	just normal	apa kabar? (basa-basi)	how are you? (wishy-washy)	NO
JM3	MREL [happiness]	Happiness	seneng	happy	tresno	in love	seneng	happy.	NO
JM4	MREL [happiness]	Happiness	bungah	joyful	seneng, bungah	happy, joyful	aku seneng ketemu karo kowe maneh	I'm happy to see you again.	YES
JM5	MREL [happiness]	Happiness	seneng	happy	seneng	happy	wah wis bali to, suwe ora ketemu	ah, now you're back, it's been awhile since last time we met	YES
JF1	MREL [sadness]	Sadness	wedhi	scared	khawatir, susah, wedhi	worried, sad, scared	mugo2 bojoku selamat ya Allah	I hope my spouse is safe, God	NO

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JF2	MREL [sadness]	Sadness	ayu, mesakno	pretty, pitiful	seneng, susah, kangen, gak pingin pisah	happy, sad, missing someone, not wanting to be separated	ati-ati, yo.	take care, ok?	NO
JF3	MREL [sadness]	Sadness	mbrambangi	glassy eyes	sedih, trenyuh	sad, touched	aku nglilakke kowe lunga, tapi aku yo susah yen mbok tinggal lunga	I'm wholeheartedly letting you go, but I'm also sad that you're leaving me.	YES
JF4	MREL [sadness]	Sadness	susah	sad	sedih	sad	isih kangen	I still miss you	YES
JF5	MREL [sadness]	Sadness	sedih, cemas	sad, worried	sedih, cemas	sad, worried	cemas	I'm worried	YES
JM1	MREL [sadness]	Sadness	rupane koyo wong kelangan ra percoyo	she looks like someone who has lost his/her trust	sedih, seneng	sad, happy	ora percoyo nek arep ditinggal	I couldn't believe that he's leaving me.	NO
JM2	MREL [sadness]	Sadness	sedih	sad	kelangan	feeling of losing something/ someone	aku bakal kangen wong iku.	I will miss him.	NO
JM3	MREL [sadness]	Sadness	sedih	sad	sedih	sad	ati-ati, yo.	take care, OK?	YES
JM4	MREL [sadness]	Sadness	bungah	joyful	sedih	sad	aku bakal kelangan kowe	I will miss you.	NO
JM5	MREL [sadness]	Sadness	mbrambangi	glassy eyes	susah	sad	oyo bali, yo.	don't come back	YES
JF1	MREL [surprise]	Surprise	seneng	happy	kaget, seneng	surprised, happy	wah mayan entuk duit.	this is not bad, I got some money.	NO

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
JF2	MREL [surprise]	Surprise	koyok wong tangi turu	he looks like someone who just woke up	kaget, bingung, seneng	surprised, confused, happy	weh, lumayan entok duit	It's not bad, I got some money	NO
JF3	MREL [surprise]	Surprise	mlongo	gawking	kaget, seneng	surprised, happy	we... opo iki? lha kok jebul aku entuk duwit... waah, lumayaaann...	hey, what's this? wow, I'm lucky I got some money. Not so bad!	NO
JF4	MREL [surprise]	Surprise	kaget, seneng	surprised, happy	seneng	happy	opo iki, yo?	what's this?	NO
JF5	MREL [surprise]	Surprise	lucu	funny	kaget	surprised	kaget, bingung	surprised, confused	NO
JM1	MREL [surprise]	Surprise	lumrah, aneh, ra percoyo	usual, strange, disbelief	ora percoyo entuk duit	he's disbelieved for getting money	kok iso	how come?	NO
JM2	MREL [surprise]	Surprise	kaget	surprised	seneng	happy	aku nemu opo iki?	wait, what's this thing I found?	NO
JM3	MREL [surprise]	Surprise	Kaget / seneng	surprised/happy	kaget / seneng	Surprised / happy	gak nyongko	who would have expected it?	YES
JM4	MREL [surprise]	Surprise	lucu	funny	kaget	surprised	lho jebulane ana duwit to	Wow, there's money	NO
JM5	MREL [surprise]	Surprise	kaget	surprised	seneng	happy	oleh duwit!	Got some money!	NO

