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Scalar Ratings of Contempt Expressions

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Abstract

This article reports two studies examining the recognition of unilateral lip raise and tighten expressions as contempt using scalar ratings on multiple emotion categories. Study 1 demonstrated that American and Japanese observers see these expressions as contempt, that the Japanese had significantly higher recognition rates, and that this difference occurred because Americans gave the anger and disgust labels higher ratings than did the Japanese. Study 2 replicated the finding that Americans see the contempt expressions as contempt, and did so regardless of whether they rated the external display of the expression or made an attribution about the internal experience of the expressor. This study is the first to show that native English speakers judge the contempt expressions as contempt using this task, although much unreliability remains unexplained.

Scalar Ratings of Contempt Expressions

The existence of basic, universally recognized and expressed emotions is widely accepted by many. One unresolved issue, however, is just how many emotions have a universal facial expression. The original universality studies focused primarily on six emotions – anger, fear, disgust, happiness, sadness, and surprise (Ekman, 1994).

Although Izard reported evidence for other emotions (Izard, 1971, 1992), his evidence was limited primarily to literate cultures. The only evidence from a preliterate, visually isolated culture was Ekman and Friesen's study in New Guinea of the same six emotions (Ekman & Friesen, 1971; Ekman, Sorenson, & Friesen, 1969).

More recently, a seventh expression has been postulated to be universally recognized. This expression is a unilateral lip raise and tightening and has been labeled as contempt by Ekman and his team of researchers (Figure 1). To date 26 studies reported in 15 articles provide data on the contempt expression. Individuals from Estonia, Greece, Hong Kong, Japan, Turkey, the U.S., West Germany, Sumatra, Italy, Vietnam, Poland, Hungary, Great Britain (including Scotland) and India judge this expression as contempt (Biehl et al., 1997; Ekman & Friesen, 1986; Ekman & Heider, 1988; Haidt & Keltner, 1999; Matsumoto, 1992; Ricci-Bitti, Brighetti, Garotti, & Boggi-Cavallo, 1989; Rosenberg & Ekman, 1995; Wagner, 2000).

Wagner (2000) provided a three part definition of contempt, suggesting that it is interpersonal, involves another person's negative actions, and involves feelings of superiority, and we have used this definition in our own studies of its expression and labeling (Matsumoto & Ekman, 2004). Since the discovery of a universal contempt expression (Ekman & Friesen, 1986; Ekman & Heider, 1988; Matsumoto, 1992), there

has been controversy surrounding it. Some of the controversy concerned the type of judgment task used (Russell, 1991, 1991; Wagner, 2000; see also review by Matsumoto & Ekman, 2004). Early studies used a *forced choice* judgment task in which observers chose a single label from a list of emotion labels that which best described the emotion in the expression. Because judges may have labeled the contempt expressions as contempt through a process of elimination (Russell, 1991, 1991; Wagner, 2000), subsequent studies used a *fixed choice* task, in which observers were provided with a list of emotion labels (or stories) and options for “none of these” and/or neutral (Matsumoto & Ekman, 2004; Rosenberg & Ekman, 1995), or the open ended task in which observers were free to generate any label they want (Matsumoto & Ekman, 2004).

One task that has been used but has not received as much attention involves scalar ratings of multiple emotion labels. This multiscalar rating task is interesting because observers can describe not only the most salient emotions they perceive (by giving a label higher ratings than others); they can also rate the presence of other emotions as well, as neutral or no emotion by giving all labels zeros. The ability to detect the presence of multiple emotions (Yrizarry, Matsumoto, & Wilson-Cohn, 1998) and provide a neutral response makes this task unique. To be sure the presence of multiple scales may introduce demand to use them, resulting in reluctance to give a neutral rating, even to neutral faces. This concern, however, is somewhat mitigated in the studies reported here because the primary goal is to examine the most salient emotion judged (i.e., the scale that receives the highest score), especially given the fact that the faces being judged all express prototypic emotions at relatively high intensity.

