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Semin, G.R.; Fiedler, K.

published in

European Review of Social Psychology 203
1991

document version

Publisher's PDF, also known as Version of record

[Link to publication in VU Research Portal](#)

citation for published version (APA)

Semin, G. R., & Fiedler, K. (1991). The linguistic category model, its bases, applications and range. In *European Review of Social Psychology* 203 (pp. 1-30). Wiley.

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Chapter 1

The Linguistic Category Model, its Bases, Applications and Range

Gün R. Semin

Free University of Amsterdam, Amsterdam

Klaus Fiedler

University of Giessen, Giessen

ABSTRACT

A model of interpersonal terms (verbs and adjectives) is reviewed in terms of the research on: (a) the systematic cognitive inferences these terms mediate, and (b) the implications of this model for social cognitive processes as it is applied in different domains such as attribution processes and intergroup relations.

INTRODUCTION

The relationship between language and social cognition is an issue which reappears in diverse guises in the history of human thought. The question underlying this issue is whether human cognitive processes, such as perception, memory, and social inference processes, vary with the structural characteristics of language. The origins of this problem appear to lie in the mid eighteenth century, when the Berlin Academy of Sciences advertised a prize for the best essay exploring the “reciprocal relationship between people’s opinions and their language” (cf. Schaff, 1973). In present-day psychology,

this subject falls, among other domains, into what is termed the linguistic relativity debate, and the classic fields which have contributed to the examination of whether language shapes, influences or determines human cognitive processes are chiefly those of colour terms, classifiers and counterfactuals (cf. Brown, 1983).

The interplay of language and social cognition is of considerable relevance to social cognition, where most of the mainstream work is based on processing models and focuses primarily on intrapsychological processes. Such a focus essentially neglects one of the fundamental facets of social psychology, namely the medium through which social behavior and cognition are carried out, i.e. language. With few exceptions (e.g. non-verbal behavior), language enters social psychological phenomena at all imaginable levels, not only as they are manifested in everyday life but also in the construction of most if not all experimental settings and instructions, and most independent and dependent measures. Although there has been social psychological research into diverse aspects of language (e.g. social markers in speech, Scherer & Giles, 1979), it is only recently that one finds investigations on the interplay between language and social cognition (e.g. Hoffman, Lau & Johnson, 1986). This interest is certainly not new and has its forgotten origins in the emerging *Völkerpsychologie* around the middle of the nineteenth century (cf. Lazarus & Steinthal, 1860). A more recent programmatic sketch can be found in Fritz Heider's classic *The Psychology of Interpersonal Relations* (1958). The current resurgence of interest is to be found, among other things, in the recent discovery of stable and reliable phenomena which suggest that particular linguistic devices (e.g. interpersonal verbs) systematically influence social inference processes (e.g. Abelson & Kanouse, 1966; Brown & Fish, 1983; Garvey & Caramazza, 1974, *inter alia*).

In the following, we shall outline and review a programme of research which we embarked upon some six years ago (cf. Semin & Greenslade, 1985; Semin & Fiedler, 1988) investigating the interplay between language and social cognition. We should note that the approach adopted in this work differs in an important respect from the issues that have been addressed under the earlier linguistic relativity debate. Our approach to the interplay between language and social cognition regards this relationship as a dialectical one, in which language is seen as the product of sociocognitive activities or practices, but language as the product of these practices in turn exercises an influence on social cognitive processes. It is within this orientation that we can best outline three ways of approaching language within which the different emphases of our work can be located (cf. Semin & Fiedler, 1991), namely language as a structure, a complex skill, and a practical activity (Riceour, 1955).

Language can first of all be considered as a *structure*, or as an abstract property of a community of speakers. Thus, it can be conceived of as an abstract set of rules which are "virtual and outside of time" (Riceour, 1955).

Obviously, their application is not mechanical, but they are used generatively by members of a language community. Another important feature of this view is that language as an institution is neither the intended product of any one subject nor orientated towards an other. It is obviously produced by individuals, but individuals produce language as historically located agents and not under conditions of their own choosing. Viewed in this way, it cannot be regarded as being the property of any particular speaker, in other words it is “without a subject”. The next section of this chapter, which examines the systematic inferential implications (or informational constraints) of the terms used in the interpersonal domain (by advancing a taxonomic model), focuses precisely on the features of interpersonal language as an extra-individual and systematic set of abstract properties.

From the point of view of production as a series of speech acts by an individual speaker, language becomes a *complex skill* belonging to persons who know the language. It becomes something that people use to make and convey sense, something which they accomplish, process and utilize. It is also something that is “done” by the speaker, but not necessarily in the full knowledge of how he/she does it. The third section of this chapter furnishes an overview of the work investigating the types of inferential implications that language mediates without the explicit knowledge of the speaker, such as causal inferences, and the alternative theoretical positions advanced to explain it to date.

The third way of looking at language is to view it as a *medium for practical activity*, i.e. speech. This way of considering language concerns the practices or the situated doings of subjects with regard to their intended consequences. In this perspective, the relevance of language in facilitating communicative intent is fundamental, but it is also the intended medium, as Austin makes clear, of a whole host of other “illocutionary effects”. There are specific features which are distinct in this view. Namely, speech presupposes a subject, potentially acknowledges the presence of the other, is dialogical, and the object of inquiry becomes the social practices from the point of view of their constitution as a series of acts generated by actors. The strand of research discussed in the third section also examines the selective uses of the different classes of interpersonal terms. The aim is to examine the types of communicative intent that are achieved by their differential usage in varying social contexts.

THE LINGUISTIC CATEGORY MODEL

Person referent adjectives and interpersonal verbs are succinct linguistic indices that we use in our everyday life to describe persons and their relationships as well as interpersonal events. These indices have also been extensively

used in social psychology. For instance, sentences with interpersonal verbs are very suitable for studying causal attribution, instead of simulating interpersonal events (cf. Abelson & Kanouse, 1966; McArthur, 1972; Orvis, Cunningham & Kelley, 1975; Ruble, 1973, *inter alia*). Similarly, trait terms (adjectives) are used extensively in social psychology in diverse domains such as social inference, impression formation, and implicit personality theory, but also in the more recent work in person cognition, as for instance in studies examining diverse features of information processing, storage and retrieval (cf. Hastie, 1981; Wyer & Srull, 1980). Additionally, there is extensive work in the domain of personality investigating the organization of adjectives as trait terms (e.g. Allport & Odbert, 1936; Goldberg, 1977; Norman, 1963; Rosenberg & Sedlak, 1972; Wiggins & Broughton, 1985). Throughout this work properties of the medium that carries information have been the poor partner of research. So, one of the obvious questions to ask is whether these different devices that feature so prominently in social psychological research display any properties that may have systematic effects on cognitive processes. Are there distinct and systematic features of adjectives and verbs that influence social inferences or cognitive processing? If there are such features, then how do people use such linguistic devices strategically? It is with these types of general questions in mind that we embarked upon our work. First, we attempted to derive some general classificatory system for interpersonal verbs and adjectives on the basis of independent criteria derived from the existing psycholinguistic literature and some of our own ideas. These are described below.