Appendix IV: Dutch responses of MREL stimuli on six basic emotions

SUBJECT	STIMULUS	EMOTION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DF1	MREL [anger]	Anger	kwaad	angry	kwaad	angry	hoe kun je dit doen?!	how could you do this ?!	NO
DF2	MREL [anger]	Anger	agressief	aggressive	razend	furious	wat een rotwijf	what a bitch	NO
DF3	MREL [anger]	Anger	mondhoeken naar beneden getrokken, ogen staan boos, veel rimpels	mouth drawn down, eyes are angry, lots of wrinkles	geschrokken en echt heel boos	shocked (due to fear) and very angry	wat ben jij een sukkel zeg!	what are you saying a sucker!	YES
DF4	MREL [anger]	Anger	neusvleugels opgetrokken, mondhoeken naar beneden, beetje eng	nostrils raised, mouth down, bit scary	boos, verdrietig	angry, sad	oh nee! Wegwezen, onhandige klungel	oh no! get out, clumsy bungler	NO
DF5	MREL [anger]	Anger	eerste, geschrokken dan heel kwaad	first, very shocked (due to fear) then very angry	boos en geirriteerd	angry and irritated	g*dverdomme	damned it	YES
DF6	MREL [anger]	Anger	boos	angry	woedend	furious	kijk eens uit	look out	YES
DM1	MREL [anger]	Anger	mond naar beneden getrokken, wenkbrauwen samengeknepen	mouth pulled down, brows pinched	furious	fierce	godverdomme ! Blijf van me af!	damned it! Stay away from me!	NO
DM2	MREL [anger]	Anger	woedend	furious	boos	angry	wat heb je gedaan?!	what have you done?!	YES
DM3	MREL [anger]	Anger	boos, vol haat	angry, hateful	boos	angry	wat doe je nou!	what are you doing!	YES
DM4	MREL [anger]	Anger	boos	angry	boos	angry	godverdomme	damned it	YES

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DM5	MREL [anger]	Anger	monsterlijk	monstrous	woedend	furious	zeg \$%#\$^, kijk je @#%\$^%\$ #^ een beetje uit ja, jij @#\$\$^#%\$ \$%^\$#!@%^ %\$#	say \$ # % # \$ ^, look @ # \$ % % ^ % \$ # ^ a bit of yes, you @ # \$ # \$ ^ # \$ % ^ \$ % ^ \$ # ! @ % ^ % \$ #	YES
DM6	MREL [anger]	Anger	erg kwaad	very angry	boos	angry	ga weg	go away	YES
DF1	MREL [disgust]	Disgust	verwongen van walging	contorted with disgust	vol walging, misselijk	disgusting, nauseous	bah	bah	YES
DF2	MREL [disgust]	Disgust	weerzinwekkend	repulsive	onwel	scared	gatverdamme	damned it	NO
DF3	MREL [disgust]	Disgust	samengetrokken, wenkbrauwen naar beneden, mond samengeknepen	pursed, eyebrows down, mouth pursed	geschrokken, walgend van het eten dat ze ziet	shocked (due to fear) (due to fear), disgusted by the food she sees	bah, er zit een beest in mijn eten, heb ik dat net ook al opgegeten?	yuck, there's a beast in my food, did I just already eat it?	NO
DF4	MREL [disgust]	Disgust	rimpels boven de neus, best mooi	wrinkles above the nose, quite beautiful	verdrietig, geschrokken, misselijk	sad, shocked (due to fear), nauseous	oh bah! Ik heb dat toch niet gegeten he?	oh bah! I've never eaten it?	NO
DF5	MREL [disgust]	Disgust	eerst ongeïnteresseerd, als ze doorheeft dat er een beest in haar eten zit geschrokken en trekt ze een vies gezicht	first, she's disinterested, and as she realizes that there's a beast in her food, she's shocked (due to fear) and she pulls a face	alsof ze iets vies eet	looks like she eats something dirty	bah / gadver	bah / damned	NO

