

Metaphor Analysis in Psychology—Method, Theory, and Fields of Application

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Abstract: The analysis of metaphors is a classical research theme in linguistics, but has received very little attention in psychological research so far. Metaphor analysis—as conceptualized in cognitive linguistics—is proposed here as a qualitative method for psychological research for several reasons. Metaphors are culturally and socially defined, yet they also represent a basic cognitive strategy of analogical problem solving. Metaphors are context-sensitive, yet at the same time they are abstract models of reality much in the same way as mental models and schemata in cognitive psychology. The multifaceted properties of metaphors allow for the study of micro-interactions between cognition and culture in open and qualitative research designs. They also enable the bridging of the gap between quantitative-experimental and qualitative approaches in psychology. Because metaphors are of high plausibility in everyday experience, metaphors are a valuable tool for interventions in applied fields of research such as organizational and work psychology.

Keywords: *Metaphor analysis, analogy, cognitive linguistics, context-sensitivity, mental models, schemata, cognitive anthropology, distributed representation, tacit knowledge*

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1. Theoretical Background

In 1980, the publication of LAKOFF and JOHNSON's book 'Metaphors we live by' was the starting point for renewed interest in the phenomenon of metaphors in the field of cognitive linguistics, and to a smaller extent in the new field of cognitive science in general. In their 'new cognitive theory of metaphors', LAKOFF and JOHNSON suggested that metaphors are not merely linguistic ornaments, but an expression of the structure of thought. LAKOFF and JOHNSON assume that conceptual thinking is generally metaphorically structured and while metaphors are seen as an expression of thought rather than language, they reason that metaphors consequently also structure and influence action. The cognition-behavior link implicated hereby has never been tested empirically and remains yet to be proven (MOSER 1998). Nonetheless, the work of LAKOFF and JOHNSON fostered an array of interesting publications on metaphor in cognitive linguistics, as well as in other disciplines such as cognitive

anthropology, computer science, and philosophy of language, and to a smaller extent also in psychology. [1]

2. Metaphor Research in Psychology

In psychology, the work of LAKOFF and JOHNSON stimulated a certain interest in the study of metaphors in both cognitive and clinical psychology, although both fields of psychology hardly took notice of their respective studies in metaphor. [2]

In a cognitive and experimental research paradigm, metaphors are studied as examples of mental models (JOHNSON-LAIRD 1983, 1989) as well as analogical reasoning and problem solving (GENTNER & STEVENS 1983, VOSNIADOU & ORTONY 1989). These approaches offer detailed explanations of how analogies, and hence metaphors, are used to make sense of the world. Experiments by GENTNER and GENTNER (1983) about the understanding of electricity show how metaphors provide the necessary basis for understanding, decision-making, and action. DUTKE (1994) shows similar effects of different metaphor models in the applied field of software ergonomics. In a recent experimental study OTTATI, RHOADS and GRAESSER (1999) show how metaphors influence communication processes. If people have a general interest in sports, they pay significantly more attention to information presented in terms of sports metaphors, regardless of the content of the information. [3]

In clinical psychology, the interest in metaphors concentrates on their role in communication processes in psychotherapy (von KLEIST 1987, BUCHHOLZ 1993, 1995, RODERBURG 1998). Research focuses on how metaphors might be useful as indicators and maybe even as predictors of the quality and evolution of the therapist-client relationship. The research paradigm is usually qualitative with small samples of case studies and a psychoanalytical background of interpretation. A few other studies follow a methodological approach similar to that of clinical case studies, but are not studies of therapeutic processes (SCHMITT 1995, SCHACHTNER 1999). [4]

Both approaches to metaphors neglect aspects which are some of the very advantages of metaphor analysis: the social and cultural origins of metaphor models, the historically-defined changes in metaphors across time, and the context-sensitivity of metaphors. These properties are well-documented in anthropological and linguistic studies of metaphors (LIEBERT 1993, STRAUSS & QUINN 1997) and to some extent in recent social psychological studies of metaphors (MOSER 1998, 1999a, OTTATI, RHOADS & GRAESSER 1999). While the clinical studies are individualistic in orientation and methodologically often questionable, the cognitive approaches are methodologically highly sophisticated, but aim to study basic human behavior regardless of context, culture or history. Both approaches tend to ignore the culture-cognition link, which is part of the very phenomenon of metaphorical language. As a consequence, they also do not make use of the potential of metaphor analysis to bridge the gap between qualitative and quantitative research in psychology. [5]