The Classificatory Model and Its Criteria

Verbs are devices that are used to describe actions (talk, help, cheat, hurt) or psychological states (like, hate, notice, abhor), whereas adjectives are essentially devices to describe properties of persons, namely traits or dispositions (e.g. extraverted, friendly, helpful, etc.). The theoretical framework advanced by the linguistic category model (LCM) is motivated by a desire to advance a general framework of the informational constraints to be found in interpersonal terms rather than focusing on particular semantic properties (such as presumed responsibility, Fillenbaum & Rapaport, 1971; Fillmore, 1971; taxonomic descriptions of the semantic relationships between adjectives, cf. Semin, 1989, 1990; or interpersonal verbs, DeRaad, 1986). The distinction made in the LCM between the different terms in the interpersonal domain is achieved by reference to a number of converging linguistic and metasemantic criteria that are independent of the informational constraints characteristic of the different categories in this taxonomy.

In the LCM a distinction is made between four different verb categories and adjectives (see Table 1.1). If one considers the corpus of all interpersonal

Table 1.1 The classification of linguistic terms in the interpersonal domain and their classification criteria

Category	Examples	Characteristic features
Descriptive action verbs (DAV)	Call Meet Kick Kiss	Reference to single behavioral event; reference to specific object and situation; context essential for sentence comprehension; objective description of observable events
Classification criteria: Refer to one particular activity and to a physically invariant feature of the action; action has clear beginning and end; in general do not have positive or negative semantic valence		
Interpretive action verbs (IAV)	Cheat Imitate Help Inhibit	Reference to single behavioral event; reference to specific object and situation; autonomous sentence comprehension; interpretation beyond description
Classification criteria: Refer to general class of behaviors; have defined action with a beginning and end; have positive and negative semantic valence		
State action verbs (SAV)	Surprise Amaze Anger Excite	As IAV, no reference to concrete action frames but to states evoked in object of sentence by unspecified action
Classification criteria: As with IAV, except that the verb expresses emotional consequence of action rather than referring to action as such		
State verbs (SV)	Admire Hate Abhor Like	Enduring states, abstracted from single events; reference to social object, but not situation; no context reference preserved; interpretation beyond mere description
Classification criteria: Refer to mental and emotional states; no clear definition of beginning and end; do not readily take progressive forms; not freely used in imperatives		
Adjectives (ADJ)	Honest Impulsive Reliable Helpful	Highly abstract person disposition; no object or situation reference; no context reference; highly interpretive, detached from specific behaviors

terms in the lexicon, then the classification of terms into the five categories mentioned in Table 1.1 is in a sense obvious. Indeed, even in the absence of objectively defined criteria and with broad metasemantic guidelines we find that naive judges are able to discriminate successfully between the different instances of each category (cf. Semin & Fiedler, 1988). However, since there are problematic instances of borderline cases, and because the classification of the term is treated as an “independent variable”, it is important to specify explicit criteria. Indeed, we have now developed a relatively exhaustive

corpus of all interpersonal verbs in English consisting of approximately 3000 verbs. In the following we specify briefly the criteria that were explicitly used in our classification.

The first verb category is descriptive action verbs (DAV—kick, kiss, push). This term refers to an action with a clear beginning and end, and maintains a direct reference to an invariant feature of the behavior in question. DAVs in general do not have positive or negative semantic valence and their interpretation is highly context bound (John pushes David—either “to save him from an oncoming car” or “under an oncoming car”). Diverse studies have demonstrated this contextual dependency either in tasks of causal inference (DeGrada & Mannetti, 1990) or in the context of person and situation inferences (Semin & Fiedler, 1988; Semin & Greenslade, 1985).

The next category is referred to as interpretive action verbs (IAV—help, cheat, imitate). The distinctive feature of these IAVs is that they act as a frame for diverse behaviors (e.g. one can help a person: by giving instructions to find a place; out of financial difficulties; by preparing them for an exam; *inter alia*). Nevertheless, the behaviors in question have distinct beginnings and ends as well as clear positive or negative semantic valence.

The third verb category that we distinguished is state verbs (SV), which refer to mental or emotional states (like, hate, respect). In contrast to action verbs (DAV or IAV), these do not readily take the progressive form (e.g. “He is believing in Santa Claus”) and are not freely used in imperatives (cf. Brown & Fish, 1983; Miller & Johnson-Laird, 1976).

Brown and Fish (1983) distinguish between two types of state verbs: stimulus–experiencer verbs (e.g. “John amazes Mary”, where John is the stimulus and Mary the experiencer) and experiencer–stimulus verbs (“John likes Mary”, where John is the experiencer and Mary the stimulus). However, they do not provide clear semantic criteria to distinguish between these two types. Furthermore, it is difficult to distinguish between action verbs (e.g. hurt, harm) and those state verbs which are identified as “stimulus–experiencer” verbs (e.g. amaze, surprise). In our work, we refer to “experiencer–stimulus” verbs as SV. In contrast, we refer to “stimulus–experiencer” verbs as state action verbs (SAV) (e.g. amaze, thrill, surprise, bore) (cf. Semin & Fiedler, 1991). The semantic criteria for classifying SAV are the following. Essentially, these are action verbs with one difference. A critical feature of SAV is that they refer to an implicit action frame by the sentence subject that leads to the experience of a state in the object of a sentence (e.g. surprise, bore, amaze, thrill). In contrast, SV do not have any action reference at all (e.g. love, hate, like, despise). Furthermore, for SV the emotion or psychological state is already existent, whereas for SAV the emotion is evoked by an action of the subject of a subject–verb–object (SvO) sentence. Johnson-Laird and Oatley (1989), in a different context, make a distinction between caused emotions and emotional relations.

Finally, we introduced (Semin & Fiedler, 1988) the category of adjectives, a distinction which is given unambiguously and formally. More recently, we (Semin *et al.*, 1990) differentiated between different types of adjectives as a function of whether they have a morphological origin in a verb stem (i.e. DAV-DAVADJ, talk-talkative; IAV-IAVADJ, help-helpful; SAV-SAVADJ, repulse-repulsive; SV-SVADJ, like-likeable) or are genuine adjectives (ADJ extraverted, friendly, etc.).

