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Language use and reification of social information: top-down and bottom-up processing in person cognition

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Abstract

The present research addresses the interface of social cognition and the use of interpersonal language. Based on a linguistic category model proposed by Semin and Fiedler (1988), it is demonstrated that under different conditions language users tend to describe other people's behavior either in concrete and specific terms (descriptive or interpretive action verbs) or in abstract, dispositional terms (state verbs, adjectives). A two-stage process is postulated by which these variations in abstractness can lead to the reification of social information: In the first stage, the rules of cooperative and efficient communication encourage the use of abstract statements about other people. Once the social information is represented on an abstract level, a top-down bias will then, in the second stage, influence the interpretation and judgments of subsequent specific behaviors in a way which tends to reify or confirm the abstract statements. While the abstraction tendency is expected in free communication, when information is taken for granted, the reverse top-down bias should be observed in social judgment tasks, when the truth or validity of statements is open to be judged. Study 1 demonstrates the abstraction tendency in a serial communication game involving the successive re-telling of person descriptions. Study 2 utilizes a priming technique to examine the top-down bias in social judgment: Influences of prior judgments regarding abstract attributes on subsequent judgments of specific attributes are stronger than transfer influences in the reverse direction. Moreover, this top-down bias is independent of whether the applicability of the prime attribute to the target person is affirmed or denied. Study 3 supports the view that abstract language is due

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to taken-for-granted conditions, showing a reversal from abstract to more specific language even in free communication when the validity of statements is challenged.

Theory and research in social cognition has traditionally employed an intrapersonal approach referring to motivational, emotional, and cognitive factors within the individual as the basic unit of explanation. Not surprisingly, empirical evidence has been accumulated to suggest that systematic tendencies or biases in social cognition are rooted in the affective dynamics of self-maintenance (Gotlib, 1981; Greenwald, 1981), mood states (Isen, 1984; Kuiper and Higgins, 1985), and personal attitudes, or in the cognitive limitations imposed by simplifying heuristics (Nisbett and Ross, 1980), schematic representations in memory (Markus, 1977; Taylor and Crocker, 1981), or stereotypes associated with group membership (Campbell, 1967; Hamilton and Troler, 1986).

The three studies reported here do not focus on such intrapsychological processes in the explanation of social cognition, but on a pervasive structural constraint within the human environment, namely language. It will be argued that language, as a commonly shared system of rules and knowledge, has the potential to influence, or even predetermine social cognitive processes.

One important influence of the interplay between language and social cognition can be seen in the area of interpersonal perception and person judgment. We shall argue that language can lead to a process of *reification* in judging persons which originates in a pervasive feature of social interaction, namely that it leads to abstraction and generalization. As Vygotski (1956) argues, categorization and generalized word meaning are inextricably linked to social interaction: 'In order to transmit some experience or content of consciousness to another person, there is no other path than to ascribe the context to a known class, a known group of phenomena, and as we know this necessarily requires *generalization*. Thus it turns out that *social interaction necessarily presupposes generalization and the development of word meaning*, i.e. generalization becomes possible with the development of social interaction. Thus higher, uniquely human forms of social interaction are possible only because human thinking reflects reality in a generalized way' (Vygotski, 1956, p. 51, emphasis in original).

This is further bolstered by what Grice (1975) refers to as the 'cooperation principle'. This principle commits interactants to the maxim of quantity (Say it as briefly as possible and as completely as necessary!) and to the maxim of quality (Do not say more than justified! Tell the truth!). While the latter maxim provides a precaution against invalid communication, the former enforces a compromise of validity and economy, encouraging abstraction. Abstract, trait-like descriptions of persons can therefore be seen as a result of the features of communication noted by Vygotski and Grice. There is ample evidence in the social cognition literature that such abstract modes of person representation can then influence the perception, interpretation, and evaluation of the person's subsequent behavior (e.g., D'Andrade, 1974; Hamilton, 1981; Taylor and Crocker, 1981). Since this 'top-down' influence will tend to bias the processing of subsequent information in the direction of the original information, it may be regarded as serving a reification function.

The following hypothetical example illustrates the postulated reification process. A person P is overheard saying something that is not true. Language provides different means to encode this empirical event. For instance, one can say that 'P is lying'.

Alternatively, one can describe P as 'dishonest'. The use of the one description instead of the other for the same empirical event has different social implications which arise from the psychological features of the linguistic terms involved. An adjective statement such as 'P is dishonest' refers to a more abstract attribute than the verb statement 'P is lying'. This abstraction not only implies that P will lie on future occasions, but that P will also show other related negative behaviors such as 'cheating' or 'misleading', which are semantically related but go beyond the original empirical evidence. Using the verb 'to lie', by contrast, conserves the local reference to a specific empirical event and places much less constraints on the kind of person P is.

To operationalize and test these considerations empirically, we utilized as a methodological tool the *linguistic category model* developed by Semin and Fiedler (1988). This framework, outlined in Table 1 below, distinguishes between four types of interpersonal terms that can be used as predicates in descriptions of other people. The criteria for the classification of these four categories are derived from linguistic considerations and not psychological ones. The domain of interpersonal terms is confined to those verbs and adjectives that describe relations between persons. At the most concrete level of language use there are Descriptive Action Verbs (DAV: call, touch, meet) that are only meaningful within a situational context; otherwise the mere act of calling, touching and meeting conveys little if any information. DAVs are merely descriptive, defined by at least one physically invariant feature (e.g., calling always involves vocal sounds), and often evaluatively neutral. Interpretive Action Verbs (IAV: help, cheat, imitate), while still preserving the reference to single behavioral episodes, are no longer bound to physically invariant features (e.g., there is nothing invariant in different acts of helping). On the next level, State Verbs (SV: like, admire, abhor) have no more direct reference to specific behavioral referents although they still maintain a relation between a subject and a specified object person. Finally, Adjectives (ADJ: aggressive, sociable, fair) abstract from both behavioral events and specific object persons and represent the highest level of decontextualization.

Table 1. Fourfold classification of linguistic terms differing in abstractness and context-dependency

Level	Category	Examples	Characteristic Features
IV	Adjective	honest aggressive reliable helpful	Abstract person disposition; no object reference or situation reference; no context reference; highly interpretive, detached from specific behaviors.
III	State Verb	admire hate like abhor	Enduring states, abstracted from single events; reference to social object, but not situation; no context reference preserved; interpretation beyond mere description.
II	Inter-pretive Action Verb	cheat imitate help inhibit	Reference to single behavioral event; reference to specific object and situation; interpretation (and evaluation) beyond mere description.
I	Descriptive Action Verb	call touch kiss hold	Reference to single behavioral event; reference to specific object and situation; context essential for sentence comprehension; defined by at least one physically invariant feature.

As one moves from DAV to IAV to SV to ADJ, the use of language is gradually detached from the situational context and the specific empirical events to which the propositions in such sentences refer. As a consequence, abstract terms (e.g., ADJ) appear to reveal more about P's personality but are more difficult to verify or falsify empirically (Semin and Fiedler, 1988) than concrete terms. Concrete terms (e.g., DAV) are associated with more detailed information about the behavioral context. Thus 'P hits O' (DAV) can only be understood (as aggression, distraction, greeting) in a concrete behavioral context. 'P attacks O' (IAV) already abstracts from a specific way of acting but still conserves the reference to a single behavioral unit. 'P hates O' (SV) denotes a more enduring state that no longer corresponds to an identifiable act, and 'P is hostile' (ADJ) represents the highest degree of abstraction (i.e. abstracting over time and situations and even other object persons).