Much of the controversy surrounding the recognition of the contempt expression has occurred because studies involving native English speakers from the USA, Canada, and Great Britain report relatively low agreement rates in their recognition (Matsumoto & Ekman, 2004). This has been true in studies using forced choice (Biehl et al., 1997; Ekman, O'Sullivan, & Matsumoto, 1991; Haidt & Keltner, 1999; Russell, 1991, 1991; Wagner, 2000), fixed choice (Haidt & Keltner, 1999; Russell, 1991; Wagner, 2000), and open ended response tasks (Haidt & Keltner, 1999; Rosenberg & Ekman, 1995; Russell, 1991; Wagner, 2000). In all of these studies, native speakers of languages other than English have reported high agreement levels regardless of the judgment task used.

This has been true using the multiscale rating task as well, which has been used in four studies reported in three articles (Frijda & Tcherkassof, 1997; Russell, 1991, 1991). In the three studies reported by Russell, all with native English speakers, not once was the contempt label given the highest intensity ratings. The one study conducted with non-English speakers (French) (Frijda & Tcherkassof, 1997), however, reported that most respondents (68%) did give contempt the highest rating.

Matsumoto and Ekman have suggested that the difference among these findings depends on whether judges are shown a full range of expressions (Ekman et al., 1991; Ekman, O'Sullivan, & Matsumoto, 1991; Matsumoto & Ekman, 2004). They contend that showing a full range of expressions is ecologically more valid than showing one or only a few emotions. In fact 10 of 12 studies presenting a full range of expressions using forced, fixed, and open ended responses with native English speakers have all shown that when presumably contempt expressions are shown they are labeled as contempt (Ekman & Friesen, 1986; Russell, 1991, Study 3; Ekman et al., 1991; Rosenberg & Ekman, 1995),

Studies 1 and 2; Biehl et al., 1997; Wagner, 2000, Study 3; Matsumoto & Ekman, 2004), Studies 1, 2, and 3). Of the six studies that presented contempt to judges either by itself or with less than three other emotions, five reported that contempt was not recognized above chance levels (Russell, 1991, Studies 1 and 2; Russell, 1991b, Studies 1 and 2; Wagner, 2000, Study 2).

The three studies using multiscale ratings that failed to produce a reliable contempt judgment did not show a range of expressions (Russell, 1991, 1991). The one that did show a range of expressions and reported reliable contempt judgments (Frijda & Tcherkassof, 1997) included non-native English speakers. Thus to date there has not been a study in which native English speakers were shown a full range of expressions and used the multiscale rating task to examine judgments of the contempt expression.

This article reports two studies that do that. In Study 1 American and Japanese observers made multiscale ratings of contempt expressions. I hypothesized that observers from both cultures will give the contempt label the highest intensity rating, and that the percentage of Japanese that do so will be greater than that of Americans (replicating previous findings that non-native English speakers are better at recognizing contempt). Study 2 extended Study 1 by obtaining multiscale ratings of both the external display and internal experience of the expressors by American judges to examine whether the agreement rates for Americans differ according to the type of rating.

Study 1

Study 1 is a reanalysis of previously published data (Matsumoto & Ekman, 1989; Yrizarry et al., 1998) in which American and Japanese observers saw contempt expressions along with six other emotions and made scalar ratings on seven emotion

categories for each expression. No previous publication focused on the recognition accuracy of the contempt expressions.

Method

Participants. The participants were 124 US born and raised Americans recruited from the University of California, Berkeley, USA, and 110 Japan born and raised Japanese recruited from Osaka University of Education, Japan. All participants participated in partial fulfillment of class requirements. There were no age differences between the two samples. Data on self-reported ethnicity were obtained for the American sample, and all reporting Asian ethnicity were excluded from the study. Unfortunately data on socioeconomic status were not obtained, but the students were recruited from relatively comparable, large, urban, public universities in their respective countries.