The Informational Constraints of Interpersonal Linguistic Categories

Given this classification, we approached an examination of the informational constraints that typify these categories. Originally, we argued that the different categories are organized along a dimension of concreteness–abstractness (Semin & Fiedler, 1988). At the one end DAV are verbs that maintain an immediate reference to concrete behavioral events, and at the other end ADJ maintain an abstract reference to a person’s psychological properties (e.g. traits, dispositions). In investigating the psychological implications of such a dimension along which these categories may be organized, we proposed that the more abstract a term the more *informative* it would be about a person, the more *enduring* a quality it would express. Simultaneously, the abstractness of a category implies that it would be less informative about *specific situations*, less *verifiable* and more *disputable* than concrete terms. Systematic differences in the inferential properties of interpersonal terms have considerable implications since interpersonal terms constitute the focal devices we utilize in diverse domains in social psychology, such as attribution, intergroup relations and stereotyping. Thus, the same desirable interpersonal behavior may be reported very concretely (with action verbs) if it is performed by an outgroup member (thus particularizing it) or very abstractly if it is performed by an ingroup member (thus generalizing it from the situation to an enduring quality of the person—cf. Maass *et al.*, 1989).

Table 1.2 The cognitive properties of linguistic categories in the interpersonal domain (cf. Semin & Fiedler, 1988)

Constituent scales	Linguistic category			
	DAV	IAV	SV	ADJ
How revealing the quality is	Low	—————▶		High
How enduring the quality is	Low	—————▶		High
How much disagreement the statement generates	Low	—————▶		High
How easy it is to verify the statement	High	◀—————		Low
How informative the statement is about the situation	High	◀—————		Low
Dimension	Concrete	—————▶		Abstract

A discriminant analysis using the aforementioned dependent variables and with the verb classes and adjectives as the *a priori* groups was performed on two samples of independent and randomly selected instances of the four categories (Semin & Fiedler, 1988). The results of these two analyses confirmed that the five constituent scales we developed (see Table 1.2) discriminated successfully between the four categories (SAV was not included in this study). In the first study 84.72% of the 72 terms and in the second study 97.5% of the 40 terms used were discriminated successfully, yielding one highly significant discriminant function on which the four categories were ordered as expected, from a concrete end (DAV) to an abstract end (ADJ), with IAV and SV occupying the intermediary positions.

More recently, we extended this work (Semin & Fiedler, 1990; Semin *et al.*, 1990) by considering additional properties of verbs that are relevant to dispositional (adjective) inferences and more generally informative about the properties of social interaction. In this context, we were concerned with how information about different properties of social interaction and its consequences are coded in and inferred from interpersonal verbs. The type of questions that come to mind are, for instance: Does the duration of an event or state vary systematically according to verb class? Are events coded in DAV perceived to last a shorter time than those coded in IAV? How are the affective implications of interpersonal events marked? Are some events easier to verify than others? These types of questions have potential implications for how people infer traits from behaviors. They also permit us to examine the relationship between adjectives derived from verbs (e.g. helpful) and verbs descriptive of behaviors and states (e.g. to help).

In considering these questions we focused in more detail on the four verb classes seen in Table 1.1 with a view to investigating the relationship between the abstractness–concreteness dimension and other informational constraints that these verbs hold (Semin & Fiedler, 1990, 1991). To this end we examined the four verb classes, first of all with the five constituent scales (cf. Table 1.2). In addition, we were interested in examining whether the different verb classes varied in terms of the diagnostic information they conveyed about a person and how this information might be related to the trait inferences people make. To this end we used Rothbart and Park's empirical paradigm developed in the trait domain (cf. Semin & Fiedler, 1990). We therefore included variables assessing the ease with which people could imagine confirmative and disconfirmative instances of behaviors described by such verbs, along with the temporal duration of the action or state described by such minimal subject–verb–object sentences and the number of different behaviors that they could visualize for the state or action described in each sentence (cf. Rothbart & Park, 1986). The expectation throughout was that imaginability of confirming and disconfirming behaviors, the number of behaviors that could be visualized for each category, as well as the temporal duration of the action

or state described in the statements would vary as a function of the concreteness–abstractness of the verb category.

In addition to these new considerations, we investigated two further sets of properties that these verbs mark which are relevant to the behavior–trait inference issue. The first one is a well-established property of these verbs in the literature, namely the marking of causal information. The repeated and stable finding is that action verbs (DAV, IAV, SAV) when used in simple subject–verb–object sentences lead to the inference that the interpersonal event is “caused” by the sentence subject. In contrast, state verbs (SV) regularly lead to object attributions (Abelson & Kanouse, 1966; Brown & Fish, 1983; DeGrada & Mannetti, 1990; Fiedler & Semin, 1988; Fiedler *et al.*, 1990; Franco & Arcuri, 1990; Garvey & Caramazza, 1974; Hoffman & Tschir, 1990; McArthur, 1972, *inter alia*). The second issue we addressed was the question of how affect is marked in interpersonal verbs. In the case of SV and SAV there is clear and self-evident marking of affect to the sentence subject and object respectively. We expected that these inferential properties which differentially imply the subject or object of the interpersonal verbs would represent a dimension separate to that of abstractness–concreteness, namely an inductive inference dimension. Indeed, a factor analysis of these variables yielded a two-dimensional solution separating abstractness–concreteness as the first factor from inductive inference, as can be seen in Table 1.3.

An analysis of variance of the factor scores on both dimensions with verb class as a factor, with four levels, further confirmed our expectations. The concreteness–abstractness dimension replicated our earlier findings, suggesting that the verb categories are ordered in the expected direction from DAV

Table 1.3 Factorial solution for the verb classes

	Factor 1	Factor 2
Eigenvalue	6.34	2.27
Variance explained	45.3	16.2
Ease of confirmability of behavior/state	−0.90	−0.08
Temporal duration of event/state	0.85	−0.26
Ease of disconfirmability of behavior/ state	−0.84	−0.16
Verifiability	−0.83	0.26
Disagreement	0.81	0.16
Endurability	0.80	0.18
Informativeness about person	0.68	0.25
Number of behaviors	0.62	0.44
Affective inference (object)	0.26	0.81
Causal inference (object)	0.36	−0.68
Causal inference (subject)	−0.03	0.62
Affective inference (subject)	0.47	−0.48

to IAV to SAV to SV, and an ANOVA on the inductive inference dimension with verb class as the factor, with four levels, yielded a similarly significant effect distinguishing clearly between subject referent action verbs (IAV, SAV) and object referent state verbs (SV) in the case of causal inference and the reverse for affective inference (see Figure 1.1). The most important implication of these findings is that there are two orthogonal dimensions of psychological implicature in interpersonal verbs. Indeed, the implications of this distinction, discussed in more detail below, arise in the use of the LCM as a methodological instrument. That is, in the coding of free descriptions provided by subjects there are two important features that are worthy of attention: (1) the abstractness and concreteness of the statement as a function of type of linguistic category used, and (2) the source of causal origin in such statements (cf. Maass *et al.*, 1989; Semin & Fiedler, 1989; Semin, Rubini & Fiedler, 1990, *inter alia*).