Descriptions of social behavior at different levels of abstraction (DAV, IAV, SV, and ADJ) have also been shown to differ in a number of other respects that have important cognitive implications. Abstract statements, as opposed to concrete statements, are consensually judged to reveal more about the sentence subject, to be more likely to give rise to divergence of opinion, to be less verifiable, and to describe a temporally more stable quality of the subject (Semin and Fiedler, 1988). Moreover, the imperative form of an abstract term ('Be extraverted!') conveys less of a behavioral prescription than the imperative of a more concrete term (e.g., 'Help me!'). Several investigations addressing the comparison of SV and IAV in particular have pointed out further features of SVs and IAVs. These studies show that SVs give rise to more external attributions than IAVs (Abelson and Kanouse, 1966; Brown and Fish, 1983; Fiedler and Semin, 1988a), more assimilation than contrast effects (Fiedler and Semin, 1988b), and systematically different inferences concerning the antecedent and consequent context of a sentence (Fiedler and Semin, 1988a). It is important to note that the above listed cognitive implications are derived from a category model of interpersonal terms which in itself is established by independently defined linguistic and conceptual criteria.

The framework provided by the linguistic category model affords a useful and easily applicable method for investigating the general reification process postulated earlier. The tendency toward abstraction in interaction suggests that in the course of everyday communication the description of persons should proceed more in abstract terms (e.g., ADJ) rather than concrete terms (e.g., DAV). Once information about a target person is represented on an abstract level then subsequent judgments about this target person's specific behaviors (DAV, or IAV) will be assimilated to the abstract categories. Of the three studies reported below the first provides a simple empirical demonstration of the tendency towards abstraction in communication processes. The second study examines how abstracted information then leads to top-down transfers on concrete behaviours, whereas the final study is devoted to clarifying the limiting conditions of abstract communication.

STUDY I: SERIAL COMMUNICATION GAME

The first study was devised to underpin Grice's and Vygotski's premise concerning the tendency towards abstraction in everyday communication by the application of the linguistic category model. The method employed in this demonstration is based on

the successive paraphrasing of descriptions of the same social roles in a serial communication game. This game consisted in re-telling descriptions of four different social roles: a male porter, a male finance manager, a female kindergarden teacher, and a female fashion designer. In each chain of three subjects, the first had to generate an original description for each social role. The second subject in the chain after receiving these descriptions had to match each of the four descriptions to the corresponding roles and then re-tell each description to the next subject in his/her own words. The last subject in the chain had the same two tasks as the second subject, namely matching and providing their own description once more. Such a serial communication game permits us to test the postulated tendency towards abstraction in communication.

Method

Participants and Design

Forty-eight male and female psychology students at the University of Giessen participated in the experiment in partial fulfilment of their study requirements. These 48 subjects constituted 16 chains of three persons, of which the first had to create the original person descriptions to be passed on to the second and finally to the third link in the chain. The starting level of the person descriptions was manipulated, eight chains starting with IAV descriptions and the remaining eight chains starting at the SV level. Each of these groups included four male and four female chains such that gender within chains was constant. However, since there was neither a main effect nor an interaction involving subject gender, this factor will be ignored in the analyses. Thus, the resulting design includes four factors or independent variables: Subject generations (i.e., links of the chain), starting levels in terms of linguistic categories (IAV vs. SV), target roles, and a repeated-measures factor to reflect the use of different language levels in the resulting descriptions.

Procedure

Participants were received in pairs of two by a female experimenter who introduced the experiment as a "communication game" with the following rules: They were asked to provide descriptions of four characters or social roles (a male porter, a male finance manager, a female kindergarden nurse, and a female fashion designer) and were informed in advance that these descriptions would be exchanged within pairs afterwards. The task of each member in the pair would then be to identify the four roles in the partner's descriptions.

The abstraction level of the descriptions was controlled by presenting them with a list of 16 antonymous verb pairs that were either drawn from the IAV category (e.g., 'help – hinder', 'praise – blame') or from the SV category (e.g., 'love – hate'; 'admire – abhor'). The two verbs in a pair always differed in evaluative tone. Subjects were free to choose whatever subset of six to ten word pairs or dimensions they believed were suitable for a description and to apply the evaluatively appropriate member of a pair as the predicate in a sentence. They were encouraged to form simple sentences rather than complex branched or nested sentences. Thus, although they were bound to a given set of predicates to be used in the person descriptions, there was a considerable

amount of freedom for the selection, elaboration, and formulation of the descriptive statements. The order of the four descriptions was counter-balanced.

There were no other restrictions to the communication task apart from a fair-play rule which required the participants to perform seriously and to avoid obvious references (to the target's sex, working place or professional relations) that might reveal the target's role. All four descriptions were provided on separate response sheets.

After a pair of subjects had completed their descriptions, the experimenter collected their response sheets and then exchanged the materials for the identification task. They received only one of their partner's description at a time to be identified with one of the four roles. However, they were allowed to correct earlier identifications after reading new descriptions.

The procedure for the second and third generation of subjects was the same except for the fact that person descriptions were not exchanged between the members of a pair but received from the preceding generation. The task consisted in re-writing each description in one's own words. The instruction asked the participant to form an impression of the target from the given description and then to re-tell the description. No further restrictions were mentioned; they were free either to reformulate the prior description in a sentence-by-sentence fashion or to restructure and paraphrase the text as a whole. The four target roles were not mentioned until the final identification task which asked them to allocate the four roles to the four stimulus descriptions.

Table 2. Mean proportions of abstract (ADJ) and specific (DAV) statements and use of adverbial phrases referring to contextual details in descriptions of four different social roles in a serial communication game

	(Study 1)			
	2nd Generation			
	Role			
	Porter	Manager	Nurse	Designer
Starting level SV				
P(ADJ)	40%	42%	27%	30%
P(DAV)	12%	10%	11%	9%
Starting level IAV				
P(ADJ)	42%	45%	46%	33%
P(DAV)	8%	10%	12%	8%
P(Context details) (pooled over starting levels)	55%	57%	57%	72%
	3rd Generation			
Starting level SV				
P(ADJ)	43%	35%	29%	29%
P(DAV)	13%	13%	18%	11%
Starting level IAV				
P(ADJ)	52%	53%	54%	57%
P(SV)	13%	11%	11%	15%
P(Context details)	41%	41%	43%	51%

Results and Discussion

Because the abstraction level of the original descriptions was controlled experimentally, only the second and third versions of descriptions were used for analyses. Descriptions were coded at the level of singular sentences, for level of predicate (DAV, IAV, SV, ADJ) and for the occurrence of context references (to other person, time, space, instrument, or modality). The inter-coder objectivity for free descriptions using the linguistic category model has been determined in general, for example in Study 3 below (95%) or in Semin and Fiedler (1989, 86%) and was presupposed to be sufficient because the critical contrast involves ADJ *versus* DAV only (see below).

The measure of central interest concerns the abstractness of person descriptions as a function of the serial position and starting level. Since the starting level, IAV or SV, was frequently conserved, any comparisons involving the number of communicated IAVs and SVs would be biased toward the starting level. However, the proportions of the two extreme categories, ADJ and DAV, afford a possible measure of the degree of abstractness reached in the second and third generations. Excluding the proportions of SV and IAV statements from the analysis is also appropriate to avoid dependencies in the data which would otherwise sum to 100%. The mean proportions of DAV and ADJ are presented in Table 2. The most important feature of the results is clearly the prevalence of ADJ (typically more than 40%) in the communications of the second and third order as contrasted with the negligible proportion of DAV predicates (about 10% on the average).