Expressions. The expressions included 64 faces, 56 of which came from Matsumoto and Ekman's Japanese and Caucasian Facial Expressions of Emotion (JACFEE) expression set (Matsumoto & Ekman, 1988). This set includes eight expressions of seven emotions (anger, contempt, disgust, fear, happiness, sadness, and surprise) expressed by 56 different individuals (two Caucasian males, two Caucasian females, two Japanese males, and two Japanese females in each emotion). The contempt expressions all depicted a unilateral lip tighten and raise (unilateral AUs 12 and 14 according to the Facial Action Coding System, (Ekman & Friesen, 1978). The eight non-JACFEE faces were expressions that involved variants of anger and fear expressions that varied the muscle innervation of the eyes; data on them are reported elsewhere (Matsumoto, 1989). This report focuses on the eight contempt expressions.

Rating task and procedures. All participants were tested in small groups and shown expressions on a large screen via a slide projector one at a time in a random order, for 30 s each. For each expression they were asked to rate the intensity of seven emotion labels – anger, contempt, disgust, fear, happiness, sadness, and surprise – using a scale anchored Neutral (0), Weak (1), Moderate (4), and Strong (8). (In Japanese, the labels used were *ikari*, *keibetsu*, *ken'ō*, *osore*, *yorokobi*, *kanashimi*, and *odoroki*, respectively.) Thus judges were allowed to rate the presence of multiple emotions and their intensities, as well as give a neutral rating (by rating 0 to all emotions).

Results and Discussion

The percentage of judges giving the contempt label the highest intensity rating was computed separately for each expression and across the eight expressions (Table 1). These percentages were significantly greater than what would be expected by chance alone ($\frac{1}{8}$). All were still significant when chance was set at a very conservative $\frac{1}{4}$ probability; even when chance was set at $\frac{1}{3}$ probability, all chi-squares for the Japanese were still significant, as were six for the Americans. (Chi-squares for chance at $\frac{1}{4}$ and $\frac{1}{3}$ probabilities are available from the author. They were used because of the argument that the emotion labels could be grouped into a smaller set of categories such as a pleasant-unpleasant dimension that observers used when making judgments.)

There were within culture differences in the absolute levels of agreement on the labeling of contempt. For the Japanese the percentages ranged from 57.27% to 93.64%; for the Americans 33.64% to 73.83%. Spearman correlation between the American and Japanese judges on the percentages across the eight expressions was significant, $\rho(8)$

= .62, $p < .05$, suggesting that differences in the recognition levels were consistent for both cultures across expressors

The percentage of Japanese judges giving the contempt label the highest intensity rating was significantly higher than that of American judges for all expressions (Table 1). This finding replicates previous ones that have showed that non-native English speakers recognize the contempt expressions better than native English speakers (Matsumoto & Ekman, 2004).

There are some data to suggest that the concepts and labels of contempt, anger, and disgust are related to each other. Rozin and colleagues demonstrated that these emotions are elicited when moral codes of a community are violated, and that these code violations are reliably linked to their facial expressions. Shaver and his colleagues have shown that the labels disgust and contempt cluster within a supercategory of angry words (Shaver, Murdaya, & Fraley, 2001; Shaver, Schwartz, Kirson, & O'Connor, 1987; Shaver, Wu, & Schwartz, 1992). Thus it is possible that the judges who did not see the expressions as contempt saw them as either anger or disgust. In fact while contempt was the modal percentage for all eight expressions for the Japanese, for the Americans contempt was the mode for five expressions, while disgust was the mode for three. To test this notion further I computed the percentage of judges giving either the anger or disgust labels the highest ratings (Table 1), and compared the percentage of Americans giving either anger or disgust the highest intensity ratings to that of the Japanese. Americans had a significantly higher percentage for six of the eight expressions and the total. By summing the percentage of judges who gave anger, disgust, or contempt labels the highest ratings it is clear that these labels are those primarily used to characterize the

expressions; the total percentages across these three labels for Japanese ranged from 91.82 to 100.00%; for Americans they ranged from 76.64 to 96.26%. When all three labels were considered there were no differences in the percentage of Americans and Japanese for any of the expressions. Also, almost none of the judges gave neutral ratings to the contempt expressions (i.e., rated zeros across all emotion labels). (Tables of all chi-square results reported here available from the author.)