We now turn to the ADJ category. As mentioned, this was an undifferentiated category in our early formulation (Semin & Fiedler, 1988). More recently, we distinguished between different types of adjectives as a function of their morphological origin (Semin *et al.*, 1990). This involved distinguishing between adjectives that are derived from DAV (e.g. to talk–talkative, DAVADJ), from IAV (to help–helpful, IAVADJ), from SAV (to attract–attractive, SAVADJ), and SV (to respect–respectful, SVADJ). In addition to adjectives that are morphologically derived from transitive verbs, we also included “genuine” adjectives (extraverted, friendly, etc.) as an additional

Figure 1.1 Abstractness–concreteness and inductive inference as a function of verb class. From Semin & Fiedler (1990)

ADJ category. The question that was empirically addressed with respect to these adjective categories was the types of informational constraints that are carried over to adjectives as a function of their morphological origin. As may be recalled, the verb classes give rise to two distinct dimensions of informational constraints, the first being abstractness–concreteness of the verb type and the second the type of cognitive–affective inference mediated by the verb (i.e. inductive inference dimension). To examine this we first selected 30 verbs from the corpus of interpersonal verbs, 10 for each of the respective categories of IAV, SAV and SV. The important criterion for the selection of the verbs in this case was that they should have a morphologically derived adjective. We omitted DAV from this analysis because the number of derived adjectives for DAV in English and German (and Italian, personal communication DeGrada, 1989) is rare (cf. Semin *et al.*, 1990). We then replicated the earlier findings for the distinct verb classes for these three verb groups and found the expected two-dimensional solution. In a further step, we then examined the derived adjectives for these verbs with the inclusion of 10 genuine adjectives.

There were two alternative expectations. The first was that the morphologically derived adjectives should replicate the same abstractness–concreteness and inductive inference patterns as for the verb classes. The second possibility arose from considering the special status of adjectives. In the case of adjectives, we are dealing with terms marking information that is already processed and generalized beyond situations and persons. As such, adjectives may preserve the features of an inference process rather than stable semantic properties of word stems. In other words, adjectives may reflect the causal and/or dispositional attribution elicited by descriptions of behaviors with the corresponding verbs.

The results we obtained confirmed the second alternative, namely that the information marked in adjectives as a function of adjective class conveys information about subject–object inference only. We found a three-factorial solution utilizing the same constituent scales as earlier. Two separate ANOVAs with adjective type as a factor, with four levels, and factor scores on the two orthogonal dimensions as the dependent variables yielded only a significant main effect for the first dimension; this suggests that ADJ and IAVADJ are the most abstract terms, since in terms of the variables loading on it the first factor represents the abstract–concrete dimension, and the SAVADJ and SVADJ are the most concrete adjectives. (cf. Table 1.4 and Figure 1.2).

Indeed, this result suggests that there is a conflation of both the abstractness–concreteness and the inductive inference into one. Both ADJ and IAVADJ are subject referent, whereas SAVADJ and SVADJ mark properties of persons which give rise to effects in the object (i.e. adjectives such as likeable or attractive refer to the affect evoked in others by a quality that the person possesses but is not specified in the adjective itself).

Table 1.4 Factorial solution for adjectives

Variables	Factor 1	Factor 2	Factor 3
Endurability*	0.87	-0.01	-0.16
Informativeness*	0.80	-0.15	0.30
Verifiability*	0.75	0.33	0.21
Disagreement*	-0.53	-0.18	-0.07
Ease of imagining confirming instances	0.18	0.88	0.00
Ease of imagining disconfirming instances	0.27	0.86	-0.12
Number of instances required to confirm	0.24	-0.77	0.31
Frequency of instances required to confirm	0.04	0.13	-0.84
Situative informativeness*	0.24	0.04	0.80
Frequency of instances required to disconfirm	0.45	0.35	-0.63
Number of instances required to confirm	0.32	-0.11	0.51

* Variables used in Semin & Fiedler (1988).

Source: Semin *et al.* (1990).

Figure 1.2 Inductive inference as a function of adjective type. From Semin *et al.* (1990)

The studies reviewed in this section were designed with the purpose of revealing the psychological properties implicit in the different linguistic categories in the *abstract* and also identifying the relationships between these properties. They systematically chart out two distinct properties with respect to interpersonal terms, namely two orthogonal factors which summarize the implicit information that interpersonal verbs mark. The first is the degree to which an interpersonal category is abstract or concrete; the more abstract the

category the more informative it is about the person, the more enduring it is, the more disputable and less verifiable. The second factor is one which marks the affective and cognitive inferences that interpersonal terms mediate, namely inductive inference. Considering adjectives as a differentiated category in terms of their morphological origins, we find that both properties of abstractness–concreteness and inductive inference are merged. The systematic utilization of these informational constraints contained in the corpus of interpersonal terms leads to the development of two strands of research. The first aims to understand the precise processes by which the informational constraints in interpersonal language are mediated, for example causal inferences, affective marking, etc. In the second case, the LCM provides a sophisticated methodological tool for the analysis of the medium by which social cognitive phenomena are carried, namely language. It is to these topics that we turn in the next section of this chapter.

APPLICATIONS OF THE LCM

Thus far, we have been concerned with the semantic criteria by which the different word categories are distinguished in the linguistic category model. We have pointed out the cognitive implications and semantic constraints placed on the comprehension of DAV, IAV, SAV, SV and ADJ as well as on adjectives derived from different verb classes. However, the linguistic category model not only provides an objectifiable taxonomy of word classes but we refer to it as a “model” because it furnishes a framework to develop new theories and alternative explanations of cognitive–social phenomena. Thus, it is not surprising that the semantic differences associated with different linguistic categories imply different processes of language use, comprehension, communication tactics or social inferences. In this section, the taxonomy is taken for granted, and the word classes are treated as a major theoretical (i.e. independent) variable in research on social cognition.

The most frequent application of the model has been in the attributional domain, which constitutes the topic for the next subsection. Then, we extend the language and attribution issue from the individual to the group level by showing how linguistic factors mediate and influence intergroup relations. In concluding this section, we report some studies showing that qualitatively different cognitive processes may be triggered off by the different word classes.