An analysis of variance with generation (only second versus third) and starting level (SV versus IAV) as between-subjects factors and the type of predicate (ADJ versus DAV) and the four roles as repeated-measures factors yielded a highly significant main effect for ADJ *versus* DAV, $F(1, 28) = 102.14, p < 0.001$, indicating the hypothesized abstractness effect. This tendency is obtained consistently and does not interact with roles, $F(3,84) = 1.04$. Of no interest are two main effects for generations (third > second), $F(1,28) = 4.34, p < 0.05$, and for starting level, $F(1,28) = 6.18, p < 0.05$, as well as a starting level $\times$ type of predicate interaction, $F(1,28) = 5.26, p < 0.05$. These effects merely reflect baseline differences in the total number of sentences coded as DAV or ADJ.

The analysis of the extreme categories (DAV and ADJ) alone may conceal any opposite tendencies among the two middle categories, IAV and SV. For instance, given, say, 30% transfer from an SV starting level to ADJ and only 10% transfer from SV to DAV, there may yet be 25% transfer from SV to IAV so that, actually, a higher total percentage of sentences may have tended toward *less* abstraction. For a stricter test of the abstraction hypothesis, we therefore conducted another upward/downward $\times$ generations $\times$ starting levels ANOVA in which the first factor contrasted the total percentage of all upward versus downward transfers (e.g., in the case of SV starting level, the percentage of ADJ vs. the summed percentage of DAV+IAV). The main effect for the first factor remained highly significant, $F(1,28) = 62.71, p < 0.001$, clearly supporting the abstraction hypothesis.

A complementary finding is obtained when the descriptions are analyzed for contextual details (i.e., adverbs of time, location, modality and reference to specific reference persons). A generation $\times$ starting level $\times$ roles ANOVA for the pooled proportion of these context references reveals a significant generation main effect, $F(1,28) = 7.79, p < 0.01$, which is due to the loss of contextual details from generation

two to three. No other effects were significant in this analysis apart from a neglectable generation $\times$ roles interaction, $F(3,84) = 3.43$, $p < 0.05$, showing that the degree of decontextualisation is not perfectly parallel for the four roles. We confine ourselves to simply describing the pattern of this interaction along with Table 2.

Finally, it is worthwhile mentioning a subsidiary finding, namely that the identification performance in the second and last subject generation (i.e., the number of correct allocations) is positively correlated with the proportion of context references conserved, $r = 0.39$, $p < 0.05$. The correlations between performance and proportional use of the four language levels DAV ($r = -0.23$), IAV ($r = +0.04$), SV ($r = +0.30$), and ADJ ($r = -0.34$) are all non-significant but form a curved pattern which suggests better discrimination associated with immediate levels of abstraction – quite in line with research and theorizing on basic-level categories (cf. Rosch, 1978).

In conclusion, the empirical support for the abstraction effect seems to be as strong as expected by Grice's and Vygotski's considerations. In fact, one might regard an empirical test of the abstraction premise to be quite unnecessary but we included this first study for several reasons: (a) to demonstrate the consistency over several role descriptions; (b) to underpin the suitability of the linguistic category framework; and (c) to provide an absolute estimate of the prevalence of trait-like abstractions derived from person descriptions at the level of IAV or SV in the context of unrestrained communication (i.e., when information only has to be conserved and inferences or attributions are not called for). The impressive result was that almost 40% of the sentences used by subjects of the second generation were already raised to the ADJ level. In contrast, purely descriptive statements seem to be hardly used in natural discourse (see also, Fiske and Cox, 1979; Park, 1976). Having established this as a premise, we now turn to the second step, namely, the hypothesized top-down principle in social judgments.

STUDY 2: JUDGMENT TRANSFER

Of more theoretical interest than the simple empirical demonstration of abstraction in free communication is an understanding of the limitations of this principle and its possible reversal under certain conditions. That abstraction is not an infinite process is evident from the stationary character of language alone. One condition which leads back to concrete rather than abstract language use is already implicit in the second part of the postulated reification process, that is, the top-down effect in social judgment. In contrast to the free description task of Study 1, a judgment task should be biased in the downward direction: Once a target person has been judged in abstract terms, the resulting representation will affect subsequent judgments of that person regarding more concrete attributes. More specifically, we assume that transfer effects from abstract person attributes (especially ADJ) to concrete behaviors (e.g., IAV) are more likely than transfer effects in the reverse direction. Such an asymmetry in the direction of inferences implies a tendency toward accepting more specific as opposed to abstract judgments. The emphasis here is on *accepting rather than denying* specific judgments that accord with an abstract representation; otherwise, there would be no reason for referring to a *reification* process.

The question which suggests itself is how the abstraction tendency and the latter

top-down principle can be reconciled and discriminated theoretically. The apparent contradiction is resolved if we consider the difference between the above communication task and a social judgment task. Unlike the communication task utilized in Study 1, where the information is taken for granted and processed in an uncritical manner, a social judgment task does not presuppose the validity of a person attribute or quality but rather asks *whether or not* it is valid. Communication and social judgment paradigms involve different 'games' or modes of information processing, the former being concerned with ways of presenting information which is taken for granted while the latter is concerned with the validity of hypothetical information (inferences, conclusions, attributions). Whereas the abstraction principle is supposed to hold for information communicated under taken-for-granted conditions, the reverse tendency should be observed when social judgments involve uncertainty and allow for disagreement. It is the permanent change of task conditions encouraging either abstraction or top-down inferences that provides the ground for the proposed reification cycle. A priming paradigm was utilized to test the hypothesized top-down bias and to support the usefulness of the linguistic category model as a methodologically sound basis for analyzing the asymmetry of inferences.

Participants were first provided with an ambiguous personality sketch of a target person named David S. that conveyed positive as well as negative aspects of David's social behavior. In the next step of the procedure (the actual priming treatment) participants were asked to judge the applicability of different attributes to David. Depending on the condition, these prime attributes were either of the ADJ-, SV-, or IAV-type with either positive or negative valence. Separated by a few intervening judgments, participants were finally presented with a second set of (target) attributes representing a different linguistic level of abstraction but the same valence as the primes. Of primary interest to our prediction are the target judgments as a function of whether the preceding prime judgments are more abstract or more concrete in the linguistic hierarchy.

According to the hypothesis, transfer effects should be stronger in the descending direction from abstract to specific terms (e.g., ADJ-SV) than in the ascending direction (e.g., IAV-ADJ). More precisely, two versions of transfer or priming should be distinguished. The first is *conditional* priming. This means that *only* subjects' *affirmative responses* to the priming attributes should lead to a transfer effect. The second, and stronger prediction is *unconditional* priming suggesting that the mere experience of forming judgments with respect to certain attributes (irrespective of whether the applicability of these attributes is affirmed or denied) may suffice to produce a transfer effect. For example, even when the prime adjective *dishonest* is judged to be not applicable to the stimulus person, the very act of thinking about that person in terms of dishonesty may increase the likelihood that the target verb *lying* characterizes the same person. It is this latter, stronger, version of priming which constitutes the bias toward affirmation in the reification cycle. Both versions of priming were tested independently in the study detailed below.

Note that the stimulus materials used in this and the final study to be reported below were confined to the upper three linguistic categories IAV, SV, and ADJ; DAV were excluded for an obvious reason. Purely descriptive DAVs (e.g., call, meet) do not fit in a social judgment task because their interpretive and evaluative component is too weak. Asking judges to rate DAV statements (e.g., 'It is typical of David to call') would therefore appear awkward.