Study 2

Recent research has shown that individuals make different judgments about the intensity of emotions expressed externally on the face and felt internally (Matsumoto et al., 2002; Matsumoto, Kasri, & Kooken, 1999). That would suggest that it is possible for the Americans to see a certain level of contempt in the expression but infer a different level of contempt felt on the inside. For instance, judges who perceived the unilateral lip raise and tighten expressions as portraying disgust externally might actually infer that the person is feeling contemptuous. Obtaining ratings on only a single dimension may obscure this and other possibilities and possibly lower agreement rates. In order to examine whether the percentage of American judges who give the contempt label the highest ratings differs depending on whether the intensity of the external display or internal experience is rated, we obtained ratings of both in Study 2.

Method

Participants. The participants were 189 Americans (55 males, 133 females, 1 unspecified, mean age = 25.48, sd = 7.02) recruited from San Francisco State University. Thirty-two percent reported their ethnicity as European-American, 22.7% as Asian,

11.9% as Hispanic/Latino, and 7.6% as African American. All participants participated in partial fulfillment of class requirements.

Expressions, rating tasks, and procedures. The expressions included the 56 JACFEE expressions. All participants were tested in small groups and shown expressions one at a time in a random order for 30 s each on a large screen. For each expression participants were asked to “rate how intensely the expression is displayed on the face (external display), for 7 given emotions, and rate how intensely you think the expressor is actually feeling the emotion, or emotions (internal experience), for 7 given emotions.” They were also told that the actual internal experience of the poser may be the same as, or different from, the expressor’s external facial expression. They rated the intensity of seven emotion labels – anger, contempt, disgust, fear, happiness, sadness, and surprise – twice, the first time rating the external display of the expression and a second time rating the subjective experience of the expressor. (I acknowledge the limitation in that the order of the ratings was fixed.) For both ratings the scales were anchored None (0), Moderately (4), and A Lot (8). They were then given instructions on how to use the scale, including “If you believe that a particular emotion is not present, rate that emotion as none by circling ‘0’. There is no limit to the number of emotions you may circle as present, or not present, for a poser.”

Results and Discussion

The contempt label was the modal label given the highest intensity rating for all expressions for both external and internal ratings separately and combined (Table 2). All entries were highly statistically significant (chi-square chance = $\frac{1}{8}$; all but one were still significant with chance = $\frac{1}{3}$) and there were no differences in percentages between

external display v. internal experience. These results gave strong support to the notion that judges see the expressions as portraying contempt regardless of whether they rate the external appearance of the expression or the presumed subjective experience of the expressor. (Tables of all chi-square results reported here available from the author.) They also indicated that judges who did not see contempt on the outside did not believe the expressor was feeling contemptuous, either.

Once again a not insubstantial proportion of judges gave the anger and disgust labels the highest intensity rating for both external display and internal experience (Table 2), and there were no differences as a function of rating. When combined with the proportion of judges giving the contempt label the highest rating it was once again clear that these labels are used the most to characterize the expressions. The total percentages across these three labels ranged from 51.85% to 82.54% for external ratings, 56.08% to 80.95% for internal ratings, and 44.44% to 75.13% for external and internal ratings combined.

General Discussion

There are three major findings reported here. First, American judges see the unilateral lip raise and tighten as contempt when using the multiscalar rating task. This finding is the first to document this effect with native English speakers, and differs from that reported previously by Russell (1991; 1991), who reported that judges did not see the contempt expression as contempt when using this same task. The difference between his findings and those reported here occurred because here contempt expressions were presented along with a full range of other emotions; in Russell's studies contempt was presented either alone or with examples of only two other emotions. Matsumoto and

Ekman have contended that presenting a range of expressions is ecologically more valid because in reality people make judgments of other's emotions after having seen many different expressions (Ekman et al., 1991, 1991; Matsumoto & Ekman, 2004). One of Russell's studies directly tested the difference in judgments of contempt between presentations of contempt expressions alone v. along with six other emotions using the same judgment task (forced choice) (Russell, 1991a, Study 3) and found that observers judged contempt expressions as contempt when they saw the other six emotions as well, but did not when they saw the contempt expression alone. The findings from the studies reported here, therefore, address a previous gap in the literature by showing that American judges do indeed see the contempt expressions as contempt when using the multiscalar rating task.

