



Components of Emotional Meaning: A sourcebook

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CHAPTER

33 Comparison of the arousal dimension in Turkey and the USA

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Abstract

In the present study, the semantic structure of emotion words was analyzed and compared between Turkish and U.S. English using Principal Component Analysis. The results of this study supported the four-dimensional model revealed by the GRID paradigm for the meaning of emotion words. However, the Turkey and USA structures differed substantially with respect to the AROUSAL factor. Specifically, the USA factor seems to have a broader meaning, including features related to some subjective experiences and action tendencies rather than just focusing on physiological arousal, as is the case in the Turkish factor. Moreover *fear*, *sadness*, *contempt*, and *irritation* were placed differently on the AROUSAL dimension. The results were discussed in terms of the cultural and lexical differences between the two languages

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The GRID instrument was designed to investigate the meaning of emotion words across languages and cultures. In the present paper, we analyse the internal structure of the semantic space covered by the GRID terms in Turkish and US English. We analyse the Turkey and USA datasets (see Chapters 5 and 6 for a description of the GRID paradigm and its database). Since most of the psychology research on emotion is published in English, the comparability with the English translation of the emotion terms is of particular interest.

We first present the internal structure analyses for the USA and the Turkey structures separately as well as their congruence after Procrustes rotation. We then focus on one of the four identified factors, AROUSAL, which demonstrates substantial differences between the two cultural groups. The differences are described both in terms of the emotion features that define the AROUSAL factor as well as in terms of the position of the emotion terms on the AROUSAL factor.

33.1 The internal structure of the emotion domain in Turkey and the USA

The results of the Principal Components analyses on the 142 emotion features across the 24 emotion terms, with four factors, accounted for 79.2% and for 81.7% of the total variance in the Turkey sample and in the USA sample respectively. Moreover, VARIMAX rotations revealed the four dimensions of VALENCE, POWER, AROUSAL, and NOVELTY in each of the two samples, although with variations to be discussed below. In each of the two cultural groups the highest loading features (in absolute terms) seem to support this interpretation. For example, the features “wanted to be tender, sweet, and kind,” “consequences positive for person,” “event in itself unpleasant for the person,” and “wanted to destroy whatever was close” have the highest (absolute) loadings on the first factor, VALENCE. In turn, features like “felt submissive,” “fell silent,” “wanted to be in command of others,” and “had an assertive voice” are among the highest loading features on the second factor, POWER. The third factor, AROUSAL, received high loadings from features like “heartbeat getting faster,” “perspired, or had moist hands,” “had no bodily symptoms at all,” and “did not show any changes in vocal expression.” Finally, “had eyebrows go up,” “had the jaw drop,” “suddenly,” and “unpredictable” defined the fourth factor, NOVELTY, in both samples.

p. 463 However, when the Turkey structure was orthogonally Procrustes rotated toward the USA structure, the AROUSAL factor showed a considerable difference. While the congruence (Tucker’s phi) was 0.90 for VALENCE, 0.88 for POWER, and 0.84 for NOVELTY, the congruence was only 0.77 for AROUSAL, which is substantially below the cut-off value of 0.85 for moderate congruence (see Chapter 5). This low congruence clearly indicates substantial differences on the AROUSAL factor between the Turkey and the USA structures. As this difference in structure was not anticipated, we further explore in this chapter the meaning of the AROUSAL factor in both cultural groups. We first describe and compare the features that define the third factor and then look at the emotion terms that are most differentiated on this factor between both groups.

33.2 The defining features of the AROUSAL factor in the Turkey and USA samples

In total, 16 features had an absolute loading of 0.40 or higher in both cultural groups on the AROUSAL dimension (see Table 33.1). The positive loading features refer to sympathetic AROUSAL (e.g., “heartbeat getting faster” and “perspired”) and the negative loading items refer predominantly to the absence of bodily symptoms and the absence of expressive features. The fact that these features define the third dimension in both cultural groups supports the basic interpretation of this dimension as an AROUSAL dimension.