3. Definition of "Metaphor"

Metaphors are analogies which allow us to map one experience in the terminology of another experience and thus to acquire an understanding of complex topics or new situations (VOSNIADOU & ORTONY 1989). The definition of the metaphor used here differs from our everyday understanding of the metaphor, which refers to it as a linguistic ornament with examples like 'Hercules is a lion'. In the fields of cognitive linguistics, the metaphor is defined as an analogy (LAKOFF 1987, LANGACKER 1987): A metaphor consists of the projection of one schema (the source domain of the metaphor) onto another schema (the target domain of the metaphor). What is projected is the cognitive topology of the source domain, that is the slots in the source domain as well as their relation with each other (LAKOFF & JOHNSON 1980, LAKOFF 1993). The process of metaphorical projection is illustrated by the metaphor model 'success is a path' (Figures 1 and 2), with examples of metaphorical expression from a study about the transition from university to work (MOSER 1998, 1999a): [6]

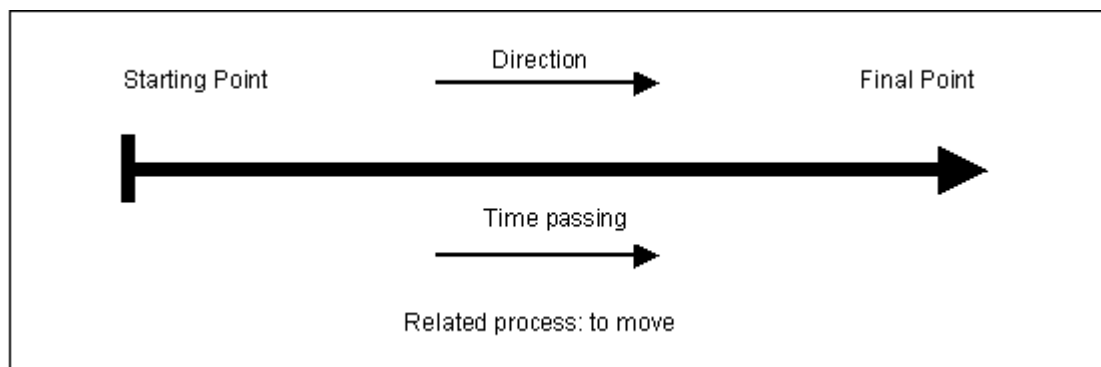


Figure 1: Schema of the metaphor source domain 'path' (in: MOSER 1999a, p.144) [7]

Path is the source domain in this analogy of 'success is a path' and has a certain cognitive structure, consisting at the minimum of the following slots: a starting point, a final point and a direction. Another property of the path schema is that time passes as someone moves along the path. Accordingly, the corresponding process is to move. Knowledge about success (the target domain) is metaphorically mapped in terms of the path schema (see Figure 2). The path schema is further differentiated, now consisting of career steps, parallel paths, obstacles and detours, with matching examples of metaphorical expressions such as *achieving distant goals*, *heading in the right direction*, *moving on*, etc. [8]

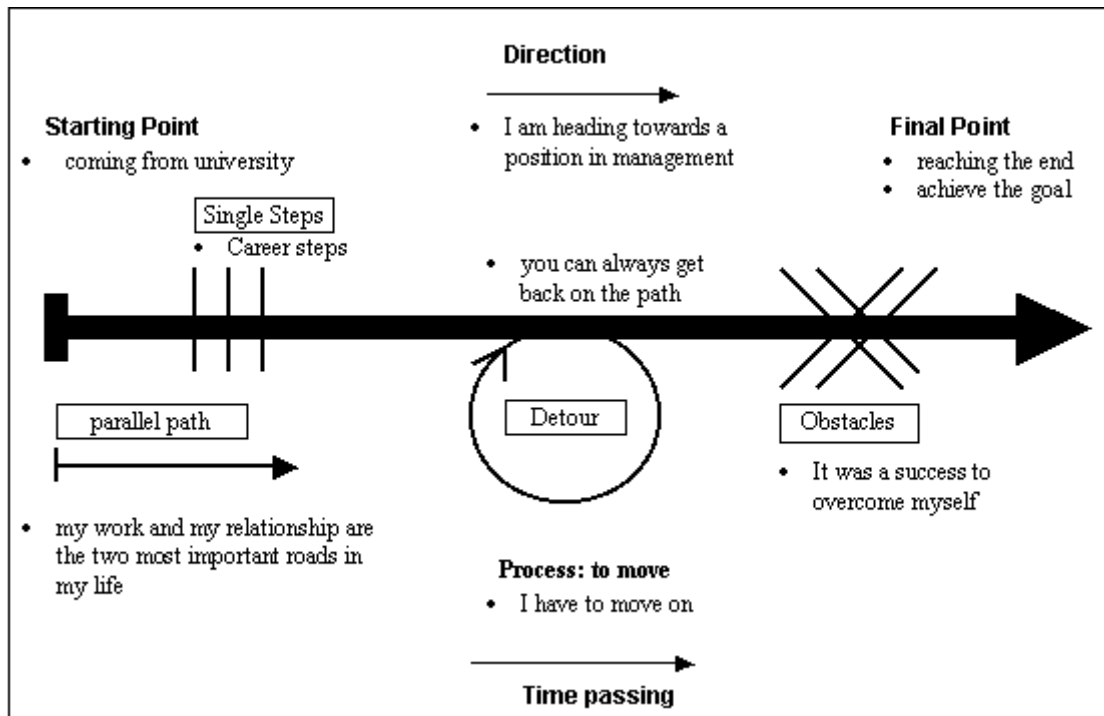


Figure 2: Metaphor model 'success is a path' with metaphorical expressions from interviews about the transition from university to work (in: MOSER 1999a, p.145)¹ [9]

