Probing the structure and typicality of Chinese emotion words using Neural Networks
Structure of Chinese emotion words

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Previous studies on the structure of emotion concepts often use multidimensional scaling (MDS) or other clustering methods to plot different emotion words upon 2D space or dendrogram, representing each emotion as a point or branch within the structure, and the categories of emotions are determined accordingly. Although there seems to offer the conceptual representations of typical or atypical emotion words categorically, above approaches merely classified an emotion into a single category. Hence, this study is aimed at using Self-Organize Map (SOM) algorithm to explore the semantic structures of Chinese emotion words and reason what indexes would profile typical and atypical emotion words in each semantic category properly. The SOM, an unsupervised artificial neural network, is able to cluster data based on hidden nonlinear relations between information processing nodes. The present study adopts words from a linguistic corpus of Chinese emotion words, and relevant emotional attribute ratings as input for training and testing the SOM model. Results showed that some emotion words were clustered into different categories while repeating the construction of the models. Differences in Quantization Error of attribute distances in the map between emotion words might also reflect their

differences of semantic features. According to the findings, theoretical implications on representing the semantic structure of Chinese emotion words are discussed.

Key words: semantic structure of emotion, Chinese emotion concepts, neural networks