Attribution

Although the importance of word meanings for the attribution process was already recognized in Heider’s seminal writings (Heider, 1958) and in some of

the earliest empirical studies on causal attribution (Abelson & Kanouse, 1966; Kanouse, 1972; McArthur, 1972), the major theories of attribution (Jones & Davis, 1965; Jones & McGillis, 1976; Kelley, 1967, 1972; Weiner, 1985) are based on rationalist models of abstract causal reasoning and do not assume an essential role of language variables. However, there is by now sufficient evidence that linguistic categories are substantially correlated with differential attribution patterns (Brown & Fish, 1983; Fiedler & Semin, 1988, 1991; Maass *et al.*, 1989; Semin & Fiedler, 1988). This is no coincidence, of course, in view of the fact that the semantic features of word categories are highly reminiscent of Kelley's (1967) attributional criteria. Thus, subject informativeness and endurability are closely related to the attributional criteria of consensus and (temporal) consistency, and linguistic categories can also be shown to differ in distinctiveness (i.e. the specificity of the object or target of social behavior; cf. Brown & Fish, 1983; Semin & Fiedler, 1990). On the other hand, as the abstractness of the word category decreases, the perceived controllability of the behavior increases, as well as the ease with which an imperative can be formed to specify a behavioral prescription (Fiedler & Semin, 1990a). Both of these criteria relate to the perceived intentionality supposed to mediate correspondent inferences in Jones and Davis' (1965) attribution theory. Likewise, the basic dimensions of Weiner's (1985) attribution theory (i.e. locus, stability and controllability) are also strongly correlated with the use of different linguistic categories and their semantic properties (i.e. subject and object informativeness, endurability, and controllability respectively). Thus, the attribution of behavior is largely predetermined by the choice of specific word classes which locate the behavior on the major attributional dimensions.

Implicit Verb Causality

The relationship between attributional knowledge and linguistic categories is best illustrated by the well-known phenomenon of implicit verb causality (Abelson & Kanouse, 1966; Brown & Fish, 1983; Fiedler & Semin, 1988; Garvey & Caramazza, 1974; Hoffman & Tschir, 1990). There are certain verbs (e.g. hurt, help, cheat, encourage) that convey the impression that the cause of the behavior described in the verb originates in the sentence subject, whereas other verbs (e.g. admire, abhor, like, mourn for) suggest causal attribution to the sentence object. The former verb class can be identified as action verbs (IAV and SAV) while the latter class consists of state verbs (SV). This highly systematic phenomenon, that is obtained invariantly in different language cultures (Fiedler *et al.*, 1990), is not only of direct relevance for applied research on the language used in newspapers or in the court-room, but also provides a nice paradigm for understanding the language-cognition interface in general.

The most prominent account of the implicit causality of verbs (advocated by Brown & Fish, 1983) states that different cognitive schemata are activated by action verbs and state verbs, and that these schemata carry the causal information. For instance, an agent–patient schema is assumed to underlie action verb sentences such as “Paul hurts Jim”, where Paul is the agent and Jim is the patient. On the other hand, state verb sentences such as “Jean admires Diana” are assumed to activate an experiencer–stimulus schema (Jean being the experiencer and Diana the stimulus). The former schema implies agent causation and the latter schema implies stimulus causation because behaviors are typically assumed to be more specific for agents and stimuli than for patients and experiencers. In operational terms, action verb sentences are readily generalized to other objects or patients but not to other subjects or agents (e.g. “Paul hurts Jim” suggests that Paul will hurt other people as well). And state verb sentences are more readily generalized across subjects or experiencers than objects or stimuli (e.g. “Jean admires Diana” suggests that other people will also admire Diana). These schema-specific attribution patterns can, of course, be paraphrased in terms of the familiar attributional criteria of consensus and distinctiveness. Brown and Fish’s theory simply states that action verb schemata imply low consensus and low distinctiveness (i.e. something specific to the subject), whereas state verb schemata imply high consensus and high distinctiveness (i.e. something specific to the object person).

The phenomenon of implicit verb causality highlights the important role of language in attribution. Given the verbal nature of stimulus information in most attribution experiments as well as in many natural attribution tasks (diagnostics, political attribution, court-room decisions), it is obvious that attribution theories should give much more attention to language factors than they have done in the past. At the same time, more recent research on verb causality shows that a language approach can lead to completely new attribution theories that no longer rely on the traditional cognitivist models. For instance, the cognitive schema account does not provide a *sufficient* explanation of findings on verb causality. Indeed, the notion that action verb schemata imply subject specificity whereas state verb schemata imply object specificity is consistent with the finding that actions are causally attributed to S and state to O. However, when subjects are asked to infer behavioral *consequences* rather than causes or antecedents, a strong reversal is obtained (Au, 1986; Fiedler *et al.*, 1990). Action verbs imply consequences in O and state verbs imply consequences in S. This reversal is hardly compatible with the assumption of schematic structures linking actions to S and states to O.

Based on this reversal phenomenon and other findings, Fiedler *et al.* (1990) have proposed an alternative explanation of verb causality in terms of discourse grammar rules. Given a stimulus sentence describing a subject’s state or action, the proposed discourse grammar specifies the conditional

probabilities, that the antecedent sentence will be a subject state, a subject action, an object state, or an object action, and the corresponding conditional probabilities for consequent behaviors. An invariant matrix of transitional probabilities can be shown to describe the causes and consequences of state and action verbs in different languages. The theory states that even when sentences appear out of context (e.g. isolated newspaper headlines), a plausible context will be inferred. It is the (inferred) discourse context that lends the causal meaning to the verb; if the context is deliberately manipulated to violate the discourse grammar, the typical causal inferences from state and action verbs can be eliminated or even reversed (Fiedler *et al.*, 1990).

Fundamental Attribution Error

Some of the most prominent attribution biases are obviously related to the semantic properties of verbs describing behaviors and adjectives which refer to traits or dispositions. For instance, the general bias to explain behavior in terms of internal dispositions of animate subjects rather than external forces of the environment, usually referred to as the “fundamental attribution error” (Ross, 1977), corresponds to a pervasive tendency to use abstract language, that is, a tendency to raise interpersonal language from the level of verbs to the level of dispositional adjectives. This is best illustrated in the following experimental retelling game (Fiedler, Semin & Bolten, 1989): A first group of subjects are presented with descriptions of different social roles (e.g. a manager, a porter, etc.) and have to identify the role belonging to each description. Afterwards, they have to describe the same persons in their own words for a second group of subjects, who again have to identify the roles and then to reformulate the descriptions for yet another group. When the root (or origin) descriptions are constructed by verbs only and no adjectives, then the prevalence of dispositional adjectives rises to roughly 40% within a single retelling cycle. Thus, there is an almost unrestricted willingness to infer adjectives from behaviors (verbs) in natural language use, and this tendency operates in the direction of the fundamental attribution error.

The linguistic basis of the pervasive tendency towards dispositional attributions is further reinforced by the above-mentioned semantic studies on verbs and verb-derived adjectives. For instance, Semin *et al.* (1990) have shown that the likelihood of adjective inferences is highest from IAV (Paul helps another person) to IAV-derived dispositions (Paul is helpful), followed by inferences of SAV to SAV-derived adjectives (frighten → frightening) and inferences from SV to SV-derived adjectives (trust → trustworthy). At the same time, however, IAV-derived dispositions are considered most informative and most revealing about the personality in question. Thus, when traits are most informative and the distance from behaviors to traits in the abstractness hierarchy is

greatest (i.e. from IAV to ADJ), people are most likely to be least cautious in behavior trait inferences.

