

## Mapping Principles and Conceptual Metaphor Interpretation

Since Lakoff and Johnson proposed the Contemporary Theory of Metaphor (Lakoff & Johnson, 1980; Lakoff, 1993), there has been growing interest in examining how conceptual mappings between domains are constructed for conceptual metaphors (Bowdle & Gentner, 2005; Gentner, 1983; Glucksberg, 2003; Glucksberg & Keysar, 1990; Gibbs, 1994; Gibbs et al., 1997; Fauconnier, 1994; Fauconnier & Turner, 1998; McGlone, 1996, 2007). From the processing perspectives, there are three mapping accounts: the category-based processing, the alignment-based processing and the principle-based processing. The category-based account, e.g., the Attribution Categorization Model (Glucksberg et al., 1997), has proposed that conceptual metaphors are processed via producing a superordinate category from source domains and projecting this category to target domains. On the other hand, the alignment-based account, e.g., the Structural Mapping Model (Gentner & Wolff, 1997), has proposed that metaphors are processed by aligning one-to-one correspondences between source domains and target domains and projecting the concrete concepts in source domains to the abstract concepts in target domains. Finally, the principle-based account, e.g., the Conceptual Mapping Model (Authors, 2002, Forthcoming), has proposed that there are mapping principles, i.e. underlying reasons, occurring between source and target domains. People use this underlying knowledge to process metaphors. Past studies used the reading/reaction time measure to evaluate what processing mechanism is used when people comprehend metaphors. However, little research uses a production approach to investigate how metaphors will be interpreted or paraphrased. We are wondering which mapping theory can correctly predict how people paraphrase metaphors.

This study aims to investigate how people paraphrase metaphors and what mapping theory can account for the results for the paraphrasing task. It is hypothesized that people use mapping principles to paraphrase metaphors. We expect that participants produce paraphrases relating to mapping principles more frequently than those not relating to mapping principles (i.e. MP). Participants were instructed to read "X IS A Y" metaphors in Mandarin Chinese and paraphrase the meanings for each metaphor. We analyzed the paraphrases that were first produced by participants. The results demonstrated that the tokens of MP-relevant paraphrases for each "X is A Y" metaphors were significantly higher than those of MP-irrelevant paraphrases ( $p < .05$ ). Our results suggest that interpreters used mapping principles to paraphrase metaphors, which is consistent with the prediction of the Conceptual Mapping Model (Author, 2002, Forthcoming). In contrast to McGlone's (1996) findings, his results showed that when participants paraphrased metaphors, the tokens of paraphrases relevant to the cross-domain mappings were *not* significantly higher than those not relevant to the cross-domain mappings. We argued that a large number of his materials were not conventional expressions, which can not invoke the access of conceptual mappings in the paraphrase task.

To conclude, the principle-based account for the processing of conceptual metaphors received empirical evidence in this work. From the production perspective, we can get a more complete picture of the conceptual underpinning of mappings between two domains for conceptual metaphors. This study has implications that the hypothesis of mapping principles involved in conceptual metaphors can refine Lakoff's Contemporary Theory of Metaphors for delimiting the general principles governing how concrete concepts are used to characterize the abstract concepts.

Keywords: Conceptual Mapping Model, underlying reasons, paraphrases, prototypical mappings, Mandarin Chinese

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