Second both American and Japanese judges see not insubstantial amounts of anger and disgust in the contempt expressions, but Americans see more of them than do the Japanese and that makes up the difference in their levels of agreement. When the anger, contempt, and disgust labels were considered together there were no cultural differences in the percentages. As mentioned above, there are at least two lines of research that suggest that the concepts and labels of these emotions are related (Rozin, Lowery, Imada, & Haidt, 1999; Shaver et al., 2001; Shaver et al., 1987; Shaver et al., 1992). The results of the studies reported here suggest that these conceptual and linguistic overlaps may be at work when judging contempt expressions, and that they may be at work more in English than in other languages. That is, the relatively lower rates for American observers in judging contempt may be due to their differential use of the anger and disgust labels. Future studies will need to examine how these overlaps differ across

languages and cultures, and why they differentially impact judgments of contempt expressions (but not judgments of anger or disgust expressions).

Third for American judges, there were no differences in findings when multiscale ratings were obtained for both external display and internal experience, suggesting that judges equally attribute the same emotion felt on the inside as that shown externally in the face. Judges might have agreed that contempt was felt more (or less) than was actually shown in the face, and that the difference between judgments of the emotions displayed and attributions of emotions felt might have contributed to the relatively low agreement levels in recognition of contempt for American judges. That this was *not* the case suggests further that the possibilities mentioned above concerning conceptual and/or linguistic overlaps between anger, contempt, and disgust at least in the English language be examined in the future. Future studies also need to examine how the English word “content” may interfere in the use of the contempt label.

While Americans judge the contempt expressions at rates significantly higher than chance, they still do not do very well at those judgments. American recognition rates are still lower than those of observers from other cultures, and are also lower than their accuracy rates for other emotions. Matsumoto and Ekman (2004) demonstrated that not only did American judges have difficulty labeling contempt expressions as contempt; they also could not label contempt stories as contempt, or provide definitions of contempt (even though they could reliably match the contempt expressions with contempt stories). One possibility that could explain low agreement rates on contempt is that perhaps Americans show less agreement on all emotions, so that what we have obtained on contempt

expressions is not about contempt at all but about emotion recognition in general. However, data from numerous studies have demonstrated amply that Americans judge other emotional expressions at consistently high agreement rates (Biehl et al., 1997; Matsumoto et al., 2002; Matsumoto et al., 1999); thus what has been obtained on the contempt expressions appears to be specific to contempt and only in English. Another possibility is that the word contempt has fallen in disuse among American college students, who typically are the participants in judgment studies. That both British (Wagner, 2000) and American (Matsumoto & Ekman, 2004) students have difficulty defining the term contempt lends some credence to this possibility. Yet, when students are primed with the definition of contempt they still do not use the label reliably to judge the expression (Wagner, 2000). Thus it may not necessarily be the lack of use or familiarity with the label contempt that produces low agreement rates; rather there is likely confusion about the concept of contempt itself, at least in English, that contributes to this effect. Given that the relatively infrequent contempt label is used only when a large pool of stimuli are presented, and only in English, there is a strong possibility that a more general perceptual effect is at work that contributes to the low agreement rates for English speaking judges. Future studies examining such possible cognitive/perceptual effects may be necessary to understand the concept and label of contempt in ways that are not necessary for other emotions. Future studies should also examine whether the relatively lower agreement rates when judging contempt occur in other English speaking countries that have not yet been tested,

such as Australia or South Africa, and whether or not it replicates when multilingual judges complete the task in English.