Method

Participants

136 male and female students at the University of Giessen participated in this experiment in partial fulfilment of their course work. To achieve a constant $n = 10$ per condition, 16 subjects were eliminated randomly, leaving 120 participants.

Overview and Design

In the context of a person judgment experiment, participants were provided with an ambiguous description of a target person who was then to be judged with regard to a first list of attributes (primes) and a second list of attributes (targets). The linguistic category (ADJ vs. SV vs. IAV) as well as the valence (evaluatively positive or negative) of both the primes and the targets were varied orthogonally. The subject sample was divided into six groups receiving the three upward transitions from primes to targets (IAV – ADJ, SV – ADJ, IAV – SV) and the three downward transitions (ADJ – IAV, ADJ – SV, SV – IAV). Within each of these six groups, one half of the subjects was presented with evaluatively positive primes and target attributes and the remaining half was presented with negative attributes only. Thus, valence and linguistic transitions constitute the independent manipulations and the final judgments for the target attributes are the dependent measure of central interest. The general prediction was that downward priming would be stronger than transfer influences in the reverse direction.

Procedure

The study took place in a large lecture hall and was introduced as a general methodological demonstration about questionnaire design. Participants were told to work through the questionnaire in the prescribed sequence and the experimenter ascertained that they in fact did so. Participants had in front of them a four-page booklet that started with a 250 word description of the target person (David S.), which was an ambiguous description. It suggested that David was at times helpful and then again egotistic, friendly but also aggressive, self-confident and also dependent on others, etc. This description covered considerable concrete detail about the target person. The second page contained the primes, and after three general questions on page three, the final page provided the targets.

The list of primes and targets (on pages 2 and 4, respectively) always included 17 behaviors (interpersonal verbs) or person attributes (adjectives) that had to be rated with respect to their applicability to the target person on a seven-point scale (from Highly Inapplicable to Highly Applicable). Among these 17 stimuli, there were five filler items (i.e., being intelligent, being active, being resistant, being extraverted, being strong) constantly appearing in positions 3, 4, 8, 12, and 15, regardless of the experimental condition. The fillers were included to reduce subjects' awareness that all remaining 12 primes came from the same linguistic category (ADJ, SV, or IAV) and were of the same evaluative tone (positive or negative). Whenever the primes were evaluatively positive (negative), the targets were of the same valence.

These stimulus terms or primes were drawn from a larger population developed in Semin and Fiedler (1988). A further criterion for the selection of terms under each linguistic category was that a similar aspect of social behavior was addressed, respectively, by one ADJ, one SV, and one IAV; thus one term in each linguistic category was matched with respect to an aspect of social behavior (cf. Table 3)., This stimulus material was also used in the third study. While the distinction of ADJ from verbs is unambiguous anyhow, the categorization of terms as SV or IAV was based on the consensus of three independent judges using the criteria depicted in Table 1. For only two of the 48 verbs (4%) no agreement could be reached; these two borderline words (the German originals are: 'danken/thank' and 'befeinden/make an enemy') can actually be interpreted as covert mental states as well as interpretations of overt behavior. However, if the set of 12 terms as a whole is considered as the experimental treatment, there can be no doubt that the construction of lists representing different abstraction levels was successful.

Table 3. Adjectives (ADJ), State Verbs (SV) and Interpretive Action Verbs (IAV) of different valence used as primes and targets in Studies 2 and 3

Positive			Negative		
Pos. ADJ	SV	IAV	ADJ	SV	IAV
1 respectful respektvoll	respect achten	assent nachgeben	aggressive aggressiv	hate hassen	aggress angreifen
2 helpful hilfsbereit	to worry sich sorgen	help helfen	jealous neidisch	envy beneiden	take away wegnehmen
5 reverential erfürchtig	admire bewundern	imitate nacheifern	despicable überheblich	despise verachten	deride auslachen
6 longing sehnsüchtig	desire herbeisehnen	search suchen	depreciatory gering-schätzig	depreciate abwerten	derogate beleidigen
7 friendly freundlich	like mögen	show favor anlachen	disgusted angewidert	abhor verbscheuen	turn away abwenden
9 empathetic einfühlend	understand verstehen	listen to anhören	suspicious argwöhnisch	suspect beargwöhnen	spy nachspio- nieren
10 tolerant tolerant	forgive vergeben	absolve freisprechen	fearful ängstlich	fear fürchten	escape fliehen vor
11 humble ehrfürchtig	idolize verherrlichen	submit unterwerfen	distrustful mißtrauisch	distrust mißtrauen	conceal sich ver- stecken
13 fair fair	accept anerkennen	praise loben	incredulous ungläubig	doubt bezweifeln	quarrel streiten
14 grateful dankbar	thank danken	dedicate schenken	hostile feindselig	feel animosity befeinden	threaten drohen
16 trustful vertrauensvoll	trust vertrauen	loan anvertrauen	repulsive widerwillig	repulse ablehnen	decline zurückweisen
17 affectionate liebevoll	love lieben	embrace umarmen	selfish egoistisch	need brauchen	occupy besitzergreifen

Note. The original German terms appear below the English translations which do not always reflect the nuances and value connotations of the stimulus terms.

Dependent measures

There were two sets of dependent variables. The first was designed to examine the possible operation of an unspecific halo effect. Thus on page 3 of the booklet the target person had to be judged with regard to *likeability*, *happiness*, and *cheerfulness*, using 100 mm graphical rating scales the end points of which were labelled extremely likable/extremely unlikable, extremely unhappy/extremely happy, and cheerful/serious, respectively. The specific priming effects were then measured on the final page of the booklet and consisted of the applicability judgments for the second set of terms (12 targets along with the 5 fillers).

Results

The applicability ratings for all 12 prime attributes and for all 12 targets were averaged separately within each individual judge. The resulting two sets of overall scores provided the input for several analyses of variance and planned contrasts. In the ANOVAS, we started from the assumption of only two factors, 6 transitions $\times$ 2 valence conditions. Although it might have been possible, technically, to conceive the six transitions as a crossing of 3 dyads $\times$ 2 directions (i.e., ADJ — IAV and IAV — ADJ, ADJ, SV and SV — ADJ, SV — IAV and IAV — SV), the direction of dyads factor would have been based on target rating scales from different word categories. We therefore considered all six transitions as different levels of the same factor and tested the central hypothesis of a top-down bias by planned comparisons (Rosenthal and Rosnow, 1983) of upward versus downward transitions. It should be noted in parentheses, however, that several alternative ANOVAS yield the same pattern of significant results as reported below, regardless of whether the direction of dyads factor is included, primes versus targets are considered as an additional repeated measures factor, prime ratings are partialled out as a covariate, or whether terms, instead of subjects, are treated as the unit of analysis.

First of all, it is essential to control for any differences in the baseline or 'pretest' measures. Fortunately, an ANOVA on the prime judgments revealed no difference in the basic applicability of the different linguistic categories. There was no sign of either a main effect for transitions, $F(5,108) = 0.72$, or a transitions $\times$ valence interaction, $F(5,108) = 0.40$, indicating that word classes were comparable in their basic applicability. The baseline means for ADJ, SV, and IAV, used as primes, are 4.16, 4.29, and 4.17, respectively. There was, indeed, a valence main effect, $F(1,108) = 7.90$, $p < 0.01$, reflecting somewhat higher baselines for negative ($m = 4.38$) than positive ($m = 4.03$) terms. However, this difference is neither surprising — because ADJ, SV, and IAV were only matched *within* valence conditions — nor does it interfere with a test of the central hypothesis.