In presenting the fundamental attribution error or the other attribution biases below it should be noted that we are not subscribing to a view advocating a unidirectional causality. The argument is not: language determines attribution. The dialectic relation between language and cognition allows for causal influences in either direction: just as word meaning and language habits reflect the “history of” causal reasoning and cognitive processes, the attributional knowledge wired into language may become autonomous and influence subsequent attributions which are often not based on mindful reflection (Langer, 1978). After all, it is through language that social knowledge is socialized and communicated.

Actor–Observer Bias

In the attribution literature, the fundamental attribution error is moderated by an important perspective effect, the so-called actor–observer bias (Jones & Nisbett, 1972; Watson, 1982). Observers are much more inclined towards internal, dispositional attributions than actors themselves, who often explain their own behavior in terms of external, situational factors. This phenomenon is usually explained with reference to the different perceptual perspectives or to the different information people have about themselves and about other persons (cf. Watson, 1982). However, there are good reasons to assume that differential language use from an actor’s and observer’s perspective may also contribute to this pervasive bias. Despite the general tendency to employ abstract, dispositional terms, language users are relatively reluctant to use ADJ in self-descriptions. This may sometimes reflect a communication rule which states that self-attributions of traits are often less than credible. Thus, the statement “I am honest” is hardly convincing evidence that I really am honest. Rather, morality-related as well as ability-related traits (e.g. being “intelligent”) have to be affirmed by some other person than the self, and this communication rule seems to reflect the social convention that one cannot be one’s own witness. Alternatively, the reluctance to ascribe trait adjectives to oneself may also be due to the fact that traits imply lack of voluntary control and little behavioral variance.

Semin and Fiedler (1989) employed a conceptual replication of the classic research by Nisbett *et al.* (1973) to “simulate” the actor–observer bias in a linguistic analysis of free response data. Subjects had to provide verbal accounts for their own choice (actor perspective) and for their best friends’ choice (observer perspective) of a boyfriend/girlfriend as well as for the choice of subject matter. Verbal statements were coded for the degree of abstractness of the linguistic categories used in sentence predicates (scoring 1, 2, 3 and 4 for DAV, IAV, SV and ADJ, respectively) and a different sign was

coded for linguistic terms implying internal causation within the actor versus external causation. The means of the resulting scores (averaged over all statements produced in response to each attribution problem) closely resemble the pattern of data reported by Nisbett *et al.* (1973). That is, observers' accounts are characterized by higher scores (reflecting abstract terms) attributed to internal factors within the actor than actors' own accounts, showing that the differential abstraction in self-related and other-related language can account for basic attribution phenomena.

The use of more dispositional terms from an observer perspective is not only a *reflection* of internal attributions but occurs *independently* of causal reasoning, even when no causal attribution is called for. Thus, in a second study, Semin and Fiedler (1989) asked students simply to describe behavioral episodes associated with different cues (e.g. an aggressive act, a success at school, an embarrassing situation, etc.) either from an actor's or from an observer's perspective. This task did not call for causal explanations of behavior but merely for descriptions of the recalled episodes. Nevertheless, the same differential abstractness effect was obtained, with observers using more abstract terms (notably ADJ) and actors employing more specific terms, suggesting that language style not only reflects causal attribution patterns but represents an independent habit that potentially *influences* causal thinking.

Egocentric Bias

There is one situation involving actors and observers where the opposite of an actor–observer bias has been reported in the literature, namely, an egocentric bias. People living in close personal relationships typically claim to be more responsible for dyadic behavior than their partners (Ross & Sicoly, 1979; Thompson & Kelley, 1981). In other words, there is an egocentric tendency towards more self than partner attribution in couples, and this tendency seems to contradict the prediction of an actor–observer bias. However, the contradiction between the actor–observer bias and the egocentric bias is more apparent than real and can be resolved in an analysis of the language partners use in mutual attributions.

Fiedler, Semin & Koeppetsch (in press) asked student couples to provide written descriptions of themselves and their partners in a free-response format. The verbal data were then analyzed in terms of linguistic categories, that is, statements were coded for person reference (self vs partner), abstraction or dispositionality (DAV, IAV, SV, ADJ), and valence (desirable vs undesirable). In such an analysis, the theoretical conflict is resolved in that both an egocentric bias as well as an actor–observer bias is obtained, albeit at different language levels. Consistent with the notion of differential abstraction, the actor–observer bias (i.e. more partner attributions) is confined to the abstract level of ADJ, whereas the egocentric bias (more self-attributions) shows up at

the IAV level of actions or accomplishments. This conclusion is supported by a reanalysis of the dependent measures used in earlier studies. While actor–observer studies are usually concerned with trait attributions, egocentric biases refer to attributions of actions or accomplishments (cf. Jones & Nisbett, 1972; Thompson & Kelley, 1981). In any case, the language approach to attribution may not only lead to alternative explanations but may also increase the precision and clarify the domain of existing theories.

Intergroup Relations

The analysis of attributional biases can be extended from the interpersonal level to the intergroup level, where the ingroup–outgroup distinction corresponds to the distinction between an actor and an observer. However, the most prominent bias in intergroup attribution is not a direct analog of an actor–observer bias but a group-serving bias, that is, more benevolent attributions for the ingroup than the outgroup. In other words, desirable behaviors by ingroup members and undesirable behaviors by outgroup members are most likely attributed to internal, dispositional factors, whereas undesirable ingroup behaviors and desirable outgroup behaviors are often attributed to external, situational factors (Hewstone, 1990). Thus, in the group-serving bias, the influence of the perspective that characterizes the actor–observer bias comes to interact with the valence or desirability of the behavior in question. Dispositional attributions from an outside perspective should be largely confined to negative attributes, and a relative reversal should be obtained for positive attributes.

Nevertheless, interpersonal and intergroup attributions need not be fundamentally different. The above pattern of ingroup-favorable attributions is remarkably similar to the typical attribution style in distressed couples (cf. Fincham, 1985; Fiedler & Stroehm, 1990), where the partner is blamed for negative events while the self is praised for positive events. By contrast, the aforementioned findings by Fiedler, Semin and Koeppetsch (in press) may be characteristic of non-distressed couples or positive interpersonal relationships. On the other hand, the prevalence of outgroup derogation and ingroup favoritism at the group level may reflect the primary interest of intergroup researchers in competitive and adverse groups (Schiffmann & Wicklund, 1988).