Whether an expression is metaphorical or not depends on the context. For example, the expression *'it was completely off limits'* is not metaphorical if used in the context of a tennis game and the *'it'* refers to the tennis ball being actually and physically off the limits of the tennis court. The same expression is metaphorical if it refers to an argument or behavior, which is described as *'off'*, e.g. *'her argument was completely off limits'* or *'his behavior was completely off limits'*. In both cases, inadequate behavior is described in terms of a sports vocabulary, the limits of the playground symbolizing what is still acceptable to the referee who is symbolically represented by the speaker in this example. Tennis play thus serves as an analogy to express the abstract and complex rules of adequate social behavior. [10]

4. Metaphor Analysis as a Multifaceted Research Perspective

For several reasons, metaphor analysis allows for a multifaceted research perspective:

Metaphors influence information processing:

Metaphors not only enable the reflection and communication of complex topics and the anticipation of new situations, the use of different metaphor models also affects further perception, interpretation of experiences and possibly also subsequent actions (GENTNER & GENTNER 1983). Metaphors thus have not only instrumental value for self-reflection, anticipation and communication, but also an important function as mind settings, which influence our cognition of the self and the world (MOSER 1998, p.65, OTTATI, RHOADS & GRAESSER 1999). [11]

(2) Metaphors are a reliable and accessible operationalization of tacit knowledge:

In research on tacit knowledge and tacit expertise, not only the representation but also the accessibility of tacit knowledge is an important issue (NEUWEG 1999, STERNBERG & HORVATH 1999). Metaphors are a linguistic manifestation of tacit knowledge, which is easily accessible because metaphorical expressions cannot be avoided in everyday or professional language. According to the methodological standards in psychological reliability measures, metaphors can be reliably operationalized (MOSER 1998, p.79, OTTATI, RHOADS & GRAESSER 1999). [12]

(3) Metaphors are holistic representations of understanding and knowledge:

Metaphors are an example of distributed representation of complex knowledge and analogical problem-solving. Compared to propositional representations, it is argued that mental models, and thus also metaphors, allow for a more holistic representation of understanding and knowledge (SCHNOTZ 1988). As the metaphor model 'success is a path' (see above) shows, using metaphorical expressions such as 'career steps', 'trying to find the right path', etc., not merely documents how someone understands his or her present situation, but also indicates a more general understanding of success, which favors certain problem-solving skills more than others. [13]

(4) Conventional metaphors are examples of automated action:

Like language in general, conventional metaphors have been learned in social interaction as part of general language competence. Once learned, conventional metaphors become subconscious and are used automatically just like most other linguistic features. Only conscious effort and attention can change or help to 'unlearn' automated language behavior like the use of conventional metaphors. Therefore, it can be assumed that the use of metaphors is relatively free of self-presentation strategies, which is an important aspect for many psychological research questions. Moreover, recent studies have shown that automated processes are very important in action regulation and responsible for the automated and subconscious activation of goals and motives (BARGH & BARNDOLLAR 1996, DWECK 1996). Metaphor analysis can be used to assess the structure and content of the implicit theories responsible for these automated and subconscious processes. [14]

(5) Metaphors reflect social and cultural processes of understanding:

Metaphors represent general cognitive abilities of analogical reasoning, which can be understood in the terms of schema theory and the theory of mental models in cognitive psychology. Yet at the same time, metaphors are context-sensitive and reflect social and cultural processes of understanding and self-definition. As studies about the self-concept have shown (MOSER 1998), metaphorical expressions used in narrative interviews to describe oneself can be differentiated on different levels. On the one hand, the metaphor source domains used to talk about the self seem to be very limited. Only 22 metaphor source domains were reliably identified to describe a large corpus of 4,000 metaphorical expressions, with the most frequent eight metaphor source domains already describing 68% of all metaphorical expressions used. The metaphors identified most likely represent the shared cultural understanding of the self. On the other hand, significant differences in frequency could be found within these 22 metaphor source domains, depending on gender, professional education and preferred

life styles of the subjects interviewed. On a third level, individual preferences in metaphor use were found. These individual differences were analyzed quantitatively (frequency of different metaphor source domains) as well as qualitatively in single case studies (for further details, see MOSER 1998). [15]