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DF6	MREL [disgust]	Disgust	walgend	disgusted	ze walgt van haar eten	she feels disgusted about her food	wat vies	so dirty	YES
DM1	MREL [disgust]	Disgust	samengetrokken wenkbrouwen, lippen op elkaar	eyebrows and lips drawn together	misselijk	nauseous	gadverdamme!	damned it!	NO
DM2	MREL [disgust]	Disgust	verafschuwd	hated	misselijk	nauseous	gadverdamme!	damned it!	NO
DM3	MREL [disgust]	Disgust	vol walging	disgust	vies en vol walging	dirty and full of disgust	bah, wat is dit nu!	ugh, what's this!	YES
DM4	MREL [disgust]	Disgust	verwongen	distorted	walging	digust	gadverdamme	gadverdamme	NO
DM5	MREL [disgust]	Disgust	mooi	beautiful	ze walgt van de made	she loathes the maggot	gadverpiellekes, ik ben toch niet voor niets vegetarier	gadverpiellekes, I'm not a vegetarian for nothing	NO
DM6	MREL [disgust]	Disgust	vol walging	disgust	vol walging	disgust	bah	bah	YES
DF1	MREL [fear]	Fear	verwongen	distorted	geschrokken	shocked (due to fear)	oei een muis	oops mouse	NO
DF2	MREL [fear]	Fear	geschrokken	shocked (due to fear)	bang	scared	ga weg!	go away!	YES
DF3	MREL [fear]	Fear	geschrokken	shocked (due to fear)	geschrokken en angstig	shocked (due to fear) and anxious	dat ze de muis vies vindt en dat ze ervan schrikt	she finds dirty mouse and it scares her.	YES
DF4	MREL [fear]	Fear	ogen dicht, beetje rimpels	eyes, little wrinkles	bang, geschrokken, verdrietig	scared, shocked (due to fear), sad	neeee! Ga weg!	noooo! Go away!	NO
DF5	MREL [fear]	Fear	alsof ze jeuk heeft	as if she's itchy	geschrokken	shocked (due to fear)	ieeuw!!	eeeww !!	NO
DF6	MREL [fear]	Fear	angstig	anxiously	bang	scared	ga weg	go away	NO

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DM1	MREL [fear]	Fear	opengesperde ogen, samengetrokken wenkbrauwen	dilated eyes, frowning eyebrows	vies	dirty	IIIIIIIIII	yuck	NO
DM2	MREL [fear]	Fear	walgend	disgusted	bang	scared	ga weg!	go away!	NO
DM3	MREL [fear]	Fear	bang	scared	bang	scared	ah, een muis!	ah, a mouse!	YES
DM4	MREL [fear]	Fear	bang	scared	bang	scared	ahhhhh	ahhhhh	YES
DM5	MREL [fear]	Fear	mooi	beautiful	eerst relaxed, dan bang	first relaxed, then scared	piep zegt de muis, iek schreeuwt de vrouw	'beep', says the mouse; 'yuck', cries the woman	NO
DM6	MREL [fear]	Fear	bang, geschrokken	scared, shocked (due to fear)	bang	scared	help	help	YES
DF1	MREL [happiness]	Happiness	intens gelukkig	intense happiness	blij, opgewekt	joyful, excited	oh, ik heb je gemist	oh, I missed you	YES
DF2	MREL [happiness]	Happiness	blij	happy	gelukkig	happy	wat geweldig dat hij er is	he's such a great person	YES
DF3	MREL [happiness]	Happiness	ogen dichtgeknepen, mondhoeken staan omhoog, lachrimpels bij haar ogen	eyes squeezed shut, mouth stand up, laugh lines in her eyes	verrast en blij	surprised and happy	wat leuk om je te zien!	how nice to see you!	YES
DF4	MREL [happiness]	Happiness	gelukzalig zou ik het willen noemen	blissful I would call it	helemaal gelukkig	totally happy	hee schatje, mmmmmmm	hey baby, mmmmmmm	NO

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DF5	MREL [happiness]	Happiness	blij	joyful	blij / gelukkig	joyful / happy	niks	nothing	YES
DF6	MREL [happiness]	Happiness	blij	joyful	gelukkig	happy	fijn om je te zien	nice to see you	YES
DM1	MREL [happiness]	Happiness	glimlachend, blij	smiling, joyful	verbaasd, vervolgens vrolijk	puzzled, then cheerfully	he!	hey!	YES
DM2	MREL [happiness]	Happiness	gelukkig	happy	gelukkig	happy	ik hou van je	I love you	YES
DM3	MREL [happiness]	Happiness	verbaasd en blij	surprised and joyful	verbaasd en blij	surprised and joyful	wat leuk om je te zien!	how nice to see you!	YES
DM4	MREL [happiness]	Happiness	vrolijk	cheerful	blij	joyful	blij je te zien	good to see you	YES
DM5	MREL [happiness]	Happiness	mooi	beautiful	verrast en daarna superblij	surprised and then very happy	hoi schat	hi honey	NO
DM6	MREL [happiness]	Happiness	gelukkig	happy	verrast, blij	surprised, joyful	fijn	fine	YES
DF1	MREL [sadness]	Sadness	gespannen	tense	beetje verdrietig	little sad	tot snel	see you soon	NO
DF2	MREL [sadness]	Sadness	emotieloos	emotionless	normaal	normal	ik ga haar ontwijken	I'm going to avoid her	NO
DF3	MREL [sadness]	Sadness	lachrimpels bij haar ogen, maar haar mond staat verdrietig	laugh lines at her eyes, but her mouth is sad	blij en verdrietig tegelijk	joyful and sad at the same time	jammer dat je weggaat, het was zo leuk	sorry that you're leaving, it was so nice	NO