Table 33.1 Features loading on the AROUSAL factor in the Turkish and the US English structures

	USA	Turkey
Features that define the AROUSAL dimension in both the USA and Turkey		
had no bodily symptoms at all	-0.77	-0.80
did not show any changes in gestures	-0.67	-0.70
did not show any changes in vocal expression	-0.66	-0.69
heartbeat slowing down	-0.79	-0.48
did not show any changes in face	-0.54	-0.69
breathing slowing down	-0.72	-0.42
felt calm	-0.49	-0.43
spoke slower	-0.44	-0.43
felt out of control	0.42	0.43
felt shivers	0.55	0.43
muscles tensing (whole body)	0.60	0.40
breathing getting faster	0.81	0.80
heartbeat getting faster	0.82	0.82
felt hot	0.76	0.91
sweat	0.82	0.88
perspired, or had moist hands	0.87	0.90
Features that define the AROUSAL dimension more in the USA, than in Turkey		
was in an intense emotional state	0.63	-0.03
wanted to act, whatever action it might be	0.51	-0.15
produced a short utterance	0.17	-0.41
felt alert	0.46	-0.07
felt restless	0.57	0.06
wanted to be in control of the situation	0.30	-0.16
wanted to tackle the situation	-0.03	-0.46
Features that define the AROUSAL dimension more in Turkey, than in the USA		
felt warm	0.12	0.83
showed the emotion to others more than s/he felt it	-0.12	0.35
blushed	0.32	0.78

We then looked at those features that differed between the two groups. We only took into account those features with an absolute difference in loading of 0.40 and more. In total, seven features loaded more positively on AROUSAL in the USA than in Turkey (see Table 33.1).

Three of these features came from the Feeling component (namely “was in an intense emotional state,” “felt alert,” and “felt restless”), and all three loaded higher than 0.40 in the positive direction on AROUSAL for the USA sample while none of them did for the Turkey sample.

Another three of these features were from Action tendencies (“wanted to act, whatever action it might be,” “wanted to be in control of the situation,” and “wanted to tackle the situation”); only one of these (“wanted to act, whatever action it might be”) loaded more than 0.40 on AROUSAL for the USA sample, and only one (“wanted to tackle the situation”) loaded more than 0.40 in the negative direction for the Turkey sample, while the remaining item (“wanted to be in control of the situation”) did not meet the 0.40 criterion for either sample.

One feature from (vocal) Expression (“produced a short utterance”), while loading less than 0.40 for the USA sample, still differed widely from the negative loading in the Turkey sample (−0.41).

Three features loaded higher on AROUSAL in Turkey than in the USA, of which two were Bodily reaction features (“felt warm” and “blushed”); both of these loaded highly for the Turkey sample but loaded less than 0.40 for the USA sample. Both of these items fit the physiological AROUSAL aspect of the factor. The third item was a regulation feature (“showed the emotion to others more than s/he felt it”), which did not load significantly on AROUSAL for either sample, but was positive for the Turkey sample while being negative for the USA sample.

Since three of the ten differences occurred on items that did not meet the loading criterion of 0.40 for either sample, and another two involved maximum loadings of 0.41 and 0.46, there were only five differences in the actual composition of the factors. Thus the overall conclusion that the four-factor structure is valid for both samples received support.

p. 464 The features that loaded differently on the third factor between the two cultural groups seem to indicate that the third dimension is somewhat more defined by the Bodily reaction component in the Turkey sample than in the USA one, and that AROUSAL has a somewhat broader meaning in the USA sample, with some feelings and, to a lesser degree, Action tendencies also being associated to it. In other words, this pattern seems to indicate that the third USA factor includes more of a general activation aspect rather than just focusing on physiological AROUSAL, as in the case of the Turkish factor. This finding parallels the debate in the literature on the interpretation of the AROUSAL/activation dimension (e.g., Duffy, 1957).

p. 465 33.3 The coordinates of the emotion terms on the AROUSAL factor in Turkey and the USA

We first looked at those emotion terms that were highly differentiated on the third factor in both samples. We looked only at those that had an absolute coordinate of 0.80 or higher (which is comparable to a large effect in the guidelines of Cohen (1992)). In both cultural groups *contentment* and *disappointment* scored 0.80 or more below the mean of the dimension and *love* and *anxiety* scored 0.80 or more above the mean (see Table 33.2). The position of these four terms is congruent with the interpretation of the third factor as an AROUSAL factor.