Maass *et al.* (1989) demonstrated that the linguistic category model can also contribute to the understanding of intergroup attribution and outgroup derogation. Members of different Italian Palio teams (a highly competitive and traditional horse race) took part in this investigation. Their attributions of positive and negative behaviors by ingroup members and outgroup members were coded according to linguistic categories. More abstract, dispositional terms were used in descriptions of positive ingroup behavior and negative

outgroup behavior than in descriptions of negative ingroup and positive outgroup behavior. This suggests that more weight (i.e. higher abstractness) is given to attributions which tend to support ingroup favoritism and outgroup discrimination. In any case, intergroup biases appear to be wired into language habits in much the same way as attributions at the interpersonal level.

Similar findings were obtained by Rubini (1990) for political-religious groups as well as by Fiedler, Semin and Finkenauer (1990) in the context of gender groups. In the latter study, the linguistic category model was also employed to demonstrate the linguistic basis of another well-known intergroup phenomenon, the outgroup homogeneity effect (Linville & Jones, 1980; Quattrone, 1986). Male and female subjects provided free response descriptions of their own gender group and the outgroup in response to 10 different topics such as housework, education of children, sexuality, etc. Profiles of language use were defined in terms of the frequency of positive and negative DAV, IAV, SV, and ADJ used to describe the ingroup and the outgroup separately for each topic. The similarity of these profiles across topics was much higher for the outgroup than the ingroup, reflecting less differentiation and more stereotypical habits in outgroup-related language. Another interesting result showed that the stereotypical language used for the outgroup (in terms of similarity to an average language profile) was most pronounced for those topics which also led to the highest degree of outgroup discrimination. This correlation, across topics, between undifferentiated and derogatory outgroup descriptions was so substantial that language habits may be regarded as providing a common basis for the two group phenomena.

In summary, there is by now sufficient evidence to conclude that the kind of language habits that can be assessed by the linguistic category model are at least correlated with many attributional phenomena and intergroup biases. It is difficult to prove to what extent linguistic factors play a causal role in these phenomena. However, to the extent that words are used to communicate and socialize interpersonal knowledge and social stereotypes, it is very likely that language habits serve to fix, express and maintain these phenomena. Moreover, at least in some of these investigations, a higher degree of theoretical precision could be obtained and theories could be elaborated when the linguistic level of attributions was taken into account.

Cognitive Processes

Finally, in some further experiments it has been unambiguously demonstrated that linguistic categories can trigger qualitatively different cognitive processes. The cognitive processes that have been investigated thus far pertain to (a) context sensitivity of sentences including different predicates, (b) sentence verification decisions, and (c) constructive memory effects. The next three brief subsections are devoted to these issues. If it can be shown that DAV,

IAV, SAV, SV, and ADJ sentences are responsive to different context factors, sentence verification processes, or memory effects, then the causal influence is unambiguously from language to cognition. One could hardly argue that cognitive processes influence the word classification which rests on independent linguistic criteria. Furthermore, if statements at different language levels are processed by different cognitive processes, we begin to understand how and why language affects social cognition and attribution.

Context Sensitivity

The subjective validity of statements at different levels of linguistic abstraction is reflective of systematically different factors, as can be seen in likelihood judgment experiments. Semin and Fiedler (1988, study 2) selected 10 typical items each from the DAV, IAV, SV, and ADJ categories and constructed stimulus sentences according to the following frame:

<Target person attribute><PREDICATE><Situational context>

These three constituents were varied orthogonally, using the predicate phrase to vary the abstractness of interpersonal terms and inserting one of three target person attributes (an introvert, an extravert, a Machiavellian) and one of three situation descriptions (a seminar, a party, a business deal). Participants had to judge the frequency with which a target person would manifest the behavior expressed in the predicate in the particular situation. The resulting pattern of likelihood judgments reflects a systematic variation in the process of language comprehension (see also Semin & Greenslade, 1985). While the likelihood of abstract statements is largely determined by intrasemantic properties, the comprehension of more concrete statements is much more dependent on pragmatic context factors. In operational terms, this means that there is a stronger influence of the situational context manipulation on judgments of specific terms (specifically, DAV) than more abstract terms, whereas judgments of abstract terms are more determined by semantic constraints. Thus, when the likelihood judgments for all 10 items in each linguistic category are correlated and the resulting correlation matrices are correlated with the matrices of semantic similarities between the 10 items, the predictability of likelihood judgments from semantic similarities increases from $r = 0.05$ for DAV to $r = 0.14$ for IAV, $r = 0.21$ for SV, and $r = 0.39$ for ADJ.

Thus, the judgment processes for abstract statements (e.g. ADJ) and specific behavior descriptions (e.g. DAV) are characterized by different *referentialities*. Specific statements obviously maintain their reference to some cognitive representation of a specific behavior by some target person in a specific situation, and judgments on such sentences are influenced by this episodic context. By contrast, abstract statements, in particular at the ADJ level, are largely detached from their empirical references and have acquired

an autonomous existence in an abstract linguistic world. That is, to claim that “P lies” we need to provide behavioral and situational references, but to justify that “P is dishonest” we typically refer to semantically related adjectives such as “P is not trustworthy” or “P is unfair”. It is tempting to theorize that this property of abstract language may explain why social stereotypes are often represented and conserved at the most abstract level of ADJ (traits or dispositions), which are detached from the empirical reality and therefore immunized from direct falsification (see also the verifiability criterion in the semantic studies above).

Verification

Similar conclusions can be reached from sentence verification experiments in which the truth or plausibility of sentences pertaining to particular individuals has to be judged, rather than the likelihood of certain behaviors in general. Using different social roles as sentence subjects (e.g. a physician, a nurse, a professor), samples of DAV, IAV, SV, and ADJ as predicates, and various situations (e.g. a lecture hall, a pub, a theatre, a hospital) as adverbial extensions, Fiedler and Semin (1990b) assessed true–false decisions, subjective confidence, and response latencies of sentence verification judgments in computer-controlled experiments. The main results are consistent with the above conclusions on different judgmental processes triggered by different word classes. That is, the tendency to verify an abstract sentence (i.e. the subjective confidence that the sentence is true) was more context-invariant than the verification judgments for concrete sentences. For instance, the correlation between the mean verification judgment for sentences with and without context specification increased from $r = 0.10$ at the DAV level to $r = 0.44$ at the IAV level, $r = 0.60$ for SV sentences, and $r = 0.78$ for the most abstract level of ADJ. Likewise, when the context of a constant sentence is manipulated (a typical context vs an atypical context vs an invariant context), the variability of verification responses also decreases monotonically from DAV to ADJ. These findings corroborate the contention that language comprehension at different levels is governed by different processes and varies, in particular, in terms of context sensitivity.

Another analysis suggests that the different cognitive processes involved in the verification of different terms are not simply due to semantic complexity or difficulty of verifying sentences at various levels of abstraction. Rather, the response latencies are remarkably invariant across language levels, suggesting that difficulty is a negligible factor and the context invariance of abstract statements can hardly be attributed to semantic complexity alone.