Having established the comparability of the prime ratings for all six transitions, we now turn to the target ratings as the critical dependent measure of transfer effects. Substantial main effects were obtained for both the valence factor, $F(1,108) = 25.95$, $p < 0.001$, as well as the transitions factor, $F(5,108) = 3.68$, $p < 0.01$, but no interaction, $F(5,108) = 0.87$. As Table 4 shows, the transitions main effect is largely due to the higher ratings for targets in downward transitions than targets in upward transitions. In accordance with the top-down hypothesis, a planned contrast between the three downward transitions (ADJ, — IAV, ADJ, — SV, SV — IAV) and the three upward transitions (IAV — ADJ, SV — ADJ, IAV — SV) yields a highly significant $F(1,08) =$

12.53, $p < 0.001$. While the primes used in upward and downward transitions are not balanced (upward transitions involving more concrete primes than downward transitions), the same contrast computed on the prime ratings did not reveal any difference in the baseline values, as evident from a negligible $F(1,08) = 0.34$.

Considering the critical contrast separately for the two valence conditions, a significant downward-upward difference is obtained for both the positive targets, $F(1,54) = 8.32$, $p < 0.01$, as well as the negative targets, $F(1,54) = 4.51$, $p < 0.05$. The respective control contrasts on the prime ratings do not reveal any difference, $F(1,54) = 0.27$ for positive, and $F(1,54) = 0.12$ for negative primes.

The most direct test of the top-down hypothesis is possible with SV as targets, if one compares SV ratings preceded by more abstract primes (ADJ — SV) with ratings of the same targets preceded by more specific primes (IAV — SV). A planned contrast for these conditions results in a significant $F(1,08) = 5.29$, $p < 0.05$, indicating higher SV ratings after ADJ than after IAV ratings. All these findings clearly support the theoretical expectation of stronger transition effects from abstract to specific judgments than in the reverse direction. The evaluative tone of person judgments is more likely to be transferred to subsequent judgments, if preceding judgments are more abstract in the linguistic hierarchy.

We intentionally refrain from several other contrasts that might seem relevant at first glance but do not really provide a cogent test. Thus, contrasting primed and unprimed terms of the same categories (e.g., IAV prime ratings and IAV target ratings) would have seriously confounded the primed-unprimed factor with extraneous factors that prevent a comparison of pretest and posttest ratings. There is also no sound theoretical basis for comparing IAV or ADJ target ratings preceded by different primes in the same manner as we compared IAV — SV with ADJ — SV. Given target ratings at the most abstract (ADJ) or the most specific level (IAV), it is theoretically unclear whether adjacent pairs (e.g., SV — IAV) or distant pairs (ADJ — IAV) should give rise to more transfer. Both outcomes would appear reasonable.

Table 4. Mean Prime and Target Ratings obtained in Study 2 as a function of transitions and valence conditions

Prime Ratings	Downward				Upward			
	ADJ- IAV	SV- IAV	ADJ- SV	Mean	IAV- SV	SV- ADJ	IAV- ADJ	Mean
Positive	3.79	4.12	4.30	4.07	3.94	3.96	4.05	3.98
Negative	4.25	4.68	4.30	4.41	4.32	4.41	4.34	4.36
Mean	4.02	4.40	4.30	4.24	4.13	4.18	4.19	4.17
Target Ratings	Downward				Upward			
Positive	3.97	4.08	4.25	4.10	3.98	3.31	3.49	3.59
Negative	4.58	4.42	4.99	4.66	4.28	4.37	4.23	4.28
Mean	4.27	4.25	4.62	4.38	4.13	3.84	3.86	3.94
	Downward				Upward			
Primes Affirmed	4.86	4.70	5.04	4.87	4.66	4.47	4.09	4.41
Primes Denied	3.60	3.85	4.31	3.92	3.65	3.43	3.60	3.56

With respect to the valence main effect, it will be recalled that the prevailing tendency toward higher negative than positive ratings was already present in the prime judgments and is therefore partly due to the stimulus material itself. It should be acknowledged, however, that the initial negativity bias (mean overall difference $d = 0.35$) is further enhanced in the target judgments ($d = 0.63$), indicating a further accentuation of the difference between negative and positive ratings. When the initial bias is partialled out by subtracting the prime ratings from the target ratings, the residual negativity effect remains significant, $F(1,108) = 8.25, p < 0.01$.

The results so far show that person judgments with respect to a certain set of attributes depend on whether a preceding set of judgments involve a higher or lower level in the hierarchy of linguistic terms. Judging the target first on, say, negative ADJ had a stronger impact on subsequent judgments of negative SV (downward) than the impact that judging negative SV had on subsequent judgments of negative ADJ (upward), *regardless of* the result of prime judgments. Thus, pooling across cases in which the applicability of the primes to the person was affirmed or denied, the data reported thus far demonstrate the expected top-down bias. We now examine this effect more closely in terms of the distinction introduced earlier between *conditional and unconditional priming*.

Obviously, positive (negative) attributes should be affirmed to a greater extent if, in a prior task, positive (negative) attributes have also been affirmed rather than denied. It therefore seems clear to predict that the second ratings will be generally higher when the first ratings (which always concerned matched attributes of the same valence) were also high. The more interesting question, however, goes beyond this demonstration of consistency (i.e., conditional priming) but refers to unconditional priming: Would the top-down bias hold independently of the applicability of the primes and not be confined to the subset of those cases in which the primes were affirmed? If the asymmetry would be due to affirmed cases alone, its psychological consequences would be restricted by a principle of consistency. If, however, even the denial of abstract primes has an influence on subsequent judgments, a much stronger point could be made regarding the role of *language use* in person cognition.

For the statistical analysis, separate average scores were computed for targets following affirmed and denied prime attributes. This was accomplished by averaging target ratings (a) over all subjects who had responded affirmatively to the semantically related prime stimulus and (b) over all subjects who had denied the applicability of the prime or provided a neutral response. Affirmative responses were defined as ratings higher than or equal to 5 (on the seven-point scale) and denials/neutral responses as ratings lower than 5. A cut-off point slightly above the scale midpoint (i.e., a contrast between affirmative responses and both negative and neutral responses,) was considered appropriate because the notion of conditional priming only pertains to clearly affirmed primes. Note that this analysis has to rely on terms rather than subjects as the unit of analysis.

Including applicability as a repeated-measures factor besides transition and valence, an analysis of variance on these conditional scores yielded significant main effects for applicability, $F(1,132) = 155.35; p < 0.001$, transitions, $F(5,132) = 3.79; p < 0.01$, and valence, $F(1,22) = 18.77; p < 0.001$. (Despite the matching of terms, transitions between terms are unique and were therefore not considered a repeated-measures factor). The pertinent descriptive statistics are also given in Table 4. These findings replicate the already reported effects and strongly support the notion of *conditional*

priming, that is, enhanced judgments for the target when the association of the stimulus person and the corresponding prime has been affirmed. However, the top-down bias of central interest is obviously independent of the applicability of primes. While the absolute judgments increase with positive responses to the primes, of course, the *degree of asymmetry* in the direction of transfer is about the same for both affirmed and denied primes (see Table 4). Pooling over valence conditions, the critical downward-upward contrast is significant for affirmations, $F(1,132) = 4.06, p < 0.05$, as well as denials, $F(1,132) = 4.40, p < 0.05$.

This lends support to the stronger argument of unconditional priming beyond the weaker argument of conditional priming. The demonstrated top-down principle does not appear to reflect something like a commitment effect. Thus, it might have been possible that *affirming* ADJ attributes constituted a greater commitment for subsequent judgments than affirming IAV or SV. However, the present results preclude such an account. Obviously, the mere cognitive activation of abstract attributes, regardless of the judgmental response, appears to be sufficient for the top-down effect.