Table 33.2 Coordinates on the AROUSAL factor of the Turkish and the US English emotion terms

	USA	Turkey
Emotion terms that define the AROUSAL dimension in both the USA and Turkey		
anxiety	1.48	1.04
love	1.28	0.82
disappointment	−1.32	−1.12
contentment	−2.57	−2.03
Emotion terms that define the arousal dimension more in the USA, than in Turkey		
fear	2.28	0.77
contempt	−0.17	−1.95
Emotion terms that define the arousal dimension more in Turkey, than in the US		
irritation	−0.07	1.28
sadness	−1.62	−0.35

In a second step, we looked for those emotion terms that showed a large difference (0.80 or larger) in their position on the third factor. In total, four terms showed a large difference, namely *contempt*, *fear*, *sadness*, and *irritation* (see Table 33.2); each of them exceeded the criterion of 0.80 or greater absolute coordinate for one sample but not the other.

While *contempt* is situated in the middle of the AROUSAL dimension for the USA sample, it scores extremely negative in the Turkey sample. For *irritation* the opposite is observed—while it is situated in the middle of the AROUSAL dimension in the USA sample, it scores highly positive in the Turkey sample. In both groups *fear* scores positively, but only in the USA sample it has an extremely high positive score of more than two standard deviations above the mean. In both groups, *sadness* scores negatively, but it is much more negative in the USA than in Turkey. These four discrepancies can be summarized as follows: (1) in the Turkey sample, a strong opposition is observed between *irritation* and *contempt* on the third dimension, while this is not the case in the USA; (2) in the USA sample, a strong opposition is observed between *fear* and *sadness*, while the opposition is much less pronounced in the Turkey sample.

Differences between the position of the Turkish and the US English emotion terms on the AROUSAL factor could be attributed to two different causes, namely to cultural differences in the experience of specific emotions and to linguistic differences in the meaning of those words.

For example, a cultural explanation could be given for the fact that *sadness* was very low on the AROUSAL factor for English speakers, but not for Turkish speakers, since there may be genuine cultural differences in the expression of sadness. Findings by Matsumoto et al. (2008; 2009) support the idea of differences in the expression of emotions according to cultural values. In a study of emotional display rules in Turkish culture (Boratav et al., 2011), it was found that the expression of sadness had higher endorsement than the other basic emotions, except for happiness and surprise. The possibly higher expressiveness of sadness in the Turkish culture compared to the USA could allow for more AROUSAL to be experienced during sadness episodes, therefore making sadness a more aroused emotion, in general, in Turkey compared to the USA. On the other

hand, a linguistic interpretation of the difference between the samples in coordinates of *sadness* is also possible. The Turkish term for “sad” may in some contexts imply something closer to the English word “upset.” (Alternative terms would have had implications of grief or mourning.) This linguistic difference could, of course, be a reflection of the cultural experience as well.

The difference observed between *contempt* and *irritation* could also possibly be interpreted as a linguistic effect. For example, the Turkish expression for *contempt* may be more like the English expression “to look down on” while the word for *irritation* may be closer to the English word *anger*. Since both terms occupy middle positions in the dimension in English, but score high values in Turkish, it could be the case that the Turkish lexemes are more sensitive than the English ones to a differentiation between cold and hot types of anger, or conversely that English contains more named gradations among different varieties of anger.

33.4 Conclusions

The results of this study support the four-dimensional model uncovered by the GRID paradigm for the meaning of emotion words. For both the USA and Turkey samples, the best factor solution consisted of four factors. However, substantial differences were observed between the USA and Turkey with respect to AROUSAL. The core of this factor had the same meaning in both cultural groups, as it was characterized by features of sympathetic AROUSAL. The factor, however, had a broader meaning in the USA than in Turkey, also including features referring to some subjective feelings and Action tendencies in the USA. Moreover four emotion terms clearly differed with respect to their coordinates on this third dimension, namely *fear*, *sadness*, *contempt*, and *irritation*. The differences between the two cultural groups can be explained both in terms of cultural differences in the experiences of emotions as well as in terms of what is lexicalized in specific languages. Only tentative post-hoc interpretations in this respect could be made, which call for further empirical research.

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Notes

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