On the other hand, differences between linguistic categories are maintained when cognitive on-line processes are eliminated or “cut short” using a priming procedure. For instance, people are in general much more likely to believe

DAV and SV statements to be true than IAV and ADJ statements. This reflects the fact that elementary actions such as talk and touch as well as universal emotional states such as like and fear are common attributes of all people, whereas IAV and ADJ are more diagnostic for specific people (cf. Brown & Fish, 1983 above). However, this general difference in verification judgments is not eliminated, but even reinforced, when the on-line comprehension process is cut short. Thus, when the sentence "The nurse helps somebody" is preceded by an almost synonymous sentence "The nurse assists somebody", the response latency is drastically reduced for the second sentence, because an appropriate response is already primed and the complete verification process need not be repeated. However, the differential willingness to verify DAV and SV versus IAV and ADJ is even more pronounced after priming. This also demonstrates the independence of linguistic influences from ongoing cognitive processes.

Constructive Memory Effects

A priming technique was also employed by Fiedler, Semin and Bolten (1989, experiment 2) to demonstrate that the abstractness of predicates not only influences the processing of the focal sentence but also the cognitive inferences or constructive processes beyond the information given. Subjects were provided with an ambiguous description of a target person, David S, who was portrayed in a 250-word sketch in terms of both desirable and undesirable social attributes. Then the priming task was administered, which consisted of judgments of David with respect to a list of either positive or negative IAV, SV, or ADJ (DAV judgments are meaningless and empty and were therefore omitted). After a brief delay, the same subjects had to judge the same target with reference to a second set of attributes of the same valence as the prime attributes but of different abstractness (e.g. positive IAV after positive ADJ priming, or negative ADJ after negative SV priming). The latter judgments constitute the dependent variable of interest. It was hypothesized that the tendency to provide positive or negative appraisals on the final measure would be influenced by the abstractness of the prime attributes. In particular, a top-down bias was expected such that downward transfer effects from abstract primes to more specific attribute judgments should be stronger than upward transfer effects from specific primes to more abstract judgments.

This prediction, which follows from the greater semantic weight (Semin & Fiedler, 1988) and inclusiveness (Hampson, John & Goldberg, 1986) of abstract terms, as well as the greater context sensitivity of specific terms (see above), is clearly borne out by the data in Figure 1.3. That is, the experience of judging the target person, say, for negative ADJ resulted in more negative subsequent IAV judgments than *vice versa*. This top-down bias even holds when the responses to the prime judgments are controlled for. Thus, not only

Absolute judgments, regardless of positive or negative valence

Figure 1.3 The transfer effects of abstract and concrete primes. Source: Fiedler, Semin & Bolten (1989)

when, say, negative ADJ primes are endorsed, but even when negative ADJ are judged to be not particularly applicable to the target person, is the top-down effect obtained. This means that the very experience of judging a person in a semantic space of abstract negative attributes will influence subsequent judgments of that person, regardless of the outcome of the prime judgments. And this is why the term “constructive memory” was used here to refer to the cognitive consequences of linguistic categories. Once the representation of social information is raised to the abstract level of ADJ, the impact of language becomes more and more detached from the empirical reality, as we have repeatedly seen in the preceding sections.

FUTURE PERSPECTIVES AND CONCLUSIONS

We introduced this chapter by arguing that in social cognition the social is the neglected partner. Language is the medium by which our communication as persons in everyday life is conducted as well as the medium by which we as social psychologists search diverse entries to everyday reality. The model we have developed undoubtedly examines only a part of that rich repertoire that we utilize in our science and everyday life. Yet at the same time we find that even such a minimal entry, once systematized and installed as a systematic

tool, opens different ways of understanding how diverse processes rely on the informational constraints to be found in interpersonal language. One such instance is the research and controversy about how causal inferences are mediated by language which we have outlined above. But it also allows us to understand how communicative processes and the choice of different interpersonal repertoires in such communication contribute to diverse processes such as the transmission and maintenance of intergroup stereotypes, attributional phenomena such as egocentric bias, and the fundamental attribution error, among other things.

An important contribution of the LCM is that, by providing systematic information about the abstractness–concreteness of language use and the inductive strategies that individuals employ, it enables the analysis of open-ended protocols and permits a quantitative analysis of such material (cf. Fiedler, Semin & Finkenauer, 1990; Semin & Fiedler, 1989; Semin, Rubini & Fiedler, 1990). This facility circumvents the potential methodological problems that can occur in the investigations of diverse phenomena which proceed with operationalizations that are realized by experimentally supplied dependent variables in the form of scales. Such scales provide references to aspects of phenomena which may or may not be relevant to the way in which people represent, store, retrieve and process social knowledge. The advantage that is offered by the LCM is that it allows a quantitative analysis of free protocols and preserves the richness of respondents' answers (cf. for a discussion of this issue Fiedler, Semin & Finkenauer, 1990). Indeed, in some cases we are able to demonstrate by such analyses that phenomena that are regarded as disparate such as the egocentric bias and actor–observer discrepancy are part and parcel of the same representation, except that the operationalizations of these research questions have relied on different aspects of the representation (cf. Fiedler, Semin & Koeppetsch, in press).

The most important element of the present work and its main contribution is that it raises the level of analysis from that of the individual to that of the social. It was with an examination of the abstract properties of interpersonal language that we started our research programme. This involved an analysis of the informational constraints found in interpersonal language. In that sense, one could regard this approach as a prime example of what Moscovici (e.g. 1984) has termed “social representations”, that is, representations of knowledge beyond the individual. This obviously does not mean that an analysis of the individual is not possible—indeed quite the contrary. The present model provides for an analysis of *the* individual in an idiosyncratic sense and not merely as an “average”, in that with the available instrumentarium that is made possible by the LCM, and our knowledge of diverse contexts of how interpersonal language is used, we can actually approach an examination of individuals as such. This is indeed one of the possible avenues of research to which the work developed under the LCM may have an

important future contribution to make, namely the systematic analysis of language as used by people who fall into, for instance, different clinical categories. It also allows for the examination of diverse sources, such as media reports or court cases (cf. Catellani & Mannetti, 1990).

By examining three fundamental aspects of interpersonal discourse, namely: (1) who occupies the logical subject position (source of causal origin) and who occupies the logical object position (patient); (2) the level of abstraction that is used in such discourse (i.e. marking events at a particularistic level or a generalized trait or disposition level); and (3) the semantic valence of the utterances, it is possible to generate an understanding of general features of interpersonal discourse that go beyond what are generally treated as specific phenomena in social psychology. We have already touched on such potential generalizations in this chapter, cutting across stereotype maintenance and transmission, differential attributional phenomena, and how specific cognitive processes are mediated by interpersonal language. It is in this direction that we expect one of the main developments to occur with the use of our model.

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