Finally, it should be noted that the global ratings of the target person's likeability, happiness, and cheerfulness did not reflect the evaluative tone of the preceding priming stimuli (all F 's < 1) suggesting that the transfer effects can hardly be attributed to an unspecific halo effect of the evaluative tone.

Discussion

This results of this experiment provide support for the prediction that transfer effects in person judgments follow a top-down tendency. Moreover, this demonstration does not rely on some intuitive assumption of "hidden cognitive categories" but can be tied down to clearly defined linguistic categories that can be assessed quite objectively. Thus the linguistic category model provides a suitable means of assessing the top-down bias and might be used in future research even to describe such effects quantitatively. In fact, the priming study was based on the same linguistic categories that were used to show the abstraction tendency in Study 1.

Thus, we have demonstrated opposing tendencies with reference to quite similar linguistic material. The theoretical account that we proposed to explain these opposing tendencies and to resolve the apparent contradiction has emphasized the different task characteristics involved in Studies 1 and 2. While the communication task of Study 1 encourages participants to take the validity of the information for granted (Grice's maxim of quality) and to convey it in a comprehensible and parsimonious fashion (maxim of quantity), the social judgment task of Study 2 induces a critical attitude and questions the validity of the information.

However, this distinctive feature may be confounded with other procedural differences between the tasks utilized in the two studies. The communication and judgment tasks may be too different to justify the conclusion that the reversal from abstraction to a top-down effect is due to the distinction of presupposed versus questioned information (Clark and Haviland, 1977). To bolster the interpretation advocated here, we can seek for evidence showing that (a) the top-down effect in social judgment disappears when the validity criterion is loosened and that (b) the abstraction tendency in communication is reversed when the validity of statements is challenged.

Quite a few references in the literature are relevant to these predictions. One pertinent class of evidence comes from Higgins' and his coworkers' research on speaker-listener differences (McCann and Higgins, 1984; Higgins, 1981; Higgins and Rholes, 1978). Speakers would normally emphasize interpretation over description in order to be understood by the listener and to appear relevant. The listener role, in comparison, stresses the need to pay attention to the details of the message to be tested against contextual references. Thus while the listener is forced to 'stick to the facts and details', speakers are expected to abstract, polarize, and distort the information more than recipients, as measurable in subsequent memory tests for details of the communication. However, when the task conditions are such that the validity of the information is questioned or challenged — e.g., when the speaker knows that the listener has different information — speakers will change their tactics and emphasize description over interpretation, thus providing more complete and detailed accounts (Higgins, McCann, and Fondacaro, 1982).

With respect to the influential distinction of actors and observers (Jones and Nisbett, 1972), there is a similar role asymmetry in that actors' self-related statements are guided by demands to provide accounts and justifications for their own behavior, while observers are expected to offer interpretations. From this look at the actor-observer issue, one would expect the actor role to be characterized by a more defensive and cautious attitude. Consistent with this conjuncture, Semin and Fiedler (1989) demonstrated a much greater use of concrete, specific terms (IAV, DAV) by actors describing their own behavior than by observers.

Thus, the abstraction tendency in communication seems to be moderated by the degree to which information is taken for granted. Conversely, there are limiting conditions to the top-down effect in social judgment that can be understood in the same vein. For instance, a recent article by Hampson, John, and Goldberg (1986) is concerned with the asymmetry of inferences within hierarchies of trait adjectives. Using hedges (Lakoff, 1972) such as 'To be witty is a way of being intelligent', they find that inferences from more specific traits (e.g., witty) to broader, more inclusive traits (e.g., intelligent) are more likely than inferences in the reverse direction (i.e. 'To be intelligent is a way of being witty'). Again we would point out that these findings do not contradict the present results. Hampson *et al.* refer to the direction in which hedges appear more 'meaningful'; thus, the criterial question refers to semantic *meaningfulness* rather than confidence in the validity of the statement. Of course, being witty is one semantic aspect of being intelligent; hedges are communicative tools for conveying the meaning of concepts after all. If, however, task characteristics were changed and the emphasis were placed on valid inferences, we would hardly expect many people to infer that P is intelligent, given P is witty. On the other hand, the present results suggest that top-down inferences should be confined to semantically matched attributes. Thus, 'intelligent' may imply 'logical' or, say, 'talkative' but not 'witty' which bears only a mediate semantic relation to intelligence.

We shall not content ourselves with such *post-hoc* accounts of findings in the literature but report a third experiment which affords a direct test of how the abstraction tendency depends on task factors. The experimental treatment utilized for this purpose is called *challenging*. When the interpretations involved in the free descriptions of other people are challenged (by asking for references or justifying evidence), the demands of the communication task are displaced from taking information for granted to an accounting task. As a consequence, the level of language

used in response to the challenge should be characterized by a marked decrease in abstractness.

STUDY 3: CHALLENGING

Let us assume that any communicated statement about P is drawn from a *background repertoire* including propositions at different levels such as episodic memories for concrete events (behaviors in specific contexts), more abstract propositions about states and behavioral tendencies; and general 'theories' about P. If a communicated statement (e.g., 'P is dishonest') is challenged, by asking unexpected questions such as 'Why do you say that P is dishonest?' or 'What do you mean by this statement?', a search for justificatory references in the background repertoire should be started to account for the original information. The response will be some alternative statement from the background. Two types of accounts should be distinguished, a *deductive* and an *inductive* one. A deductive account (e.g., 'It is true to say that P *lied* because I know very well that he is a *dishonest* person') involves more abstract propositions than the statement to be explained (i.e., a transfer from IAV to ADJ). In contrast an inductive explanation is characterized by propositions that are less abstract than the statement (e.g., 'I tell you P is dishonest because I have observed him *deceive* his friend by not telling the truth'; ADJ-IAV transfer). The hypothesized decrease in abstractness after challenging should be reflected in the preponderance of inductive over deductive accounts.

Method

Participants

Twenty-nine male and female psychology students at the University of Giessen took part in an experiment announced as an investigation on the structure of knowledge about people. They were paid DM 5 for the session which lasted approximately 45 minutes.

Design

The experimental task consisted of describing a familiar person by simple sentences which had to include the more appropriate member of an antonymous word-pair (i.e., the word which is better applicable to the target person). Three different kinds of word-pairs were used as stimuli, 6 ADJs (e.g., respectful — disrespectful), 6 SVs (e.g., admire — hold in contempt), and 6 IAVs (e.g., help — hinder), resulting in a total of 18 stimulus pairs or sentences to be constructed. Orthogonal to this manipulation of the original sentences, a second factor concerned the challenging operation. Half of the 18 sentences produced by each participant (3 from each word condition) were challenged in a second phase of the experiment by requesting an explanation or justification of the sentence. The other half of the sentences remained unchallenged. This also allowed to examine whether the challenging treatment affects the subjective confidence in the original sentences. Subjective confidence was assessed in the third and final phase of the experiment.

Two additional control factors were systematically varied between subjects, namely: (a) two different samples of 18 word-pairs were used to increase the generalizability of the results; and (b) two subsets of sentences were designated as those to be challenged. These factors, however, were merely introduced to warrant generalizability and in fact did not affect the results (cf. Results section). Each consecutive block of four participants, corresponding to the four combinations of these two factors, received the pairs in a different random order with the only constraint that three pairs of each kind (ADJ, SV, IAV) would be presented in the odd and the even positions.