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DF4	MREL [sadness]	Sadness	ook wel mooi, opgetrokken wenkbrauwen, lippen beetje op elkaar	also beautiful, arched eyebrows, lips were small.	triest	sad	Zeg dat je niet hoeft te gaan, schat	Say that you do not have to go, darling	NO
DF5	MREL [sadness]	Sadness	verdrietig	sad	jammer dat hij weggaat	feels sorry that he leaves	ik zal je missen	I will miss you	YES
DF6	MREL [sadness]	Sadness	verdrietig	sad	verdrietig	sad	Ik ga je missen	I'm going to miss you	YES
DM1	MREL [sadness]	Sadness	redelijk neutraal	Fairly neutral	verdrietig	sad	vaarwel!	goodbye!	NO
DM2	MREL [sadness]	Sadness	gelukkig maar sip	happy but gloomy	sip	gloomy	ik zal je missen	I will miss you	YES
DM3	MREL [sadness]	Sadness	blij en gelukkig, daarna verdrietig	glad and happy, then sad	verdrietig	sad	ik ga je missen	I'm going to miss you	YES
DM4	MREL [sadness]	Sadness	verdrietig	sad	triest	sad	doe je voorzichtig?	will you be careful?	YES
DM5	MREL [sadness]	Sadness	mooi	beautiful	eerst blij, dan verdrietig	first happy, then sad	doei schat	bye, Darling	YES
DM6	MREL [sadness]	Sadness	verdrietig	sad	verdrietig	sad	tot ziens	bye	YES
DF1	MREL [surprise]	Surprise	verbaasd	surprised	verbaasd/blij	surprised / joyful	he geld, da's mooi meegenomen	hey money, that's a nice bonus	YES
DF2	MREL [surprise]	Surprise	verbaasd	surprised	verbaasd	surprised	dit klopt niet	this is not true	YES
DF3	MREL [surprise]	Surprise	wenkbrauwen opgetrokken, mondhoeken omhoog	eyebrows raised, mouth up	verrast, maar wel blij	surprised, but happy	leuke verrassing!	nice surprise!	NO
DF4	MREL [surprise]	Surprise	opgetrokken wenkbrauwen en mondhoeken	raised eyebrows and mouth	blij verrast	joyfully surprised	wauw! Oke, heel fijn!	wow! Okay, very fine!	NO

SUBJECT	STIMULUS	EMO-TION	Q1: HOW DOES HE/SHE LOOK	TRANSLATION	Q2: HOW DOES HE/SHE FEEL	TRANSLATION	Q3: WHAT WOULD HE/SHE SAY	TRANSLATION	MATCHED
DF5	MREL [surprise]	Surprise	blij verrast	joyfully surprised	blij verrast, vol ongeloof	joyfully surprised, disbelief	hee! krijg nou wat, dat is leuk	hey! well, getting something is fun	YES
DF6	MREL [surprise]	Surprise	verrast	surprised	blij	happy	fijn!	nice!	NO
DM1	MREL [surprise]	Surprise	opgetrokken wenkbrouwen en gerimpeld voorhoofd	raised eyebrows and wrinkled forehead	verbaasd	amazed	bedankt	thanks	NO
DM2	MREL [surprise]	Surprise	blij verrast	joyfully surprised	blij verrast	joyfully surprised	kijk eens aan!	look at that!	YES
DM3	MREL [surprise]	Surprise	verbaasd	surprised	verbaasd	surprised	dat had ik niet verwacht!	I did not expect that!	YES
DM4	MREL [surprise]	Surprise	verbaasd	surprised	blij	joyful	wat leuk	how nice	NO
DM5	MREL [surprise]	Surprise	grappig	funny	blij verrast	happily surprised	he, wat is dit? oh, geld. vet chill!	hey, what's this? oh, money. fat chill!	NO
DM6	MREL [surprise]	Surprise	verbaasd, blij	surprised, joyful	positief verrast	positively surprised	zo!	so!	YES