Processing Metonymy and Metaphor

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Processing Metonymy and Metaphor addresses three main topics: nonliteral language, the nature of metonymy and metaphor, and how to process them. The book is structured around these topics:

- Chapters 2 and 3 describe the nature of the linguistic phenomena studied: nonliteralness, metonymy, and metaphor;
- The subsequent chapters (4–8, 9–10), which constitute the core of the book, present Fass's approach to processing metonymy and metaphor, as well as issues and extensions;
- Chapters 11 and 12 conclude the subject, introducing related works, perspectives, and discussions.

The aim of the book is a semantic theory of metonymy and metaphor, called "collative semantics," and its implementation in the *meta5* program. Before entering the core of the topic, Fass gives the reader definitions for some tropes (figures of speech), most, if not all of them, related to metaphor and metonymy (Chapter 2). The tropes are classified according to their nature: comparison, contiguity, contrast, as well as idioms and a few "borderline" tropes. In Chapter 3, types of metaphors and types of metonymies are proposed, and previous work in these domains is presented. The proposed classifications provide the reader with a very clear view of both tropes. Moreover, the author adds to each classification a similarly classified description of the two main processes that can apply to the listed figures: recognition and interpretation.

Significant, and valuable, efforts have been made to synthesize and clearly introduce complex notions about figurative language. However, for almost every topic Fass introduces, he concludes by emphasizing its fuzziness. The novice reader may be confused by the overlaps between the different tropes as well as by the lack of precise definitions.

At this point of the book, the author introduces the core of his theory. The "collative" semantics is founded on a frame-based language model for representing lexical ambiguity, including both preferences (selection restrictions and constraints on part-of-speech for composition) and assertions (constraints on the semantic properties for composition). The frames or "word senses" are nodes organized in an ontology exploiting 12 different kinds of relationships. This representation leads to a description of the different possible semantic relations between two word senses. Fass proposes

seven types of relations: literalness, metonymy, metaphor, and anomaly are preference-based relations; redundancy, inconsistency, and novelty are assertion-based. Processing metonymy, metaphor, and the other tropes can then be viewed as discriminating between the semantic relations. This proposition is probably the most important step in Fass's theory.

It is the "collation" process that allows the set of possible matchings between two word senses to be found and, therefore, the nature of the relation between them to be discriminated. The author describes this process in great detail. It is based on validity and/or preference rules, which find and sort relations between a source and a target word sense. "Collation" alone is not sufficient to process all the relations: the metonymic relation is viewed as different from the others. It requires a specific process for substituting the source or the target word sense in a pair. Five types of substitutions are possible, depending on the generic metonymic relations (Fass identifies the following: part for whole, property for whole, container for content, artist for artform, and coagent for activity). The result is a "semantic vector" combining the mapping issued from the collation and the relations in the metonymic chain. Thus, the meaning representation of the whole sentence is case-frame-based, combining the word senses appearing in the semantic vectors.

As it is possible to process multiple meanings, Fass proposes rules to choose the most relevant. The vectors are ordered according to the nature of the simple relations they involve. On this specific point, the author himself is aware of the possibility of using contextual information rather than generic rules only.

The author concludes with a large section (Chapter 11) on related works, especially those addressing the processing of metonymy and metaphor, and by discussing other topics related to these two tropes (Chapter 12), introducing interesting ideas for further research.

Dan Fass's book provides good answers to the expectations its title raises. The author offers his own approach to metonymy and metaphor processing, compares it with existing methods, and underlines some of the weaknesses remaining in the field. The presentation is clear, the author having a great aptitude for good classifications and synthesis. However, the reader must have some knowledge of tropes or nonliteral language to comprehend the first chapters. It seems that Fass avoids choosing one precise definition for each phenomenon studied. This is justifiable in a computing approach, but it may confuse a novice reader. The book provides far more than just an approach for processing two tropes: the whole method gives a way to distinguish different tropes and literal language, to process meaning representations, and to resolve lexical ambiguity.

A few questions remain. The use of an ontology can be an impediment when the size of the lexicon increases considerably. Such an approach is restricted by the construction of the lexical resources, and may probably apply to domain-specific tasks only. The notion of literalness, though central to the book, is still arguable.

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