Procedure

All participants appeared individually and were seated in front of a personal computer. The interactive session began with the presentation of the instructions on the screen. Participants were asked to think of a person they knew well. They were informed that the identity of the target person did not need to be disclosed so that confidentiality would not present a problem. The instructions emphasized that they were completely free to formulate the sentences in their own words but that simple sentences were permissible. The only restriction was to built in the sentence, as a predicate, one member of a stimulus word pair. If the participants felt that none of the words was applicable to the target, then they could express this by using appropriate qualifications.

Each of the 18 dialogue cycles involved the presentation of one stimulus pair along with the request to integrate one of the two stimulus words in a sentence and to type the sentence using the keyboard. Participants worked at their own pace with no time limits. The two members of each stimulus pair always differed in valence such that one word was evaluatively positive (e.g., admire) while the other member was evaluatively negative (e.g. despise) and of approximately opposite meaning. The 72 stimulus words (two sets of 18 pairs) are described in more detail along with Study 2 (Table 3).

Before the challenging phase participants received a brief instruction informing them that some of the sentences they had constructed would now appear on the screen again and that they would be asked to provide more information for these statements. Nine of the 18 sentences (either the odd or the even numbers) were challenged by displaying the appropriate statement and presenting the participants with the following question: 'What do you mean when you say that this sentence applies to the person?'. Apart from suggesting that the appropriate response to the challenge would again be a further sentence, no constraints were imposed on the contents or on the format of the participants' accounts.

In the final part of the session, participants' subjective confidence was assessed by presenting all 18 original statements (one at a time) on the screen and asking the participants to rate the degree of confidence in the truth of the statements on a five-point numerical scale ranging from 1 (minimal confidence) to 5 (maximal confidence).

Results and Discussion

The original statements as well as the accounts produced after challenging were coded for their *valence* as well as *linguistic level* of the sentence predicate (ADJ, SV, or IAV).

While it was not always possible to classify a sentence as clearly positive or negative, it was remarkably easy to code the sentences for linguistic level because a basic set of most familiar terms were repeated frequently. Nominalizations of adjectives ('his gratefulness') and verbs ('his desire') were treated as equivalent to genuine adjectives and verbs and nominal phrases with adjectival function ('he is an hermit') were treated as adjectives. Less than one percent of all sentences were not classifiable; two independent coders agreed in the classification of 95% of the sentence predicates as ADJ, SV, or IAV. Purely descriptive statements (DAV) were excluded from the analysis because they were virtually absent; a few exceptions were treated as IAV. In the case of complex sentences including several propositions, the coding decision was based on the main clause.

A transfer matrix was computed for each participant by counting the number of statements originally formulated in the ADJ, SV, or IAV type which were then explained after the challenge in the form of ADJ, SV, or IAV sentences. The pooled transfer matrix obtained from averaging over all 29 individuals is shown in Table 5. Note that the off-diagonal cases in the upper right triangle represent inductive accounts in which the original sentence is more abstract than the justificatory statement utilized after challenging. The off-diagonal entries in the lower left triangle pertain to deductive explanations that resort to more abstract statements to account for relatively specific sentences.

Ignoring the diagonal entries, which reflect a tendency to give (quasi-synonymous or circular) accounts at the same level as the original sentences, Table 5 displays the expected asymmetry. On the average, 3.21 out of the 9 accounts produced by each individual are inductive (above diagonal) as contrasted with 1.48 deductive accounts, suggesting that free person descriptions actually tend to be abstract relative to the background repertoire. Moreover, the asymmetry is more pronounced for the transfer between the most distant levels in the linguistic hierarchy, ADJ to IAV (1.34 *vs.* 0.24), than for the transfer between adjacent levels, ADJ to SV (1.10 *vs.* 0.69) and SV to IAV (0.76 *vs.* 0.55).

For a statistical test of these differences, a 2(inductive *vs.* deductive) $\times$ 3 (ADJ-SV *vs.* ADJ-IAV *vs.* SV-IAV) within-subjects analysis of variance was performed on each participant's transfer frequencies in different directions and between different pairs of linguistic categories. The main effect for the first factor which reflects the preponderance of inductive explanations is highly significant, $F(1,28) = 34.59$; $p < 0.001$. Moreover, the increasing asymmetry with increasing distance in the linguistic

Table 5. Pooled Transfer Matrix relating the linguistic levels of statements and accounts after challenging (Study 3). Entries represent the mean numbers of transfers per participant

		Level of explanation			Unchallenged statements
		ADJ	SV	IAV	
Level of original statement	ADJ	0.89	1.10	1.34	3.29
	SV	0.69	1.14	0.76	2.72
	IAV	0.24	0.55	1.90	2.93

Note. Since the diagonal values of the transfer matrix were excluded from the data analysis, the loss of one degree of freedom in each row of the matrix does not affect the 2 $\times$ 3 data points per subject.

hierarchy is also manifested in a significant direction $\times$ category pair interaction, $F(2,56) = 3.47$; $p < 0.05$ (see note below Table 5).

An inspection of the individual transfer matrices reveals a remarkably consensual preference for inductive accounts across individuals. For 19 of the 28 participants, the asymmetry is in the expected direction and for only one subject there is a slight reversal (leaving 8 symmetric matrices). This underlines the generality of the hypothesized tendency and is consistent with the conventional character of communication rules.

Parenthetically, an analysis of those few incidents in which participants did not construct the sentence at the experimentally prescribed level also reveals a tendency towards communicating at an abstract level. In particular, there was a tendency to use more adjectives when in fact verbs were given as stimuli. On average, participants produced 6.62 ADJ sentences, 5.31 SV sentences and 5.62 IAV sentences indicating that 'illegitimate' transfers from SV to ADJ are most likely. ADJ sentences were significantly more frequent than SV ($t = 2.83$; $p < 0.01$) and IAV sentences ($t = 2.21$; $p < 0.05$) while the latter two did not differ significantly ($t = -1.39$).

The diagonal entries in the transfer matrix provide an index of how likely the three language levels are to be conserved after challenging. Considered from this perspective, the greater downward than upward transfer is reflected in the complementary fact that conservation increases with *decreasing* degree of abstractness. The average number of conservations per subject is 1.90 for IAV, 1.14 for SV, and 0.86 for ADJ. Although this comparison of diagonal entries is not independent from, but complementary to, the preceding analysis, the conservation measure helps to clarify the phenomenon from an alternative perspective.

Finally, the subjective confidence ratings for the challenged and unchallenged statements were averaged within each participant and compared. There is clearly no reduction in subjective confidence as a consequence of challenging ($m = 4.22$ as compared to 4.27 for unchallenged statements), $F < 1$. However, there is also no increase of confidence as a function of defensive attempts to justify one's claims. Perhaps the generally high level of confidence (above 4 on a five-point scale) prevented a possible difference on this measure.

As expected, the abstractness, of person descriptions appears to depend on the demands of the experimental task (using information uncritically versus providing accounts). This finding is obtained regularly and consensually, even on the level of individual subjects. The predominance of inductive over deductive accounts is greatest when statements and accounts are separated by more than one step of linguistic abstraction (i.e., for ADJ-IAV). Thus the degree of the reported tendency follows the proposed linguistic hierarchy.