These studies were not conducted without limitation, including the static nature of the stimuli and the lack of contextual information about the emotion aroused when the expression occurred. The methods used, however, are standard in this area of research, and the findings contribute to a growing literature that shows that American observers reliably judge contempt expressions as contempt using a variety of judgment tasks, and begins to explain why their agreement rates are relatively lower than those of observers from other cultures.

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I thank Kathryn Vaughn and Manveen Dhindsa for their assistance in collecting the data reported in Study 2, Richard Chan for his assistance in data analysis, and Paul Ekman for his comments on a previous draft of this manuscript. I also thank Guillermo Campos, Elena Martinez, and Lupita Rodrigues for their assistance in the general laboratory program.

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Table 1

Percentage of Judges Giving the Contempt Label the Highest Intensity Rating to the Contempt Expressions

				Expressor		% Giving			
				% Giving	X²	USA v. JPN	Either	% Labeling	
Judge	Culture	Photo ID	Ethnicity	Gender	Contempt	(1/8	Anger or	the	
				Rating	chance)	X²	Disgust the	Expression	
							Highest	s as Neutral	
Japanese		YW-2C04	Japanese	Female	57.27%	201.61***	7.36**	42.73%	0.00%
		KN-1C09	Caucasian	Female	93.64%	662.07***	3.16+	5.45%	0.91%
		PM-1C11	Japanese	Male	83.64%	508.93***	13.83***	9.09%	0.00%
		WW-1C09	Caucasian	Female	79.09%	445.97***	8.26**	19.09%	0.00%
		JH-1C10	Caucasian	Male	67.27%	301.72***	5.08*	24.55%	0.00%

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	AK2-1C10	Japanese	Female	86.36%	548.70***	25.48***	9.09%	0.00%
	ER-2C11	Caucasian	Male	69.09%	322.08***	9.80**	30.00%	0.00%
	SC-1C08	Japanese	Male	80.00%	458.23***	13.90***	17.27%	0.00%
	Total			77.05%			19.66%	0.11%
Americans	YW-2C04	Japanese	Female	33.64%	43.74***		58.88%	0.00%
	KN-1C09	Caucasian	Female	73.83%	367.99***		22.43%	0.00%
	PM-1C11	Japanese	Male	44.86%	102.44***		31.78%	0.93%
	WW-1C09	Caucasian	Female	49.53%	134.16***		37.38%	0.93%
	JH-1C10	Caucasian	Male	45.79%	108.44***		36.45%	0.00%
	AK2-1C10	Japanese	Female	34.58%	47.69***		43.93%	0.00%
	ER-2C11	Caucasian	Male	39.25%	70.01***		53.27%	0.00%
	SC-1C08	Japanese	Male	42.06%	85.46***		37.38%	0.00%
	Total						40.19%	0.23%

Table 2

Percentage of Judges Giving Contempt or Anger/Disgust the Highest Ratings in Study 2

Photo ID	External Ratings		Internal Ratings		Both External and Internal Ratings	
	% Giving Contempt the Highest Rating	% Giving Anger or Disgust the Highest Rating	% Giving Contempt the Highest Rating	% Giving Anger or Disgust the Highest Rating	% Giving Contempt the Highest Rating on Both	% Giving Anger or Disgust the Highest Rating on Both
KN-1C09	68.25%	14.29%	65.61%	15.34%	60.85%	14.29%
JH-1C10	55.03%	12.70%	54.50%	13.23%	49.74%	12.70%
ER-2C11	62.43%	8.99%	55.56%	13.76%	51.32%	9.52%

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WW-1C09	60.85%	10.05%	60.32%	8.47%	53.97%	10.58%
YW-2C04	50.79%	28.04%	51.32%	24.87%	41.80%	27.51%
SC-1C08	51.32%	14.81%	52.91%	13.76%	44.97%	11.64%
PM-1C11	42.86%	8.99%	45.50%	10.58%	34.39%	10.05%
AK2-1C10	61.90%	13.76%	62.43%	14.81%	51.85%	12.70%
Total	56.68%	13.96%	56.02%	14.35%	48.61%	13.62%

Figure Caption

1. Example of the contempt expression - unilateral lip raise and tighten.