(6) Combining quantitative and qualitative approaches to metaphor use:

Within a large text corpus of metaphorical expressions as described above (MOSER 1998), typical patterns of metaphor use in combination with certain topics can only be detected through the quantitative analysis of the categorical data. Statistical procedures used by the author include powerful tools for the analysis of categorical data such as configuration-frequency-analysis and correspondence analysis. Both procedures would also merit more attention in the context of qualitative research than they receive to date. While the quantitative analysis of metaphors reveals general tendencies in metaphor use, the full potential of metaphor analysis can only be reached when combining it with a qualitative approach. The qualitative approach enables the analysis of metaphor use in context and understanding the function of metaphorical expressions in the context of a narrative text or in the context of a biographical reconstruction. The combination of qualitative metaphor analysis with content analysis and narrative text analysis proved to be especially fruitful for the understanding of situational, biographical and social functions of metaphor use (see MOSER 1998). A third methodological approach to the metaphor, which is currently used by the author, is the study of metaphors in experimental laboratory research. [16]

5. Fields of Application

As research about the self shows (MOSER 1998), it is possible to combine a cognitive understanding of metaphor with a research scope in individual, social and cultural differences in metaphor use and mental models of the self. At the same time, it proved to be very useful to combine qualitative as well as quantitative approaches to metaphor analysis. [17]

Like many other key concepts in psychological research, the self is a 'classical' research topic for metaphor analysis, because people can only speak metaphorically about the complex and abstract matter of the 'self'. Analyzing metaphors thus not only gives access to the tacit knowledge and mental models which shape the individual understanding of the self, but also to the cultural models provided by language to express individuality, self-concept and the 'inner world'. As described above, the analysis of metaphors showed that only very few metaphor models were used altogether, independently of the topics people talked about and regardless of the self-concept aspect they referred to (MOSER 1998, 1999a, 1999b). Apart from this culturally shared level of understanding of the self, there were also significant social differences in metaphor use, such as professional experience, future orientation (career plans, preferred relationship model), and gender. On the individual level, certain habitually-preferred metaphor models of the self could be assessed, as well as differences in metaphor use for different self-concept aspects (ideal vs. actual, ought, negative, social self, self change or gender role). These results could only be obtained through the triangulation of quantitative and qualitative methods, which allowed the analysis of statistically significant overall tendencies in a large data set as well as qualitative differences in single case studies. For further details on the methodological

approach of combining quantitative and qualitative analysis of metaphors see MOSER (1998). [18]

In applied research projects on knowledge management and knowledge cooperation, metaphor analysis is used to assess tacit knowledge and different actors' perspectives in the work process (MOSER 2000, in press, MOSER et al., 2000). Metaphors proved to be of high instrumental value, because their everyday use and importance is plausible also to linguistically untrained lay persons. Therefore, MOSER (in press) started using metaphor analysis not only as a method of analysis, but also as a method of intervention in different firms and work teams to make tacit knowledge and actor perspectives accessible to conscious reflection and discussion. It is the aim of these interventions to enhance processes of knowledge cooperation and transfer and to induce different actors' perspectives. [19]

6. Open Research Questions

The behavior-cognition link

One of the most crucial points in metaphor research is the possible influence of metaphors on action. Because empirical evidence for the assumed cognition-behavior link mentioned above is still lacking, the author is currently conducting experiments to determine how metaphors might influence information processing and problem-solving and if so, in which respect exactly. [20]

Operationalization of metaphor models

Another important aspect is the reliable operationalization of metaphor categories. In research on the self (MOSER 1998), many of the conceptual metaphors proposed by LAKOFF and JOHNSON and other linguistic studies (JAEKEL 1997) could be reproduced. Yet at the same time, the definition of metaphor categories to date proved to be insufficient as well as inconsistent in many ways. As a consequence, a further and new definition of metaphor models had to be developed in order to achieve a reliable operationalization of metaphor models (MOSER 1998). Here, further systematization and methodological development is still needed. [21]

Interdisciplinarity of metaphor analysis

An advantage of working with metaphors is the potential link with many other disciplines, such as cognitive science, namely cognitive linguistics, philosophy of language (SCHNEIDER 1992, 1997, HAVERKAMP 1998), cognitive anthropology (STRAUSS & QUINN 1997), and computer science (INDURKHYA 1992, SCHNEIDER 1996). Further psychological research on metaphor and metaphor analysis could be much improved by including developments in other disciplines. A transdisciplinary or interdisciplinary perspective on metaphors would not only bring cognitive, cultural, social and individual aspects of metaphor use closer together, it would also promote the triangulation of qualitative and quantitative research paradigms. [22]

Notes

- 1) The subjects interviewed were native Swiss German speakers, all quotes from the interviews were translated into English. [<back>](#)

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