GENERAL DISCUSSION

Taken together, the three studies reported here demonstrate systematic variations in the level of language use under differing task conditions. These variations in the level of abstractness of person descriptions — ranging from trait-attributes to completely descriptive terms — are an interesting psychological topic in their own right. Possible implications and applications in the fields of diagnosis, justice, personnel decisions, and social relations suggest themselves, and the relation to such phenomena as the

speaker-listener difference or the actor-observer discrepancy have already been alluded to. Moreover, the present authors have pointed out several other cognitive and social implications of person descriptions at different levels of abstraction, as measured by the linguistic category model. More abstract person descriptions have been shown to be less sensitive to context information and more determined by semantic restrictions (Semin and Greenslade, 1985). More abstract linguistic categories can be expected to convey more informative and enduring person attributes, to be less verifiable and to give rise to more disagreement and debates (Semin and Fiedler, 1988). Certain linguistic categories (particularly, SV and IAV) also elicit different causal attributions and inferences concerning antecedent and consequent events (Brown and Fish; 1983; Fiedler and Semin, 1988a). This general picture emerging from cumulating evidence based on the linguistic category model highlights the need to further investigate the role of language in social cognition. As pointed out in the outset, language and communication present a crucial ecology of our social cognitive being, and many structures and processes that have been traditionally described intrapersonally, may ultimately turn out to be pre-determined in the rules and constraints of language.

In the present series of studies, the dynamic aspect of task-related *variations* in abstractness was emphasized, in particular, the *reification* of social information that may result from the successive application of the abstraction tendency in free communication and a subsequent top-down influence in social judgment formation. This process may serve a reification function because top-down inferences from abstract person attributes (especially ADJ) to the expectation and perception of specific behaviors typically conserve the evaluative tone of the person impression and, most importantly, exert their influence in an *unconditional* fashion. The notion of unconditional priming was used to refer to the fact that top-down influences from abstract to specific person attributes prevailed regardless of whether the applicability of the abstract attribute was affirmed or not. Thus the mere cognitive act of thinking about a person in terms of certain traits or representing that person in the dimensional space created by these traits may affect the subsequent impression of the person—even when the traits are not judged to be particularly pertinent to this person.

This finding is reminiscent of constructive memory phenomena as, for instance, the often-cited studies by Loftus (1979) on eyewitness testimony. Having watched a traffic accident, for instance, eyewitnesses erroneously remember a stop sign when a stop sign was mentioned in a question to be answered after the observation but before the memory test. Apparently, human memory confuses facts and hypothetical information induced by suggestive questions or judgment tasks. On the other hand, unconditional priming effects are also consistent with Anderson's (1983) notion of unconditional *production* in procedural as opposed to declarative memory in the ACT model.

Several specific aspects of the reification cycle deserve to be mentioned. First, a quantitative analysis of the obtained results suggests that one particular transition in the hierarchy of linguistic terms may be most important, namely, the transition between ADJ and all types of verbs. If a dominant role of ADJ in mediating priming effects can be replicated and substantiated in future research, this would hardly be surprising in view of the prominent position of ADJ within implicit personality theories.

Secondly, transfer effects were more pronounced for negative than positive attributes suggesting that social inferences especially serve to affirm and reinforce

negative attributions and communications. This potentially important finding may be plausibly ascribed to the greater weight and more 'exceptional' character of negative attributes. Thus imagining the target person in the context of undesirable behavior might activate more uncommon information than imagining the person in desirable scenes (cf. Jones and Davis, 1965; Kanouse and Hansen, 1972). In any case, it seems worthwhile further pursuing the possibility that negative attributes may cause stronger biases than positive attributes.

Finally, a word of comment is in order about the evaluative constraints imposed on person descriptions for evaluative consistency serves to reinforce the reification effect. Counting the number of positive and negative statements in Study 3, for instance, a ratio at least as extreme as 1:2 or 2:1 is obtained for 21 of the 28 participants. This evaluative one-sidedness of person descriptions is not reduced after challenging, although the language use changes toward specific behavior descriptions. It is highly unlikely that such a degree of evaluative consistency would have been obtained in real-life observations of the same target persons, assuming that not only highly extreme target persons were chosen for descriptions.

From a social psychological perspective, the reification cycle may be especially relevant to the formation and maintenance of social stereotypes. Although the present research is not actually designed to model the process of stereotyping, it is obvious that such a language-based reification process *can* in principle contribute to stereotypes about groups and social roles. This would lead to the provocative assumption that the roots of social stereotypes are built into the system of communication rules and the cognitive implications of specific linguistic categories (see also Rothbarth and Park, 1986). One central implication of this genuinely social approach to social cognition refers to the difference of second-hand and first-hand information. Knowledge about minorities or public personalities is seldom based on personal experience but mediated by literature, mass media, or personal communications. Social stereotypes may in part be understood as a reflection of the normal communication rules imposed on the transformations of underlying second-hand information.

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RÉSUMÉ

La présente recherche examine les liens entre la cognition sociale et le recours au langage interpersonnel. Basée sur un modèle de catégories linguistiques proposé par Semin et Fiedler (1988), elle démontre que, suivant les conditions, les locuteurs décrivent le comportement d'autrui en termes spécifiques et concrets (verbes d'actions interprétatifs ou descriptifs) ou en termes abstraits et dispositionnels (verbes d'états, adjectifs). Un processus en deux étapes est proposé par lequel les variations d'abstraction dans le langage peuvent mener à la réification de l'information sociale: dans un premier temps, les règles de communication efficiente et coopérative encourage l'emploi d'affirmations abstraites au sujet d'autrui. Une fois l'information sociale représentée à un niveau abstrait, un biais "top-down" va, dans un second temps, influencer l'interprétation et les jugements de comportements spécifiques subséquents de telle façon que les affirmations abstraites se voient réifiées ou confirmées. Bien que cette tendance à l'abstraction soit attendue dans la communication spontanée où l'information n'est pas remise en question, le biais opposé devrait se manifester dans des tâches de jugement social pour lesquelles la validité ou la véracité des affirmations peut être mise en doute. L'étude 1 démontre l'existence de la tendance à l'abstraction dans un jeu de communications en séries où il s'agit de répéter des descriptions de personnes. L'étude 2 fait appel à une technique de priming afin d'examiner le biais top-down dans le jugement social: l'impact des jugements antérieurs d'attributs abstraits sur les jugements antérieurs d'attributs concrets sur les jugements ultérieurs d'attributs spécifiques est plus important que le renversement dans la direction opposée. De plus, ce biais top-down est indépendant du niveau d'applicabilité de l'attribut utilisé dans le priming. L'étude 3 conforte la thèse que le langage abstrait est dû à des conditions de non-remise en question, montrant un renversement du langage abstrait en langage concret dans la communication spontanée pour peu que la validité des affirmations soit mise en doute.

ZUSAMMENFASSUNG

Die vorliegende Arbeit befaßt sich mit der Schnittstelle von Sozialer Kognition und Sprache im interpersonalen Kontext. Auf der Grundlage eines von Semin und Fiedler (1988) vorgeschlagenen Linguistischen Kategorien-Modells wird gezeigt, daß Sprachbenutzer unter verschiedenen Bedingungen dazu neigen, das Verhalten anderer Leute entweder mit konkreten, spezifischen Ausdrücken (Deskriptive oder Interpretative Handlungsverben) oder aber mit abstrakten, dispositionalen Ausdrücken (Zustandsverben oder Adjektive) zu beschreiben. Ein Zwei-Stufen-Modell wird vorgeschlagen, wonach diese Variation in der Abstraktheit des Sprachgebrauchs zur Reifikation von sozialer Information führen kann: In der ersten Stufe fördern die Regeln kooperativer und effektiver Kommunikation den Gebrauch von abstrakten Aussagen über andere Menschen. Nachdem soziale Information einmal auf abstrakter Stufe